

### ***Interview with senior manager #7***

- SPEAKER1 00:02 OK, so there are four parts to the interview. One is just a bit of a general background about the type of sector in the firm that you work for. The second part is about emerging conduct risks and their implications for human accountability and how firms might be preparing for that. The concept and idea of possible machine to machine regulation. But there's a lot of questions involved in that which will make sense when we get to that and then initiatives across sector, maybe initiatives involving regulations to try and bring people together to address some of the potential issues. So just starting from the first bunch...What type of firm do you work for?
- SPEAKER2 00:59 So, I am in a specialist metals trading firm, that includes market making, not just broking, but specialist in non-ferrous metals.
- SPEAKER1 01:14 And how would you describe the firm's goals? What is it trying to achieve?
- SPEAKER2 01:20 And so, it's to assist our customers in hedging against the risks that their businesses have to the fluctuation in metal prices, essentially.
- SPEAKER1 01:35 And how would you describe your role in the firm?
- SPEAKER2 01:38 So, my role is to oversee a number of departments. And so let me just mute something that's going on in the background here...So my role in the company, so I've been with the company for a long time and my background when I joined the company was technology. So, I helped steer the company through a number of, well, I suppose, technology roadmap that we've been through since I joined many, many years ago. About four and a half years or so ago, I was asked to take on the role of the very senior role in the company, which has a number of departments and reporting into to me. The idea of being put into this position was to help bring technology together with the business really forward focused and how we can help or how we can use technology to help the company become more effective and efficient as we go forward in this ever-changing world of technology. So, to kind of give you a feel for the kinds of departments that report into me, its front office departments. So, this includes our sales team, the trading departments, which include options, averaging and FX. We've got a number of base metals, specific dealers and the clerks or the supporting team. We have a specialist warrant desk, as well as precious metals in the sort of structured finance area. We've got a structured finance department as well to report reporting to me as well as marketing and then more sort of middle office of operations and of course, technology and I.T. Security. So, they report into me, and it helps kind of make decisions, I suppose, rather than get too caught up in maybe it's an internal politics where you've got senior people from some conflicting departments trying to agree on something. The fact that all of those departments reporting to me kind of helps keep us all on track with what I'm trying to achieve.

SPEAKER1 04:30 OK, great. And in terms of thinking about algorithms. Now, in the end, regulators set out effectively three categories of algorithms. So, the first category was basic order routers, and that category doesn't attract any significant regulatory obligation. So, you know, if somebody wants to cut up an order and send it to multiple venues in order to help them do that. The second category that they identified was something called execution enhancement. So, this is these are tools which, you know, either they're typically embedded in a vendor platform or a house-built platform, really from very basic things like stop loss orders all the way through to things like auto spreaders and stuff like that, and then at the top of the tree. So, I mean, those execution tools, they are regulated algorithms at the top of the tree. You've got the real sort of Blackbox stuff. So, you know, colocation high speed access. Little autonomous sort of machine, deep learning type stuff, all that type of stuff, has your firm ever deployed any of those categories?

SPEAKER2 06:01 OK, so maybe if I can just answer that by explaining what we've had in place from customers and kind of where we are now and then, maybe we can tap into those three areas, so... Maybe eight or so years ago, seven, eight years ago, maybe a bit more, we offered customers direct market access. So, the metal space in which we operate is only in one particular market that we specialize in, although we do also have access to another market now. We used an ISV to offer those customers direct market access onto that electronic market that we were participants in. So, for that, there was only the one market, the order wasn't getting routed elsewhere, it wasn't getting routed to us, it was just simple, direct market access directly onto that market. Anything that happened on the market, customer, you know, standard practice. So, if the customer submits an order, they submit that as our company. And of course, we then we will guarantee that order on behalf of our customer. But in effect, what happens is that we've got a customer trade with us, and we have a trade with another broker in the market, which then gets novated to the clearing house of the market. So as far as order routing is concerned or enhanced execution or deep learning, there was nothing really there for that. As I see it. Maybe this is something you could steer me on, Alex, but just very vanilla, simple straight access to the market.

SPEAKER1 08:00 So, the platform that you did offer, it didn't offer the clients any form of sort of like stop loss functionality or anything like that or maybe that, you know, there's a sort of limit order?

SPEAKER2 08:15 They did. So, there was certainly some native order types that were offered by the exchange, which was offered across the platform. But there was also some synthetic order types agreed. So those synthetic order types could have been an iceberg. For example, stop losses, as you've just said. So, with that, we had a number of years back, so we had a number of controls in place around that. However, we did move away from that. From that model of

what we offer to the customers, I can go into why if you want to, would you want to focus a little bit more on...?

SPEAKER1 09:03 Yeah. I mean, first, it's very interesting to understand why you've made that move because obviously there's a lot of firms in the market that offer sort of ISV access for something like CQG or PATS or an in-house solution. So, what was it that sort of led you to think well, actually, there may be a different way of doing this?

SPEAKER2 09:26 So, the company philosophy is not about race to the bottom. That's not the kind of space that we're in, in the kind of the FCM space where it's all about volume, low margin. And in fact, one part of the company in the US was involved in this area many years back, which is something that, you know, you get one error there that would just wipe out a week's worth of commission. So, it was an area that there wasn't much to try to earn out of it for the amount of work and the effort that goes into it. So, we recently pulled out of that space and we in the US many years back now. But with this offering that we had with the DMA for customers in this particular market, what we were seeing was so often customers coming to us and saying, well, I can get the same service from this broker over here or this member over there. And the kind of facilities that we offer our customers, it's not just about pure execution, we offer a number of other services. We are also because of the support that we have as a company with through our shareholder, we are able to offer some sizable credit lines to customers. So rather than being a modest sized member in the market, which is where many of the other brokers are in this particular space, and there are also a number of banks in this space. Now, you have a lot of limitations with a bank where it's one small element of a very big engine that you trying to work with. Now, what our company offers is that quite bespoke specialist knowledge of the market. Now, if you find a member or a broker in the market that can offer that, that's great. And if they can also offer you a sizable credit lines, maybe not touching on the banks, but somewhere certainly in this niche space in between the larger banks and the modest maybe size brokers in that same market space. And that's really where we saw ourselves and see ourselves today. Even so, we were offering more, and we didn't see ourselves in the same space as many of the other smaller brokers that were just simply trying to offer the same service for just trying to win the business at whatever cost. And more often than not, that was just trying to cut commission to customers. And so, I was just going to say, so what we decided to do then was to actually step back from offering this service. And if customers want that service, there's many other brokers around the market that can offer that service to you. Please go and use it. What we... at the same time of this and we didn't just do this blindly and then suddenly come up with another plan, but while all this was going on, we were seeing around the front desk that more and more screens were appearing. Now, they weren't price screens. These were screens for instant messenger, the customers that were maybe the younger style,

younger type of customer or younger customers coming through and that were happier and more comfortable with using instant messaging for placing orders or for having a bit of a chat each day, whereas previously the more traditional or, as we say, mature contact and our customers that we'd be talking with would literally be wanting to talk on the phone every day, wanting to hear about what's going on in the market and, you know, going back further, maybe more traditionally for that networking. It's about lunches, it's about meeting and about talking. Well, what we were seeing and this wasn't just over one year, over a number of years, we were seeing more and more these screens appearing on the desk where these younger contacts from our customers were then, you know, starting out there as they were junior within the company and then slowly working up to maybe over a period of about four or five years or so. We were seeing more screens appearing on chat. Now, the challenge with that is that there's no structure to it. So, a customer can put something in the chat that they've placed an order with you. And it's very clear in their mind what that order is. But when you look at that chat, it may be anything but clear to the person it's receiving that within the company. So, what we what we saw was that although these screens were multiplying around the office to have dedicated chat with customers, that they were beginning to see an introduction in the in areas where there was a misunderstanding. At the same time, we are offering this DMA platform, and it was a race to the bottom for commissions, so what we decided to do was to say, look, we're going to switch off when we've got something to get started with as an alternative offering. We we're going to switch off DMA. We're going to pull back from that part in the market. And as I said earlier, the message to customers then is, you know, if you want this service, please go and use all these other brokers that can offer you that service. But what we then decided we were going to do was try to replace these chats. So, to replace the chat is quite a challenge because the chat one thing it's very simple to use, it's you know, you can be very simple to just short code. And what you tap into a chat, of course, it's very simple to use. So, they were two things that we had to introduce into any platform that was going to attempt at least to try and prise the fingers away from these chat rooms onto using this new platform. Now, the majority of the business that we were seeing was relating to pricing now rather than, you know.... but fair portion of the business is something called a limit order where a customer wants to buy or sell at a specific price. But for this kind of initial phase, the focus was really on that telephone call or that chat session where a customer would call to say, I want to buy X amount of metal on this date, please give me a price. So that was the area we focused on. We try to keep that the scope of the set. If the initial phase of the development very tight had to be simple and it had to be quick. These things had to take those boxes if it was going to have any success at all. So that's really where it started. We developed a RFQ type platform. We think that we've got a slightly different twist on it than your traditional RFQ platform, which means that the dealers

are far more efficient rather than one dealer being tied up for every single quote that comes their way. So, we implemented that. We listen to customers once we started to push it out to them. We absolutely did not say to them, you have to use this. What we said was very, very happy to have a conversation with you and take calls from you. And if you want to continue using the chat, then great. That's fine. However, we do have this platform. We think it's very simple and quick and easy to use. It's obviously very secure. Any technology solution has to be secure. So, the way that the information is encrypted using the platform and there's a multi factor authentication before you can even get into it. So, we were very clear with customers. We didn't put any pressure on them. And we really looking into some kind of a natural move to use the platform. But what we did encourage customers to do, though, was to if you want to talk about market, please pick up the phone, use the chat, have a chat with our specialist team that we have. If, however, you want to book, you want to get a price, you want to book a trade, please use this platform. It's very simple to use but very, very welcome to take any calls and talk about markets. So that way our sales team, do I have to say, were nervous at first. And I have that has passed now. But initially, you know, we were looking to use them to help promote this this new system. And they were very nervous thinking. And one of the questions I remember in one of the meetings that we had was, "oh, surely this is going to replace me, isn't it?" And the answer I gave to that was quite straightforward, which is, "well, if you consider your role to be someone who just simply takes a request from a customer, gets a price from a dealer and realized it back to them, then yes, that is going to be the end of that. Well, however, if you see yourself as a specialist in the market who understands what's going on in the market and you see your value at the company is being able to network with your customers and to be able to provide that information to them then now, because this platform is not going to be replacing that." So, I went on a bit there. Sorry.

- SPEAKER1 19:17 No, it's very interesting because, you know, certainly I've seen other firms create RFQ platforms, but they tend to do that in addition to having access solutions which offer the clients a direct API. Yeah, yeah. And so, I was wondering, I mean, so it seems like costs and errors were a motivating factor, possibly also, but also efficiency. Were there any cast your mind back to when you had the DMA selection? Were there any times where you'd had incidents where maybe the customer had used one of the execution enhancements or was maybe an iceberg or, you know, a limit order or something which had malfunctioned and led to a sort of big loss event? And if so, what was the desire to sort of eliminate those types of situations? Also, a factor in deciding to set this up?
- SPEAKER2 20:25 Yeah, okay. So, if I can just reflect a little or give a bit more background on the types of customers that we that we trade with, that very much physical customers we refer to as kind of metal touching customers, not so much

trading houses. So, the reason I'm saying that is I'm just trying to kind of find that the types of business that we would get from customers. So, they weren't necessarily looking to and we'd have some customers that were trading houses, but the majority, by far the majority of our metal touching customers. So, their requirements weren't so sophisticated. They know that they're buying or selling metal and they need to hedge that metal and they want to execute that business. That said and coming back to your question and for my mind, there's no real big instance that jumps out to me or any incidents really that jump out to me. What does, though, is the occasion where there would be a disconnect between the ISV and the customer and or the ISV and the exchange and the customer would see status against their working order of unknown. Now, that would then involve us talking directly to the market. So, we would call the exchange to find out what's happening with that order. We could log on to the markets and a platform directly. So, bypass the ISV altogether and then we could either pull the order on behalf of the customer or just continue to watch it on their behalf. But if there were any issues around that, whether the market, the order had somehow been pulled from the market and it wasn't visible because, of course, all of our customer orders that working on the market we can see. And if we couldn't see it and we could see that the order was pulled off for some reason, then we would have to liaise with the customer to get to that point. There was an awful lot of process that we had to have in place with all of our offices because we work around the clock for 20 hours of the day. We say working round the clock. So at any of that, any times during that period, a customer has an issue because of a technology type problem, whether it be originating from the exchange with the ISV, the ISV, with the exchange, or with the ISV themselves, which impacted customers as well as our traders as well were using the system then there was a lot of work that went into that and operational follow up that is needed to see through and hopefully resolve the customer's order in the field that they were looking for but nothing stands out, Alex. No big areas stand out for me during that time and certainly wasn't a reason why we moved away from using it.

SPEAKER1 23:40 OK, so you're not deploying any algorithmic functionality yourselves. What is your perception of and what is your understanding of the term conduct risk? I

SPEAKER2 24:05 I suppose this kind of goes back to something that I learned or understood from some training that had many years ago, and it's kind of stuck with me and it's so coming back to your question about conduct. I think if something I'm saying it's very basic, if there's something I was going to do, would I be happy with somebody with that name for that act that I've just done or doing, would I be happy for that to be publicly known? Would I feel comfortable with this appearing in the press, for example, about me, or would I be happy to tell close friends or family about this act what I've done? So those are kind of things for real basic life and getting into any regulatory wording on this topic. But those are the sort of basic questions I always ask myself around

anything that I'm doing. And it's something I've brought up in meetings when trying to help maybe some front office staff understand what it is when they're coming out of a contract compliance training or update meeting. I'm not sure if I've answered your question.

- SPEAKER1 25:31 No, no, that's good. Yeah, in terms of specific to the market, because obviously when the 2008 crisis happened and the fallout from that and some of the subsequent scandals that were uncovered on or around that time, obviously that prompted a lot of reflection in the regulatory world. And that sort of was the catalyst for, the FSA, as it was then becoming FCA, no longer the Financial Services Authority and how the Financial Conduct Authority shift in focus. We need to not see ourselves so much as a service to the industry, but actually as a guardian force for consumers and markets. And then obviously that set-in chain a number of other things. And one of those things was the Senior Management and Certification Regime, which I would imagine you guys have also been grappling with in recent times.
- SPEAKER2 26:29 Yes, we will move certified, I'm pleased to say, all certified.
- SPEAKER1 26:35 And so, the thing is, is that regime is a very human regime. It still envisages humans being in control, humans having reasonable knowledge of what's going on so they can make informed decisions and so on and so forth. However, arguably, and not in that 10 years since we had the crisis, 10, 12 years, obviously, that things are starting to change, that say technology is becoming more and more sophisticated and there's a lot more self-learning and automated kit, which potentially could become remote from the developer and may not be that well understood by clients or by senior management or whatever. Yeah. And so, there's a dynamic there which may already call into question some of the aspects of SMCR and the focus on the human. What, if any, is your perception of what the conduct risks are associated with algorithmic trading, I appreciate that you guys are not in that space in the metals market yourselves, but as a user of that market, you know, there's a lot of stuff going on at the moment. The LME consultation paper, the response just come out and it looks like the Ring is on borrowed time even more now, even though they haven't closed it. Do you get people coming to you in the firm saying, I went to execute a quote, it disappeared or look at the way this price is, the volatility here, this is all algos and whatnot? And you get that kind of sentiment or is that not something which you really hear too much of?
- SPEAKER2 28:30 No, no, so I do hear this and I do hear that if a customer is one of the traders said the way that we trade on the market is directly with the platform offered by the market. So, as I said earlier, we don't use an ISV for that. So, what they will do if they want to put a bid or an offer in the market, they'll do that. But they know if they're the best bid offer in the market that whether it be 25 cents or 50 cents, depending on the dollar, depending on the contract, that there will be a one bid offer appear just better than where they went into the

market. And they know that. And if they know that, they know that if they pull their order, that better bid offer will then disappear. So they know that as algorithmic traders out there that are watching the market and are looking to take advantage of what the real market is doing by just trying to get ahead of those participants, so something that happened off the back of MiFIR, I believe, is something called a discretionary order that was offered on the market by the exchange. Now, that was switched off recently. Now, first of all, the reason why that was used by the dealers so much and maybe lead in to why it was pulled from the market was because of lack of transparency. But what allowed them to do is to put the bid offer in the market, but also to put their discretion. So, if the bid or the offer moved in or moved away from where they were, it would allow them still some discretion on that to be filled without the rest of the market seeing it. This would happen in the matching engine within this native discretionary order type. Now the LME, so the exchange pulled that order because there was no transparency. There was an order that could potentially be filled in the market. But the rest of the market wouldn't see that the price that that order was filled at. That makes any sense. Yes, that's something that now I've now got I had earlier this year when this happened and even when it was announced that it was going to be pulled, I had dealers coming to me saying, well, this is not great. This just puts us in more hands of the algos, because now we've got no way of still getting a feel if there's a bit of movement that everything's going to be in the market, the algos are going to see that and they'll just be jumping ahead of us. So that's something that we are looking at. And it is actually something we are looking at the moment and looking at a partner ISV that could offer this discretion to be able to type, although of course, it wouldn't be native, it would be a synthetic or the discretionary autosite, which would mean that the orders are still visible to the market, if only for a split second, that they wouldn't be matched in the matching engine behind the scenes as the native order was working. So, to answer your question, yes, we are seeing that, we have seen that for many years, being a very physical market. We are a bit disappointed that the exchange hasn't supported the real market as we understand it and just seem to be interested in, I suppose, profits in bringing anybody to the market that can increase the fees that they're earning.

SPEAKER1 32:28 Do you think I mean, I think back in the day, was a few years ago, maybe 2017, 2016 sort of time, the LME admitted...I think I remember notice came out to was on the public record. I think they admitted Jump Trading, which is, you know, obviously a very different type of operation to your operation. Yes. How do participants like yourselves in traditional uses, the market, how do they perceive and receive the presence of those types of firms? Because obviously they are very high tech. They are very much in the business of high frequency trading take profits, you know, not really close to the actual underlying activity. Is it being received as a positive thing because it's providing liquidity or is it it's sort seen as a threat to the traditional players and possibly is it seen as something which is not specific to any firm, but is it

seen that that type of activity could lead to new types of trading behaviours appearing, which may be, you know, they may not always be in the interests of traditional uses of market, but, you know, they are if they are very profitable and they may, and even if they are lawful?.

- SPEAKER2 33:59 Yes, so. I kind of got two sides of that coin, so one is I've got dealers telling me they you know, and as a firm any opportunities to increase liquidity is good, relatively speaking. So, for us to as a company to be able to be offered more liquidity that's not necessarily in this public platform, but outside of that, then that would be a good thing. What's not so good? So, the other side of this coin is the fact that it is influencing the market and it's not the underlying market that's influencing the price. It's the trading behaviour that's having an impact on the price. So, it's kind of to ask you a question and liquidity is good and but what you really want is the price transparency. So, where the real prices are rather than and this could then lead on to. Well, maybe I'm speculating a little here, but where one of these algo type platforms, actually, there's a bug in it and it does bring disruption to the market for one or more of the metals, whether it's a problem. I know there's lots of controls in place and there's been talk of speed bumps and other ways of trying to restrain these HFT. But you don't know until something happens.
- SPEAKER1 35:46 Based on where you say the types of customers that you said when you mentioned that the point about the synthetic discretionary or the type. Are you taking, I mean, are you seeing other firms similar to you take defensive measures to try and perhaps protect themselves and their clients against perceived threats from some of these newer market participants?
- SPEAKER2 36:14 Well, I mean, one way that we have protected our clients is that we don't offer them DMA. And the platform that we do offer isn't directly connected for trading to the exchange's platform now, we do have a connection where we as a company receive a price, but what price we then pass on to the customer is at our discretion. Whether the customer trades or doesn't trade does not result in a trade on the exchange. So, it's kind of we're sitting in the middle, we're watching the exchange, and we're trading with our customers in a bilateral trade. So, there's no connection there for customers directly to be affected because they have to come through us before they get their price. So, in a way, we are acting as that buffer as far as other firms are concerned. I'm not sure what other firms are doing...
- SPEAKER1 37:11 As a group of a sort of more traditional brokerage fraternity and they're sort of saying, look, there's a clear and present danger to our business models here. Obviously, we understand we have to respect competition law and all the rest of it. In terms of trying to maybe encourage regulators or industry associations or whatever it is or maybe events to try and offer them some protection, you're not really aware of any sort of moves like that?
- SPEAKER2 37:43 No, no. It's something we was raised a number of years ago when algos were allowed to get access to the market and it was raised then, and it was very

clear that it's all about generating profit. That's how we saw it from the exchange's response to that. So, it's kind of a line, if you don't like it, move on. Otherwise, it's something you just got to live with.

SPEAKER1 38:12 How much confidence do you have or, do you perceive the traditional market players have, in the ability of the regulator and the venue to identify and police, you know, conduct risk that is posed by these newer market entrances, algorithmic trading enterprises.

SPEAKER2 38:41 I suppose I'm not that close to it to get into the to the details of what's happening at the exchange. I know there's a lot of controls that I've got in place, but really how and that certainly there's lots of market controls in place of which for orders being pulled away from the market. So, there's these sorts of price tolerances that are allowed. And if you go outside of that, then the LME, then the exchange comes back to you to bust that trade and it gets it gets amended at the minimum price. But his firm's controls to prevent these measures in the first place, I don't have that information about what the exchange is doing around that.

SPEAKER1 39:36 Do you think that might be a sense because the values are slightly different to the regulators in that they are in a way they there's almost a conflict of interest that they're trying to balance because on the one hand, they're commercial enterprises and they need to know they're there to make revenue for their shareholder. But on the other hand, they're sort of the regulator, regulatory authorities that issue rules, that police, the markets and the rest of it. Do you think the venues have got the balance right in terms of, you know, managing the conduct of entrants, which are maybe a lot more lucrative, but maybe some of the things that they do might not be so conducive towards an efficient market or do you think that you know, that, you know, maybe that there's work to do there?

SPEAKER2 40:30 And so, again, on that, I don't yeah, I'm not sure on that...All I would say, though, is that, you know, they are a business and they do need to operate and make profit. So, I get the conflict of interest. But really, you know who they are regulated by. The emphasis has got to be on the regulator to look close to it the way that they operate and, you know, put demands upon them about what's expected of them and what controls they need to have in place. So, as a participant on the market, yeah, not yet.

SPEAKER1 41:08 So where will that take CME. Often, they're often compared which are in the press. And they both offer base metals products, obviously, that take got a very different structure, one being put on a forward market in the futures market to you. I mean, based on your experience, do you perceive that there's a difference there and how market participants interact? Do you perceive that there's a higher level of maybe some of this newer activity on one of those venues as opposed to the other?

SPEAKER2 41:52 I mean, the different models...We're closer to one than the other. And I think given the jurisdiction of one over the other, you know, you don't want to get anything wrong or perceived to be getting anything wrong on the CME because of what that could involve. And that's probably because a lot further away from that exchange than the other at the I'm.... No, I'm probably not that close on that on those on that question that you asked me.

SPEAKER1 42:45 OK. Nearly at the end.... Are you aware of any sort of instance in the wider industry, so may not be something specific to that you've personally been involved in, but yeah, have there been any sort of incidents in the way...? I mean, obviously, like back in the 90s, you had to have another incident, which is quite famous and probably the most famous conduct risk type event that's happened on the LME. Have you had you been aware of any sort of incidents like that? Obviously in the public domain, of course, that have happened in recent times. And how do you think that maybe the market can learn from that?

SPEAKER2 43:33 Now we're just sort of stepping back from this and looking at we're talking about the LME, about the LME and looking at the way if you are, you are neutral here and someone explains to you how the LME floor operates. And then someone explained to you the same moment that the best price discovery has been introduced since last March on Select. I think if the LME were looking to introduce the Floor today, I don't think it would get past the FCA. I mean, you're talking about dealers that are going in with a large order into a five-minute period when it's their interest to get that price as high as possible with other dealers, it's their interest to get that price as low as possible. And beforehand, if they want, they can have a bit of a chat and effectively agree a tax on the price. And it doesn't actually cross the Ring in the first place. So, there's an awful lot of, I think, where it's traditionally operated, and it's continued to operate. I think where we are today and I will be discussing from a from a regulatory perspective and conduct, I'm not so sure if the way that the LME has been operating would actually be allowed to get started and, so looking at this, I think ensuring there's more transparency through the electronic market is well, it's more transparent than through nine brokers having a bit of a shout and a bit of a chat beforehand around a dishonouring.... So, I but I think it does come back to, you know, the governance of the way, which I know is a topic on the way that the electronic platforms operate. But it is the way forward and it is more transparent, but it does need to be managed and governed correctly. And maybe that in there there's more that the regulator needs to be doing on the exchange rather than leaving so much to the exchange, which is what you said is, you know, arguably there's a conflict of interest there. And certainly, we have seen that where you've not only got an exchange, but you've also got a clearing house that you have to use if you want to work with that extra, if you want to trade through that exchange. So that's certainly a conflict of interest and something that you know. Yeah, t's not very good for them, good for the market,

because there's no competition that. Finally, I'm sorry, I didn't really answer your question.

SPEAKER1 46:56 So finally, what would you say? What would be your principal concerns for the future?

SPEAKER2 47:02 I think so, I know you spoke earlier about how algos and these programs running wild and how do we keep control of that? So I think it really comes down to that that development point that at that stage when these platforms are being designed, so you need some fail safes in there and you need some kind of control and governance over the building or development of these some of these of this software that that's going to be trading or let loose to trade on these exchanges. So, it really comes back down to the quality and civility. I think that just does this just the doing the right thing, you know , doing something properly and no matter what happens in the firm, we need to make sure that the exchange that they're allowed to connect to in that, you know, they'll need to go through conformance testing before the exchange will allow them to operate in the live environment, that it really comes down to that that development and from you not having one line of code suddenly writing this piece of software to do a specific job and having, you know , enough controls in place around that and to be able to prevent anything before it happens. Yeah, more, more in the eyes of I think that it's more in the eyes of the developers or the people within these firms driving technology. Oh, yeah because you know that the senior managers will be saying, yeah, we want it to do this, and we want it to do that. They won't be telling necessarily how to do it or how it needs to operate. And there's room there for misinterpretation or misunderstanding, which will then result in big problems potentially.

SPEAKER1 49:12 OK, great. That concludes the interview. Thank you very much. I'm going to just switch off the recording now.