UNITED STATES OF AMERICA

COMMODITY FUTURES TRADING COMMISSION

STAFF ROUNDTABLE

ELEMENTS OF PROPOSED REGULATION
AUTOMATED TRADING

Washington, D.C.

Friday, June 10, 2016

    1   PARTICIPANTS:

    2   Opening Remarks:

    3   CHAIRMAN TIMOTHY MASSAD

    4   COMMISSIONER SHARON BOWEN

    5   COMMISSIONER CHRISTOPHER GIANCARLO

    6   Other Participants:

    7   SEBASTIAN PUJOL

    8   JOSEPH OTCHIN

    9   MARK SCHLEGEL

   10   RICHARD HAYNES

   11   MICHAEL PENICK

   12   ANDREW RIDENOUR

   13   VINCENT MCGONAGLE

   14   MARILEE DAHLMAN

   15   CARLIN METZGER

   16   Panelists:

   17   JAMES MORAN, CME GROUP

   18   GREGORY WOOD, DEUTSCHE BANK

   19   DOUGLAS CARUCCI, J.P. MORGAN

   20   KURT WINDELER, INTERCONTINENTAL EXCHANGE, INC.

   21   JEFF BURNETT, QUANTITATIVE INVESTMENT MANAGEMENT

   22

1   PARTICIPANTS (CONT'D):

2   NITIN GAMBHIR, TETHYS TECHNOLOGY

3   VENU PALAPARTHI, VIRTU FINANCIAL, INC.

4   WASEEM BARAZI, ONECHICAGO, LLC.

5   ALBERTO GARCIA, EUROPEAN SECURITIES AND MARKETS
AUTHORITY

6   MATTHEW LISLE, ABN AMRO CLEARING CHICAGO LLC

7   MARCUS STANLEY, AMERICANS FOR FINANCIAL REFORM

8   MATTHEW PICARDI, SHELL ENERGY NORTH AMERICA (U.S.), L.P.

9   CARL COSCIA, HARTREE PARTNERS

10   ANDRÉS CHOUSSY, J.P. MORGAN

11   JOHN MUELLER, KCG HOLDINGS

12   ISAAC CHANG, AQR CAPITAL MANAGEMENT

13   DREW SHIELDS, TRADING TECHNOLOGIES

14   SEBASTIAAN KOELING, OPTIVER US LLC

15   ADAM NUNES, HUDSON RIVER TRADING

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1   P R O C E E D I N G S

2   (9:02 a.m.)

3   MR. PUJOL: Good morning, everyone. I'm

4   going to get started. Thank you to everyone

5   here today for joining us for the Staff Roundtable

6   on Elements of Proposed Regulation Automated

7   Trading or Reg AT.

8   Staff of the CFTC is pleased to welcome our

9   distinguished group of 19 panelists from across the

10   futures industry and elsewhere for a thoughtful

11   discussion on items in the proposed rules. We are

12   grateful for every panelist's time and for your

13   participation today.

14   Reg AT was proposed unanimously by the Commission in

15   November of 2015. The proposed rules were published

16   in the Federal Register in December and were open for

17   a comment period through mid-March of this year.

18   As a whole, Reg AT offers a series of risk controls,

19   transparency measures, and other safeguards to enhance

20   the safety and soundness of automated trading on U.S.

21   contract markets.

22   As the Commission explained in the Preamble to the

    1   proposed rules, Reg AT is designed to consolidate

    2   previous work by the Commission, by industry

    3   participants, standard setting bodies, and fellow

    4   regulators into a unified and updated body of law

    5   addressing automation in order placement and trade

    6   execution on all U.S. DCMs.

    7   The Commission received over 50 comment letters on Reg

    8   AT, including many lengthy and thoughtful evaluations

    9   of the proposed rules. Today's roundtable agenda

   10   reflects areas where staff believes that further

   11   public input would be helpful as it considers the

   12   recommendations it can make to the Commission for next

   13   steps in the rulemaking process.

   14   In addition, to obtain further input on items in

   15   today's agenda and that arise during the roundtable,

   16   the Commission this week reopened the comment period

   17   for Reg AT. The new comment period runs from today

   18   through June 24th, 2016. And comments received today

   19   at this roundtable will form part of the record

   20   for Reg AT.

   21   Staff looks forward to an open dialogue with and among

   22   panelists. We are particularly focused on

1   constructive and practical suggestions for addressing

2   the specific items and questions in today's

3   agenda, and for addressing the concerns that

4   commenters raised in the initial comment period for

5   the proposed rules. In that regard, staff notes that

6   any views we may express today are solely our own.

7   We hope to explore a number of topics in detail and in

8   depth. To facilitate that kind of open discussion,

9   I'd like to emphasize that staff's views are not

10   necessarily those of the Commission nor are they

11   the views of the divisions for which we work.

12   Finally, before formally beginning today's round

13   table, staff would like to acknowledge and to thank

14   Chairman Massad and Commissioners Giancarlo and Bowen

15   for their presence here today and for their time.

16   We'd like to turn it over to them for any remarks they

17   would like to make. Thank you.

18   CHAIRMAN MASSAD: Well, thanks,

19   Sebastian. And let me welcome everyone. We

20   really appreciate your being here, particularly

21   the participants, the time you're contributing to

22   this, as well as members of the audience. I want

1   to the staff for all their hard work.

2   I'm going to be very brief and just say,

3   first, this round table reflects the importance of

4   this issue. Automated trading obviously dominates

5   our markets and so, you know, 70 percent of the

6   trading in the futures market is automated today.

7   And so it's very important that we focus on this.

8   And I think when you step back and look

9   at the process we've been following, we are trying

10   to be very deliberate here and to take our time.

11   Let's remember, Sebastian noted when the proposal

12   came out, but actually the origins of this go back

13   even further with a concept release that was, I

14   guess, the spring of 2014, '13. So this is now

15   going on a three-year process. So I don't think

16   anyone can accuse of rushing to judgement.

17   And I'm pleased that the proposal we put

18   out was unanimously supported by the

19   Commissioners. I appreciate all the comments

20   we've received. And really, this roundtable is to

21   take that a step further. And I just want to

22   underscore what Sebastian said about our desire

1   for constructive and practical suggestions.

2   You know, I know people have had

3   criticism of various aspects, so I appreciate that

4   there are things people can criticize. But we are

5   really trying to grapple with this and come up

6   with constructive and practical ideas. And we are

7   reopening the comment period. We'll also decide

8   what our process is after this, you know, for

9   going forward.

10   And I want to underscore, you know,

11   we're going to have ESMA, representatives of ESMA,

12   I believe, are here today or will be here. I just

13   landed last night from a trip to Asia where,

14   believe me, this is very much on the minds of

15   every regulator I spoke to, whether that's Tokyo,

16   Beijing, Hong Kong, anywhere else.

17   And so that's why this is important.

18   That's why we want to be deliberate in our

19   process, and that's why we're looking for

20   constructive ideas. And I look forward to the

21   discussion.

22   COMMISSIONER BOWEN: Good morning. It's

1   a pleasure to be here today for today's

2   roundtable. We have a very full list of topics

3   today, so I also will be brief.

4   I've already spoken several times about

5   the remarkable changes being wrought by the rise

6   of algorithmic trading and the positive impact, I

7   believe, our proposed regulation on automated

8   trading will have on market stability.

9   However, I've also said that I believe

10   that this regulation is just a first cut and that

11   we may need to update our proposal to ensure that

12   we are appropriately protecting both the financial

13   system and ordinary investors.

14   With today's roundtable, we are taking a

15   crucial step toward fine tuning our regulation on

16   AT. A number of observers have raised questions

17   about certain granular aspects of our rule,

18   including how we propose to deal with the source

19   code of algorithms and the role of third party

20   providers.

21   I hope that the sheer fact that we are

22   holding this roundtable today shows that we are

1   sensitive to the stakeholders' concerns about this

2   rule.

3   At base, I want a rule that works. No

4   one, not industry, regulators, consumers, or

5   investors are served by a regulation that is well

6   intentioned but cannot be implemented. So if

7   there's a severe problem with one of our rules,

8   such as a self-defeating provision, or a lurking

9   mass of loopholes, I want to know about it now so

10   we can promptly fix it.

11   Yet while I hope that today's discussion

12   will lead to enhancements to our rules, I also

13   want to stress that time is of the essence when it

14   comes to regulating automated trading.

15   In the last few weeks, first at the

16   Market Risk Advisory Committee meeting and at

17   subsequent individual meetings that I had with

18   stakeholders, I've heard increasing anxiety about

19   the state of algo trading from end users. In one

20   meeting, an agricultural group actually told me

21   that it was their top issue in Washington at

22   present.

1   I take the concerns of end users very

2   seriously, and for them to express such a concern

3   gave me pause. I believe that algo trading has

4   brought some benefits to our markets, but it's

5   clear that some key aspects -- it's clear that

6   some of our key market participants have serious

7   concerns about it. And we should all take their

8   concerns very seriously.

9   I support this regulation, because I

10   believe it will provide a good level of regulation

11   by also allowing continued innovation. I hope

12   that we can find a broad consensus of support for

13   this regulation and that we can finalize it soon.

14   Ultimately, our markets are designed to

15   encourage price discovery and efficient allocation

16   of capital, particularly for end users. If the

17   end user community as a whole, and especially

18   small end users, doubt that the markets are

19   performing this service, not only will confidence

20   in our markets be harmed, but it's possible that

21   some participants will reduce the investments in

22   our market.

1   In other words, even though our markets

2   were originally created for them, end users may

3   consider leaving these markets because they don't

4   trust that the markets are working for them. That

5   is an outcome, frankly, that I regard as both

6   nonsensical and unacceptable. I therefore believe

7   that we owe it to our stakeholders and end users

8   to furnish a strong regulation on AT this year.

9   I sincerely hope that finishing this

10   rule will give market participants and consumers

11   increased confidence in algo trading that is

12   properly regulated and that our markets are

13   regulating and functioning properly.

14   I want to thank the staff and today's

15   panelists for your time today. And I look forward

16   to your comments.

17   COMMISSIONER GIANCARLO: Thanks, Sharon.

18   My thanks to the agency staff for arranging

19   today's meeting, which is important and timely,

20   and I intend to follow the discussion closely.

21   This proposal is significant and

22   challenging. I believe it's a well-meaning

1   attempt by the staff to catch up to the digital

2   revolution in U.S. futures markets. As I said at

3   the time of adopting the NPRM, the proposal seeks

4   to draw on industry best practices, provides

5   flexibility in setting risk control parameters,

6   and does not require the preapproval or pretesting

7   of algorithms. That is quite positive.

8   Less positive, I believe, is the

9   regulation's seemingly broad scope of coverage,

10   somewhat hazy objectives, and several significant

11   inconsistencies. And in some cases, it proposes

12   burdensome and overlapping compliance costs that

13   will likely serve as a regressive tax on market

14   activity which will be borne disproportionately by

15   smaller market participants and will be passed on

16   to end users.

17   It's not clear to me yet whether the

18   proposal enhances the safety and soundness of

19   America's futures markets enough to offset its

20   additional costs and burdens. Yet I retain an

21   open mind in balancing those concerns.

22   Regulation AT also contains, however,

1   the notorious requirement that proprietary source

2   code be accessible to the CFTC and the Justice

3   Department without a subpoena. As I anticipated

4   at the time of the proposal, that requirement has

5   garnered an enormous amount of public concern.

6   Subpoenas have well served the due

7   process requirements of the Commission and market

8   participants for over 40 years. Nothing has

9   changed to cause these important protections to be

10   abridged in the case of proprietary source code.

11   And I'm not sympathetic to the

12   contention the proprietary source code embodying

13   instructions for future commercial strategy is

14   equivalent to books and records of past trading

15   activity obtainable without a subpoena.

16   Moreover, law abiding businesses have

17   every reason to be concerned about the

18   government's handling of their proprietary

19   intellectual property. In just the six months

20   since Reg AT was proposed, we've learned that

21   hackers have breached the computer networks of top

22   law firms, the Federal Deposit Insurance

     1   Corporation, the IRS, and the Federal Reserve.

     2   In fact, federal state and local

     3   government agencies rank last in cyber security

     4   when compared against 17 major private industries,

     5   including transportation, retail, and healthcare.

     6   And incredibly, the U.S. Office of

     7   Personnel Management that gave up 21 million

     8   personnel records in a year-long cyber

     9   penetration, was still unable to pass a security

    10   audit last November, six months after the breach

    11   was discovered.

    12   As someone whose personal records at OPM

    13   were hacked, and for all I know may still be

    14   unprotected, I can sympathize with market

    15   participants' skepticism of any trust us

    16   assurances that their intellectual property will

    17   be safe and secure in government hands.

    18   Compared, however, to the brashness of

    19   the approach of the source code, Regulation AT's

    20   most notable feature is what I believe is its

    21   relative meagerness of its response to the

    22   emerging challenges of algorithmic trading.

 1   The proposal's basic design is to compel

 2   a broader swath of market participants to register

 3   with the government subject to additional rules,

 4   fees, and costs. In essence, it's a 20th century

 5   analog response to the 21st century digital

 6   revolution and trading markets.

 7   The relatively blunt act of registering

 8   automated traders does not begin to address the

 9   complex public policy considerations that arise

10   from the digital revolution in modern markets, a

11   revolution in which financial and derivative

12   markets have transformed from analog to digital,

13   from standalone trading pits to seamless global

14   webs, and from human trading to algo trading and

15   artificial intelligence, a revolution with far

16   ranging implications for capital formation and

17   risk transfer.

18   Despite such profound market changes,

19   CFTC rules have stayed pretty much the same. Most

20   of our rule book was written for 20th century

21   analogue markets in which trading pits in

22   Minneapolis, New York, and Chicago conducted open

1   outcry trading with its distinctive shouting and

2   famous hand signals.

3   Yet today, those trading pits are mostly

4   dormant. And still our CFTC oversights remain

5   founded on such notions as floor traders as floor

6   brokers. In a world of automated non-human

7   decision making, CFTC market supervision and

8   enforcement still turns on human states of mind,

9   underlying traditional legal concepts of

10   reasonableness, foreseeability, mens rea,

11   scienter, and failure to supervise.

12   I believe that, before we entangle

13   hundreds if not thousands of automated traders in

14   old analog regulations, we should first establish

15   the full implications of these new digital trading

16   environments. We should figure out how to

17   effectively repurpose our rule book for the

18   challenges of 21st century digital markets, not

19   just extend it to cover more participants.

20   Any failure to do so is a disappointment

21   for those of us who believe that it's in America's

22   vital interests to retain the world's deepest,

 1   most durable, and most vibrant trading markets in

 2   the new algorithmic, digital world of the 21st

 3   century.

 4   Nevertheless, I remain open minded to

 5   the improvement in this rule set, and I look

 6   forward to today's important discussion. And I

 7   specifically know that the staff continues to work

 8   very hard to get this rule right. And I commend

 9   them for their efforts in that regard. Thank you

10   very much.

11   MR. PUJOL: Thank you very much,

12   Commissioners. We'll now formally begin this

13   staff roundtable with a discussion of direct

14   electronic access, a defined term in the proposed

15   rules reflected in 1.3 quad y.

16   Staff notes that the proposed definition

17   of DEA plays an important role in the proposed

18   rules, serving, among other things, as a condition

19   that must be met for proprietary algorithmic

20   trading firms to register as floor traders. In

21   addition, certain pre-trade risk control

22   requirements in the proposed rules vary according

1   to whether or not DEA is used.

2   The Commission received a range of

3   comments regarding the proposed definition of DEA.

4   These included comments indicating that the proposed

5   definition lacks clarity, that it may be overly

6   broad, or that it does not sufficiently address

7   the role of third party ISVs and other access

8   providers.

9   Through this panel, staff would like to

10   achieve a better understanding of DEA as used by

11   market participants or offered to clients. We

12   will also discuss an existing definition of DEA in

13   Commission Regulation 38.607 and how that

14   definition is interpreted by market participants

15   today. We are particularly interested in the

16   contrast between the existing definition of

17   38.607, and how it is used and interpreted, and

18   the concerns that have been raised regarding the
     proposed

19   definition.

20   Finally, staff is interested in

21   suggestions from panelists as to potential

22   alternatives to the definition of DEA and

1   amendments that can be made so the definition is

2   clearer or more correct with respect to its scope.

3   To begin the panel, I'd like to ask

4   panelists to introduce themselves, including their

5   titles and the organizations that they represent.

6   I'll then turn it over to my colleague, Joe

7   Otchin, who will lead the discussion for Panel I.

8   Thank you.

9   MR. CARUCCI: My name is Doug Carucci.

10   I head up fixed income electronic trading technology

11   at J.P. Morgan.

12   MR. PALAPARTHI: My name is Venu

13   Palaparthi. I head up regulatory and government

14   affairs for Virtu Financial.

15   MR. WOOD: I'm Greg Wood. I am director

16   for Electronic and Algorithmic Execution at

17   Deutsche Bank Securities.

18   MR. BARAZI: Waseem Barazi, CRO,

19   OneChicago.

20   MR. BURNETT: I'm Jeff Burnett. I'm

21   director of Research at Quantitative Investment

22   Management.

1   MR. MORAN: Hi, I'm Jim Moran. I work

2   for CME Group. I am the executive director of

3   Regulatory Technology and Strategy.

4   MR. GAMBHIR: I'm Nitin Gambhir, founder

5   of Tethys Technology. We're an independent

6   algorithmic trading solutions provider.

7   CHAIRMAN MASSAD: Can I remind everyone,

8   you need to really get very close to the mic,

9   practically eat it as you talk, in order for

10   people to hear you.

11   MR. WINDELER: I'm Kurt Windeler, Senior

12   Director of Market Regulation at Intercontinental

13   Exchange.

14   MR. OTCHIN: All right. Thank you,

15   everyone. And thank you, Sebastian. I would like

16   to start by briefly going over the definition of

17   direct electronic access contained in proposed 1.3

18   quad y in the NPRM. The definition provides as

19   follows.

20   "This term means an arrangement where a

21   person electronically transmits an order to a

22   designated contract market, without the order first

1   being routed through a separate person who is a

2   member of a derivatives clearing organization to

3   which the designated contract market submits

4   transactions for clearing."

5   As Sebastian stated in his opening

6   remarks, we received numerous comments on the

7   proposed definition of DEA, including comments

8   that the definition is unclear or that its scope

9   may be overly broad.

10   During this panel, we will consider the

11   following three options for defining DEA. One,

12   using the definition that was proposed in the

13   NPRM. Two, using the definition in existing

14   Commission regulation 38.607, which we'll discuss

15   in greater detail later. Or three, revising the

16   definition that was proposed in the NPRM.

17   With that, I would like to begin the

18   discussion by turning it back to Jim Moran from

19   CME Group.

20   MR. MORAN: Well, thank you. We thank

21   the CFTC staff and Commission for organizing this

22   roundtable. We believe it's going to be

1   productive and constructive. We look forward to

2   continuing the dialogue with the Commission and

3   CFTC staff during the comment period.

4   At CME, we're committed to protecting

5   the integrity of our markets. Everyone agrees

6   that algorithmic trading poses some unique risks.

7   Whether it's through the development of risk

8   tools, new market controls on the trading system,

9   or through or self-regulatory scrutiny of the

10   markets, CME works to mitigate these risks every

11   day.

12   Market integrity is good for our

13   business, pure and simple. We believe Reg AT is

14   well intentioned, and we agree that it's essential

15   to have the right controls in place for

16   algorithmic trading. But we do not believe that

17   Reg AT can meet our mutual objectives without

18   significant changes. Our comment letter outlines

19   these changes which we urged the CFTC to consider.

20   In the technology driven area of

21   algorithmic trading, effective regulations must

22   address identified risks while also allowing the

1   controls applied to be adapted over time as the

2   technology and methods develop. But it must be

3   recognized that no matter how good a trading

4   control can be, no set of rules can prevent all

5   algorithmic trading events.

6   In our comment letter, CME proposed a

7   definition of DEA that focuses on market risk

8   controls applied rather than who the order was

9   routed through. We believe our definition, if

10   adopted by the CFTC, would focus the regulation on

11   the appropriate location of the trading risk

12   control which we think is one of the key goals of

13   Reg AT.

14   So we would opt for option Number C, or

15   letter C. And we would say to alter the

16   definition to an arrangement where a person

17   electronically transmits an order to a designated

18   contract market without the order first passing

19   through the market risk controls administered by a

20   member of the derivatives clearing organization

21   pursuant to 1.82. And we do think 1.82 might need

22   some revisions.

1   The CME definition tweaks the CFTC

2   definition slightly, but instead of focusing on

3   whose infrastructure or whose servers the order

4   goes through, it focuses on what is most

5   important, whether or not the appropriate

6   pre-trade risk controls have been applied.

7   If a person transmits an order that does

8   not pass through the risk controls administered by

9   the clearing member, then that entity must be an

10   AT person and is responsible for applying the

11   pre-trade risk controls. We think this is a

12   simple but scalable way to determine if the

13   trading risk control responsibility lies primarily

14   with the clearing firm or with the AT person.

15   Also, we believe that it solves the

16   problem of how to deal with third party software.

17   End clients who use off the shelf technology, that

18   use algorithmic trading, can avoid becoming an AT

19   person as long as the third party system provides

20   risk controls that can be administered by the

21   clearing firm.

22   For trading entities that specialize in

1   algorithmic trading, this allows them to employ

2   their own trading risk controls in a way that

3   makes most sense for their particular trading

4   system and style.

5   We should note the clearing firm will

6   always have the responsibility for the financial

7   risk, be we view these controls that are proposed

8   in Reg AT as addressing the trading or execution

9   risks. So they are different than the controls

10   the clearing firm will use to manage its financial

11   risk. Thank you.

12   MR. MCGONAGLE: Jim, could you go over

13   the proposed definition again? Unfortunately, the

14   sound is still a little bit off in the room. So I

15   just wanted to make sure that everyone heard what

16   CME is proposing.

17   MR. MORAN: CME proposes that the

18   definition would be an arrangement where a person

19   electronically transmits an order to a designated

20   contract market without the order first passing

21   through the market risk controls administered by a

22   member of a derivatives clearing organization

1   pursuant to a revised 1.82.

2   MR. PUJOL: Jim, just a question to kick

3   off the conversation. At least in the case of

4   CME, what do you anticipate the size of that

5   population is? I mean, presumably if, you know,

6   almost all orders are, at this point, being risk

7   filtered by a clearing firm for financial risk

8   through 38.607. So I wonder how many orders

9   aren't already subject to what you are proposing.

10   MR. MORAN: Well, again, there's a

11   distinction between the financial risk controls

12   and the controls on the trading, or what we call

13   the market risk controls, that are specifically

14   designed for algorithmic trading events. And we

15   don't know exactly what those will be.

16   We know there's a proposal currently

17   outstanding, and we've brought out some -- in our

18   comment we go in a lot of detail there describing

19   why the current proposal doesn't really work

20   because of the redundancy that it proposes between

21   the AT person, the FCM, and the DCM, the

22   granularity.

1   You know, the proposal really doesn't

2   get to practically how these controls work in

3   practice. So we're hoping that those get

4   addressed, those comments.

5   But getting back to your question, how

6   many people will choose to become AT persons in

7   our proposal? We think that this will be most of

8   the large type algorithmic firms, for sure,

9   probably some of the smaller ones as well. We

10   don't know the exact number.

11   I think really it kind of depends on how

12   other parts of Reg AT shape out. So if there is a

13   very, very heavy burden to be an AT person,

14   obviously there is an incentive for there to be

15   less AT persons. If those requirements are eased

16   up somewhat, such that it's not such an extreme

17   cost to become an AT person, you might see more

18   people going into that category.

19   MR. PUJOL: And when you say that, you

20   know, large algo firms, is that based on the

21   presumption that they would prefer not to have

22   their orders subject to whatever latencies might

 1   be introduced by having to go through the clearing

 2   firm's risk controls? Or where is that

 3   presumption coming from?

 4   MR. MORAN: Well, I think there's a few

 5   ways to do it. I mean, they could provide the

 6   controls to their FCM, through their clearing

 7   firm. And we should make that distinction too.

 8   It really needs to be a clearing firm, because we

 9   do have some clearing firms that are not FCMs. So

10   they might be able to provide those tools to their

11   clearing firm.

12   But on the other hand, it may be that,

13   because of how their system works, that it just

14   makes more sense for them to manage those types of

15   controls, for example, messaging controls and

16   things of that nature.

17   It's very difficult for a third party to

18   have a tool that, you know, would recognize how

19   someone's -- the peculiarities of somebody's

20   system and how it works. And that expertise might

21   lie mostly with that algorithm, that trading unit.

22   So they may have a strong desire to control that

1   themselves.

2   MR. CARUCCI: Hi. I find it hard to

3   understand from that definition or that proposal

4   how a clearing, an FCM, a clearing FCM could have

5   the ability to interrupt or put controls around

6   the electronic trading activity that's done in

7   real time by the executing FCM.

8   So I think that's a very -- that would

9   be somewhat impractical if not impossible to

10   interject controls, for the clearing FCM to

11   interject controls into the real time trading

12   activity of the person doing the trading.

13   So in fact, I also, after reading all

14   the material, and I'm coming from more of a

15   technology perspective so perhaps --

16   MR. PUJOL: That's all right. That's

17   what we want.

18   MR. CARUCCI: Okay. To me the market,

19   as defined in electronic trading, which I've been

20   in technology for a couple of decades now, is the

21   matching engine at the DCM, at the exchange. That

22   is our last layer of protection to protecting, to

1   ensuring that, whether it's intentional or

2   unintentional activity, could disrupt markets.

3   So in my mind, the walls around that

4   matching engine, and the projections and controls

5   to detect and prevent behavior that can disrupt

6   the technology that the DCM has built and

7   operates, is definitely the last line of defense

8   and where we believe the bulk of the

9   responsibility lies.

10   Now, going up from that, away from that

11   marketplace, the DCM also authors and supplies the

12   interfaces, regardless of GUIs, auto routers,

13   APIs, doesn't matter. At the end of the day, the

14   exchange needs to provide their own interface into

15   their matching engine.

16   So moving away from the DCM, the persons

17   who develop and operate, which may be different,

18   those two different categories of people who

19   develop and operate the applications within where

20   these interfaces sit, would be the next kind of

21   layer of defense that should be concentrated on in

22   terms of activity.

 1   So concentrating on registered AT

 2   persons and then trying to apply kind of

 3   protections for those registered AT persons, I

 4   don't think gets to the point, and actually

 5   creates gaps in the application of those

 6   protections. I think it's more about the

 7   technology and who has the ability to put lines of

 8   defense and walls around. Because not any one

 9   line of defense will help protect us. It's always

10   a list of things that go wrong that disrupts the

11   market. It's never any one thing.

12   But the last line is the DCM and its

13   matching engine. And above that is the

14   application, whether it's a vendor, or a high

15   frequency firm, or the application where the DCM

16   provided interface sits, the person who developed

17   it, and the person who operates it.

18   And then above that we can start talking

19   about algos and other order development, the

20   people who submit the orders to the market. But

21   again, the further away you go from the matching

22   engine, the definitions, and the breadth of

1   practically instituting rules that could be

2   governed and audited, become unwieldy.

3   MR. WOOD: Thank you very much,

4   Sebastian. So just to feed off of what Doug has

5   said and what Jim has said, from an industry

6   perspective, we've articulated for many years now

7   that there should be multiple layers of control.

8   And there are multiple levels of

9   responsibility in terms of having risk controls in

10   place that are designed to protect market

11   integrity and, more importantly, protect the -- as

12   well as importantly, to protect the market

13   participants from accidental overtrading or issues

14   that can occur within their trading systems.

15   Generally, you know, the FCM community

16   believes that there should be a layer of risk

17   controls in place for any market participant

18   accessing a DCM under their membership. We need

19   to be very careful here in terms of acknowledging

20   that it's not always a FCM who is clearing on

21   behalf of a participant that is providing the

22   market access. But there will be an executing FCM

1   where the client trades through that FCM and then

2   ultimately gives up the trades to their clearing

3   member.

4   Now, of course, someone who is providing

5   access to a designated contract market in the U.S.

6   must be a clearing member of the DCO. But it is

7   also possible for that member to delegate the

8   ability to provide access to clients to the DCM.

9   However, what they should not do is they should

10   make sure that there are always risk controls in

11   place that are appropriate to the type of market

12   access.

13   Now, when we talk about DEA, this is a

14   particular type of access where a participant has

15   direct access to the exchange without some form of

16   risk management system that's in place prior to

17   the orders reaching the exchange.

18   One of the problems we had with the

19   original definition of DEA was it was broad and

20   potentially brought in many third party software

21   providers that provide automated order routing

22   systems such as TTs, CQGs, et cetera, which

1   ultimately do have a layer of risk controls that

2   are provided by the FCM who is facilitating that

3   market access. And we believe, because of that

4   additional layer of risk controls, such systems

5   should not be included in a definition of DEA.

6   A true definition of DEA from an FCM

7   perspective would be where the only risk controls

8   that the FCM actually has access to are those

9   provided by the DCM. And subsequent to

10   introduction of Rule 1.73 back in 2012, all U.S.

11   DCMs have to provide a layer of risk controls for

12   an FCM to provide that access.

13   To Jim's point, where someone has direct

14   access to a market, yes, they ultimately have a

15   responsibility to have risk controls in place to

16   oversee their activity. However, there will also

17   be a layer of risk control that is provided by the

18   DCM for the FCM to administer and provide

19   appropriate protections to the client and to the

20   FCM providing the access.

21   MR. CARUCCI: I think when we talk about

22   this subject, we've been hearing that there are

1   two types of risks, I think, this Commission is

2   trying to perhaps mitigate. And one is the

3   financial risk where I think James' comments is

4   appropriate in terms of trying to mitigate the

5   financial risks of the client.

6   But as far as technological disruption

7   of micro market structures within the matching

8   engine, I just want to be clear that that's where

9   my comments were coming from. It's not possible

10   for the clearing FCM to be able to put in any of

11   those controls. But it is possible for the

12   clearing FCM, with the help, again, of the DCM, to

13   provide access to those financial limitations for

14   the clearing FCM to mitigate financial controls.

15   Because it is impossible for any one

16   individual sitting above the DCM to have a full

17   view of what a client is doing. There are many

18   different channels an end user can go down to get

19   to the matching engine. And the place where all

20   of this flow and all of this activity is seen in

21   aggregate is the DCM. And then as you get further

22   away from that, the activity and the channels

1   exponentially increase.

2   MR. PUJOL: Nitin, I think you wanted to

3   make a comment.

4   MR. GAMBHIR: You know, let me just take

5   a step back and, I think, from a practitioner's

6   point of view. So the definition of DEA is very,

7   very important. Because otherwise, if it's too

8   broadly put in, it's going to snare everybody,

9   including every retail trader who is using TTC,

10   NinjaTrader, et cetera, et cetera, I mean, it was

11   too impossible to manage this regulation. I think

12   the way to look at this thing is how the

13   technology industry sort of looks at risk, really,

14   which is two factor authentication. There must be

15   at least two layers of risk management.

16   And when we talk about risk, I'm going

17   to separate out financial risk versus market risk.

18   When I talk about market risk, specifically

19   referring to algorithmic trading risk. Specific

20   parameters need to be defined as to what

21   constitutes algorithmic trading risk. I think

22   there's a separate panel for that, so I'm not

1   going to get into that here. So coming back to

2   sort of two factor risk model, which is a standard

3   model used everywhere, certainly DCM is clearly

4   one place where that happens. The second place it

5   happens is the layer above with some responders to

6   the DCM. And that means it's -- the philosophy of

7   the principle there is control. Who has control

8   of that order being submitted to the DCM?

9   If it is the clearing broker, then the

10   clearing broker has to provide the risk tool set.

11   If it is the executing FCM, then they have to

12   provide it. And if it is a firm which connects

13   directly to DCM, then, as an entity, has to

14   provide appropriate risk controls.

15   So with that kind of framework, you

16   first of all get two or three things which happen

17   which are beneficial. One, you narrow down in

18   terms of the number of entities which would get

19   covered to a manageable level under this Reg AT

20   regulation.

21   Number 2, you also reduce the cost of

22   implementing this regulation. If you're not

1   careful, the cost to do this thing is enormous

2   potentially. Working with that route, a lot of

3   the infrastructure already exists. Because that's

4   where it already happens.

5   What is lacking somewhat or is

6   inconsistent, I wouldn't say lacking, it's really

7   probably inconsistent, is the appropriate

8   definition of what those market risks are. People

9   understand the financial risk, because the

10   clearing firms too have defined, you know, your

11   positions, max positions, et cetera. Everything

12   is defined.

13   But in terms of what the algo risks are,

14   the market risks are, market destruction risks

15   are, those parameters are not defined. They're

16   not consistent, and things like order frequency,

17   cancellation rates, et cetera, et cetera.

18   What I believe is certain base setoff

19   market risks should be defined. And then each

20   DCM/FCM or the controlling party is able to define

21   an extra layer above that, based on the clients,

22   know your client philosophy.

 1   Third is also the ability of the staff,

 2   the Commission, to control and manage this

 3   regulation. With this kind of framework, you are

 4   really able to sort of get an overall view of how

 5   the market's operating, how the risks are

 6   concentrated, and who's doing what. That's where

 7   my view on this point is.

 8   MR. SCHLEGEL: I think we have heard

 9   from both Greg and Nitin saying that the current

10   proposed definition of DEA is over broad. And you

11   spoke to some of the constituencies that might be

12   captured, perhaps accidentally. Is there a way to

13   narrow the current definition in a way that would

14   exclude some, like, sort of in terms of the

15   specific elements of the proposal?

16   MR. GAMBHIR: Right. So as I said, you

17   know, there is a two factor risk authentication,

18   two factor risk management layer. If you are

19   above the second factor risk layer, you are

20   exempt. So let's look at an example. How do

21   people, let me give you sort of some examples of

22   how people actually trade today and how the orders

1   are actually submitted.

2   So I'll take an example, a bulletin

3   institutional, let's say, asset manager.   Let's

4   say a big CTA or a mutual fund or an asset

5   manager. How they would typically trade is, you

6   know, they would have an order generation, a

7   portfolio manager, whether it could be a

8   quantitative portfolio manager or a qualitative

9   portfolio manager who comes up with what trades

10   do.

11   And the trade is submitted to an

12   algorithmic provider, which could be an FCM, or it

13   could be an independent provider like us. And

14   they in turn will submit the order. They will

15   slice and dice the order. So let's say it's a

16   contract order to buy 1,000 S&P E-minis. They

17   will slice and dice the order and submit to a FCM

18   fix engine or some risk layer and then access the

19   DCM.

20   MR. SCHLEGEL: And would you view that

21   as DEA as --

22   MR. GAMBHIR: No. I would not view that as

1   DEA. Because there are two layers. Because it's

2   submitting to a FCM fixed engine or a risk layer.

3   That's Risk Layer 1. And then it goes to DCM

4   which is Risk Layer 2.

5   Let's take Scenario 2. Scenario 2 I'm

6   going to a retail player for example, a retail

7   player who is working with, let's say, a

8   NinjaTrader, or a TT, or CQG, has written some

9   simple scripting based logic to do a spreader.

10   Spreading is a very common strategy use. They

11   might come up with some rules of, let's say, using

12   exponential moving average, et cetera, entering

13   into there. How does that work?

14   So the order is generated within the

15   software. Then it gets submitted through the

16   software, routed by software to a risk layer which

17   is controlled by the FCM. Because the software is

18   sponsored by the FCM. That's Risk Layer 1. Risk

19   Layer 2 now is the DCM. So this retail person is

20   not DEA, because there are two layers.

21   Third, I'm going to take a proprietary

22   firm for a second, okay, a proprietary trading

1   firm. Here let's say they're running a high

2   frequency strategy or some sophisticated strategy.

3   And they have an input into the DCM matching

4   engine directly, like a floor trader would, right.

5   They may have some financial risk

6   controls they've agreed with and given access to,

7   potentially, to their FCM or clearing member. But

8   the order, because the order is generated and

9   executed, because of latency concerns, right from

10   the technology infrastructure straight into the

11   DCM.

12   Some of this stuff is done in chips now,

13   not even CPUs, so that latency is in nanoseconds,

14   if you may. This is DEA, because the FCM doesn't

15   have an effective market risk layer in this

16   situation. So these are the three examples I

17   would cite to give you sort of perspectives of how

18   things get done, and who's DEA, and who's not DEA

19   under sort of the discussion, the presentation I

20   have.

21   MR. PUJOL: In that scenario that you

22   described, if the FCM, which

1   potentially already had the financial risk layer in place,

2   if that financial risk layer is in some

3   way modified so that it is now also the

4   operational or algorithmic control --

5   MR. GAMBHIR: Yes.

6   MR. PUJOL: -- what happens to your

7   categorization?

8   MR. GAMBHIR: Then I would qualify them

9   as not as DEA. The reason is that, what the

10   important thing is, again, and the Commission has

11   to be very clear, that in no way that you have

12   control of the technology.

13   Now, the technology provider and the

14   user is the same, you have some risk there, right.

15   Because, okay, you have provided that risk layer

16   to the FCM. But since you wrote the technology,

17   you could have a back door into it. I mean, of

18   course, you know, a legitimate player would never

19   do that. But you don't have that protection.

20   So there has to be an isolation between

21   the source of the technology and the user of the

22   technology, to some degree. If you are the source

1   and the user yourself, then I believe that, you

2   know, there is a risk there. That's my personal

3   belief, of course. So there has to be a solid

4   protection that the user cannot influence the risk

5   layer or control the risk layer any time.

6   MR. PUJOL: So --

7   CHAIRMAN MASSAD: Sebastian?

8   MR. PUJOL: I'm sorry, go ahead.

9   CHAIRMAN MASSAD: Nitin and Jim, how

10   does what you're saying, each of you saying

11   differ? I thought, Nitin, what you were saying

12   was kind of similar to what Jim is saying.

13   MR. MORAN: If I could, I do actually

14   think what he's saying is very similar to what I

15   was suggesting. The DCM does have a lot of

16   controls. Some of these controls operate at a

17   product level, some operate on the gateway where

18   somebody is connected. And in the case of what we

19   call GC2, our financial risk controls, in some

20   situations they go even more granular that allow a

21   clearing firm to adjust that.

22   And we're working on that too. And we

1   envision that in the future we'll even have more

2   granularity that we can give to the trading

3   community. So we have that layer. I wasn't

4   speaking to that layer specifically. It was more

5   like the point of execution. So how do you ensure

6   that the point of execution has a control? And

7   that's where I think what Nitin was saying was

8   very similar to what I was saying.

9   It's really a question of how to

10   determine whether we give that execution level

11   control to the clearing firm or to the AT person.

12   A new, you know, level of responsibility for that

13   participant level that they become the AT person.

14   That's really what I was speaking to. But I think

15   what we were saying is very similar.

16   MR. CARUCCI: I totally agreed with

17   Nitin's characterization of where the, A, the most

18   risks lie in protecting the market and, 2, where

19   the concentration of controls could be employed to

20   protect us.

21   I think, simply speaking, if I boil down

22   what I was saying, what Nitin was saying, the two

1   layers of control can be easily crystalized as the

2   matching engine, and the wall around the matching

3   engine that's run by the DCM, and those who

4   implement the interface that's provided by the

5   DCM.

6   Whether that's a TT, or whether it's a

7   prop trading firm, it doesn't matter. But the

8   person who actually took the DCM interface and put

9   it into the application, and then the operators of

10   that could actually be different than the

11   developers of that application. Those three

12   entities, if you will, would be covered, I think,

13   in a crystallized definition.

14   MR. PUJOL: Let me try to organize what we've
heard.

15   Doug, and Jim, and Nitin, there's some

16   intersection, but I want to make sure that it's

17   fully coordinated between what the three of you

18   are saying.

19   So, for example, we understand, I think,

20   that everyone is advocating for a layer of risk

21   control at the DCM. Now, the question, and is it

22   the case that that control at the DCM is

1   calibrated by the DCM? Is that the first thing?

2   MR. MORAN: It depends on the control.

3   The DCM does have some controls that it calibrates

4   that might be set across the board, the same for

5   everybody. But the DCM is not going down to the

6   very granular level.

7   You know, the FCM might know their

8   customer a little bit better than we do. In some

9   cases, the AT person might know their traders a

10   lot better than the clearing firm, the FCM. So it

11   varies. And that's where, you know, we believe

12   the approach has to allow for these different

13   levels, that each one, that each participant in

14   the chain can actually manage in a meaningful way.

15   MR. SCHLEGEL: And when you say, sorry,

16   just when you say can't go down to a granular

17   level, are you saying are you saying then that the

18   DCM cannot identify and apply specific risk

19   controls to individual orders by a specific AT

20   person? Is that the consequence?

21   MR. MORAN: A DCM?

22   MR. SCHLEGEL: Yes.

1   MR. MORAN: Correct. Yes, I mean,

2   generally I think that's an accurate statement.

3   MR. WOOD: I can just make a slight

4   clarification there. Obviously, there are

5   controls that exist at the DCM level in terms of

6   protecting market integrity. As I was saying,

7   subsequent to introduction of Rule 1.73, tools like

8   Globex Credit Controls (GC2) which Jim referred

9   to, are provided to the FCM who provides access to

10   the client.

11   So under CME rules, we have to use GC2

12   and set limits for every type of access, ACQs from

13   the firm level. And we can create ACQs from firms

14   for individual clients. You have direct access to

15   the DCM. And that's how, as an FCM, we actually

16   provide a level of risk control at the point of

17   entry for firms that have direct access to the

18   marketplace.

19   MR. MORAN: And, Mark, I'd just like to

20   clarify one thing. We do have certain controls

21   that operate on every order. So even though the

22   DCM is not setting them, every order. So for

1   example, there's price banding. So if somebody

2   enters an order that exceeds a difference from the

3   current market by too great of a degree, that

4   order will be rejected.

5   So again, we don't set that based on

6   each AT person or each end client, but it does

7   operate at that level, because it operates on

8   every single order.

9   MR. PUJOL: I know Kurt wants to get

10   a word in. And then, I'll come

11   back to you.

12   MR. WINDELER: Yes. And I'll add a,

13   maybe a third prong to this conversation of the

14   idea of the use of DEA and the proposed rule. The

15   proposed rule uses DEA as essentially a

16   categorization or a filtering mechanism to then

17   set up a, ultimately a registration obligation for

18   somebody who is engaging in algorithmic activity.

19   And although, you know, it's

20   understandable that defining and working through a

21   concerted definition of what DEA stands for, for

22   those purposes, is useful.

    1   I would then turn the conversation just

    2   back slightly about the use of DEA as that

    3   filtering mechanism. And I think as this

    4   conversation evolves, we've seen that participants

    5   are entering the market and connecting to the

    6   exchanges in mirrored ways where either there are

    7   sponsored access, where there's third parties,

    8   where there's self- developed systems.

    9   And ultimately, as an exchange operator,

    10   those risks that develop out of that we have to,

    11   by nature of maintaining the integrity of the

    12   market, have to be agnostic to where and how those

    13   orders are being generated in as much we have to

    14   ensure that the market protections that we offer,

    15   from an operational standpoint, apply uniformly to

    16   everybody.

    17   And then that the -- and I want to

    18   clarify the role of DCM, in terms of financial

    19   risk management and risk controls, is such that

    20   you cannot access the exchange without the

    21   explicit approval and a prolonged setup process

    22   where the FCM that's guaranteeing the activity

 1   under the account is ultimately setting all of

 2   these fine-tuned risk, order size, margin types of

 3   parameters using the DCM's provided pre-trade risk

 4   controls.

 5   And by doing so, that is not the DCM

 6   that's actually administering those controls. We

 7   offer those tools, but the administration and

 8   setting of those tools are done by the FCM. We

 9   see that that's called out in 1.73, and we also see

10   that as the result of Part 38.607 that says DCMs

11   need to essentially provide that for what it calls

12   direct access.

13   But ultimately, again, if we go back to

14   the comment that we cannot afford to treat certain

15   market participants, depending on how they

16   connect, differently than others, these DCM risk

17   controls apply uniformly to everyone.

18   And so as we talk about using DEA as a

19   definition for who's engaging in algorithmic

20   trading, if we've said that everybody accessing

21   the market are going through these DCM risk

22   controls, these risk controls, certainly on the

 1   financial side, are an extension of an FCM's risk

 2   controls.

 3   The use of DEA as a filtering mechanism

 4   for whether somebody is trading algorithmic starts

 5   to fade away. And there's more importance, rather

 6   than on using that as a filter, it's more

 7   importance on actually defining what algorithmic

 8   trading is, such that it would actually trigger

 9   the additional registration obligations, and then

10   the compliance, monitoring, and pre-trade risk

11   controls that would follow, captured under that AT

12   person designation.

13   MR. PUJOL: Thank you. Nitin, I

14   want to ask a follow-up and maybe, Doug, you have

15   a view on this as well. For the two factor model,

16   the non-DCM factor, is your view that that second

17   factor should be designed by someone other,

18   designed, and calibrated, or controlled by someone

19   other than the trading firm?

20   MR. GAMBHIR: We believe that is the

21   proven strategy, that the risk should be designed

22   and managed by the non-trading firm.

1   MR. PUJOL: And then with respect to the

2   controls that are in place at the DCM level, so

3   Mark asked about the ability of a DCM to be very

4   granular and say we know that this is specifically

5   customer X. Is it necessary, in your view, for an

6   effective DCM control, for the DCM to know that

7   it's customer X? Or can it be more a control at a

8   port level or something higher?

9   MR. GAMBHIR: Right. So, you know, it's

10   a little bit of a philosophical decision there.

11   The DCMs do have order level information. For

12   example, preventing self-matching requires you to

13   know what orders are live for the whole firm at

14   any time, right. Otherwise that's, I know that's

15   discussed in Reg AT as well. Preventing

16   self-matching is pretty important.

17   If you look around the world, right, if

18   you look at, believe it or not, the Russian

19   system, right, what they have done is they have

20   built a whole technology stack. And their idea

21   was, look, why do we want everybody to do a

22   separate technology? Let's build the whole thing,

     1   including P&Ls, et cetera. Clearly that's not

     2   going to happen here.

     3   So, you know, the way I look at it as

     4   follows. DCMs know things as they exist today.

     5   But they do not know the customer. It's the

     6   responsibility of the FCM to know your customer.

     7   You know your customer role is, you know, well

     8   entrenched now across the Western world, if not

     9   all around the world.

    10   And a substantial part of parameters,

    11   which will need to sort of detect abuse or detect

    12   potential risk, require what I call pattern-based

    13   risks. A pattern-based risk is, for example, and

    14   the simplest pattern-based risk is order

    15   frequency. How often am I cancelling the orders,

    16   which means I have to look at not only the current

    17   order, I have to look at the order history as

    18   well.

    19   So any kind of pattern-based risk

    20   requires the knowledge of a customer, you know,

    21   what is the customer all about? I think it's

    22   unrealistic to expect a DCM to know what the

1   expected pattern of each customer is. You know,

2   you have small and large customers all around the

3   world trading to the U.S. markets. It's pretty

4   much impossible.

5   So that's why the conjunction of

6   DCM-based risks, which are order-based risks, or

7   aggregate position-based risks, maybe as well but

8   not necessarily required. And then there are sort

9   of pattern-based risks which the FCM or

10   independent control layer provide, a relationship

11   firm is well suited to provide.

12   MR. CARUCCI: While the pattern-based

13   assessment per customer is very difficult, there

14   should be no doubt that, before an order hits a

15   matching engine, the DCM has full understanding of

16   exactly how that order will impact the so-called

17   market or the matching engine and the orders

18   within it.

19   So again, before that order gets

20   submitted into the matching engine, they can

21   actually tell you what's going to happen to the

22   market. And that's, again, where things can be

1   prevented.

2   Going back to your question on whether

3   we should have independent entities building the

4   actual software that accesses the market or not, I

5   definitely think that interferes with free market.

6   And whether it's a software company wanting to get

7   into the industry or someone who has a better

8   mousetrap, I don't think we would want to limit

9   those implementations and the technology

10   innovation.

11   MR. PUJOL: Let me just say if anyone

12   wants to get in a word , please raise your

13   tent so we can make sure that -- let me turn to

14   Jeff, because I think he hasn't gotten to -

15   MR. BURNETT: Yes. So to the extent I

16   agree with what's been said so far about where the

17   risk layer should lie, as a firm that generates

18   trading ideas, that's what we experience now, is

19   that there's going to be some FCM level risk layer

20   that controls position, child order size, these

21   things already exist.

22   And I think the question is who controls

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 1    that?  We don't have control over the risk limits

 2    that are set by our FCMs.  We negotiate these with

 3    them, because they know us as clients, and they

 4    know what our trading patterns are, to address

 5    what Nitin said.  But we can't control them

 6    ourselves.  So to that extent, they are the ones

 7    who bear the risk when we go to the market using

 8    their ID.

 9              And whether, to address what Doug was

10    saying about who develops it, it doesn't really

11    matter so much.  It's really who controls it

12    rather than who develops it.

13              MR. PUJOL:  And are you comfortable with

14    the model that, for operational algorithmic risks

15    that would follow the financial risks, where your

16    clearing firm is setting the max order size, and

17    the max order frequencies, and all of that for

18    you?

19              MR. BURNETT:  I think, well, I mean,

20    it's negotiated.  But yes, I am comfortable with

21    that.  But it's more the executing firm rather

22    than the clearing firm.  But, you know, this is
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1   based on, you know, how much margin we posted with

2   them.

3   And, you know, we circle around from

4   time to time to talk with them about what they

5   should expect to see from us in terms of order

6   size and positions. And so far it's worked well.

7   So I'm not sure that it needs much modification.

8   MR. GAMBHIR: I just want to clarify one

9   point, sorry, about -- sorry for that, sorry for

10   the interruption -- about development of software.

11   My point was of control. There has to be

12   independent control by the second layer FCM, et

13   cetera. As far as who develops the software,

14   that's immaterial. So control was the point I

15   wanted to sort of emphasize.

16   MR. PALAPARTHI: Thank you. I offer two

17   perspectives. One, as a company that trades on

18   230 venues, hence my name, Venu, and second, as

19   somebody who implemented or helped implement

20   market access rule at the family of exchanges, at

21   Virtu we believe that, you know, when you have

22   direct access to a market center, then you have

1   the key to the castle. That direct access comes

2   with certain responsibilities. And those

3   responsibilities are market access risk

4   responsibilities. Those are market risk

5   responsibilities.

6   Now, obviously we trade, and we are

7   putting our FCM at risk. To that extent, the FCM

8   has financial risk, and they control that

9   particular bot, or that particular risk area. And

10   the two, you know, so with direct access comes

11   direct responsibility. That requires direct

12   registration.

13   Now, if you don't want that

14   responsibility, and you want to offload that to

15   another FCM, by all means you should. But we

16   believe very strongly, whether you place ten

17   trades or a million trades, right, if you have

18   direct access, you hold the key to the castle.

19   You should be subject to risk controls that can be

20   checked by regulators.

21   Now, what are those risk controls? We

22   are going to discuss that separately, right. But

1   this should be robust and, as Nitin said, whoever

2   has direct and exclusive access to those controls,

3   right, those are the parties that are subject to

4   registration. It's not an alien concept. We

5   advocate this concept on each of the market

6   centers we trade on.

7   Now, you know, just switching my hats as

8   somebody who helped implement market access risk,

9   Phase 2 had a family of exchanges. We touched on

10   some points. You know, does the exchange know the

11   exact trading pattern, if you will, of the

12   ultimate submitter of the orders that is on that

13   port, that session, that end pit, or that firm?

14   You know, they are not in a position to

15   know that. But they are in a position to

16   implement certain risk controls that are kind of

17   homogenous. Everybody is subject to the same

18   controls. And those controls are configured as

19   the ultimate backstop. And so that's their role,

20   the exchange's role is to preserve market

21   integrity, as Greg said.

22   And then, you know, the FCM's role of

1   course is to make sure that the guy who is

2   entering the castle has the money to pay for the

3   entry. So that's their role. And I think the

4   three are very clearly delineated roles. And I

5   think, you know, that's pretty much all I'd say.

6   MR. PUJOL: Well, let me follow-up on

7   that. So you have distinguished a little bit

8   between the FCM and their financial risk function.

9   So maybe the same question that I put to Jeff,

10   with respect to the operational or the algorithmic

11   risk, do you see that as something that should be

12   calibrated by your FCM with respect to your order

13   flow? Or do you see that as something that your

14   firm, you know, at the sort of outgoing stage,

15   should be controlling?

16   MR. PALAPARTHI: Because we have direct

17   access, we are going to be registered or we

18   already are, in this case. And we should be

19   subject to the compliance obligations that come

20   with that direct access. If we do not want those

21   obligations, then we could go through an FCM,

22   that's our choice, by our own choice. And then

1   the FCM would have or would be empowered to

2   configure those controls. Because now it's their

3   risk.

4   MR. PUJOL: Greg?

5   MR. WOOD: Thank you. I was just going

6   to say a couple of points here, again, just

7   building off of what has been said previously. We

8   were going to talk about this in Panel 3, but it's

9   worthwhile bringing it up now.

10   For an FCM who is provided an access to

11   a market, when someone comes to us and says we

12   want to be a customer of you, we would like to

13   have this type of access to the market, whether

14   it's direct access, whether they're engaged in

15   algorithmic trading, there is a whole decision

16   tree that every FCM will go through in terms of

17   approving that access. And it may be that we turn

18   around and say, okay, we're not comfortable with

19   providing you with the keys to the exchange in

20   terms of having direct access.

21   You know, to Venu's point, there is a

22   lot of responsibility that comes with having

1   direct access to an exchange without going through

2   any separate infrastructure that is overseen,

3   provided and overseen by the FCM.

4   And certainly from our perspective at

5   Deutsche Bank, we spend a lot of time

6   rationalizing our client base that has direct

7   access, where we want to go out to people and say

8   you have responsibilities. And you have to

9   maintain those responsibilities.

10   And if you can't attest to us that you

11   can maintain those responsibilities, we will need

12   to change your type of market access, which may

13   mean putting them back through our DMA pipes where

14   the orders are routed by our fixed interface, and

15   then it goes through our systems before they go to

16   the exchange.

17   So there is a lot of KYC. We don't just

18   hand out access to marketplace. We do a very

19   qualitative and quantitative analysis of do we

20   think this is the appropriate type of risk that

21   we, as an FCM facilitating market access, want to

22   take on?

 1   If someone comes to us and says I need

 2   low latency, I need to go direct to the exchange,

 3   then whole KYC process, do we feel comfortable

 4   with that? If not, we may turn around and say,

 5   well, we have a low latency colo solution. But

 6   you'll still go in through our pipes. That may be

 7   a better alternative.

 8   And we've also done that with third

 9   party vendors as well, where some third party

10   vendors may be satisfied with an exchange, may

11   like -- prefer hookups to the exchange.

12   But because of the appetite for risk

13   that we want to take on, in terms of those third

14   party vendors and the clients they facilitate, we

15   may also have a conversation where we say, no.

16   Actually we want to do a conformance test through

17   our pipes, as low latency is possible, and give

18   you access that way.

19   The one thing I would caution around AT

20   persons and direct electronic access, and to

21   Commissioner Bowen's point, within the industry we

22   believe this is a potential loophole, that if you

1   put the focus on having direct electronic access,

2   in terms of adding additional responsibilities and

3   requirements onto a participant, it is possible

4   for them to bypass those requirements by using a

5   slightly different form of access, where they can

6   say using a low latency FPGA solution, for

7   example, provided by an FCA, I now no longer have

8   direct electronic access.

9   Yet they're still engaged in the same

10   activity. It's just an addition layer of control

11   which, you know, I know the concern has been

12   historically that people feel that DEA is

13   comparatively unfiltered compared to going via on

14   FCM infrastructure. But it is also possible to go

15   via an FCM infrastructure that gives you very

16   similar sort of latencies, maybe just a little bit

17   of overhead, as a way of sidestepping any

18   additional responsibilities you feel like you want

19   to impose.

20   MR. PUJOL: So I am going sort of ask

21   one follow-up question. And then we'll shift to

22   38.607.

1   So the discussion, and I'll admit I'm

2 not clear on this, the discussion has been around

3 DEA as a system that is sort of very direct. But

4 in all cases, the DEA order flow is still subject

5 to the financial risk controls of the clearing

6 FCM, right. So, in fact, that's by virtue of 1.73

7 and 38.607.

8   So I'm not exactly clear as to how it is

9 that, even in that scenario, the DEA is truly

10 unfiltered, right. So if it's going to the

11 financial risk filter, potentially you could also

12 add operational risk filter at that level. And

13 then I'm sort of left wondering what is left to be

14 characterized as DEA. Does that make sense?

15   MR. WOOD: Yes. No, absolutely. I keep

16 coming back to Rule 1.73, post Rule 1.73. Every DCM

17 had to have pre-trade risk controls in place that

18 could be used by the clearing member facilitating

19 access to the market.

20   Now, I just want to be very clear here.

21 You obviously have to be a clearing member of the

22 DCO to provide market access. But you don't have

1   to be clearing on behalf of the client that you're

2   providing access to.

3   So we have a lot of relationships.

4   There may be multiple give up arrangements where

5   there may be multiple clearing firms actually

6   carrying those trades and also multiple executed

7   FCMs facilitating access to the marketplace.

8   Now, the FCM who is facilitating access

9   will use risk controls provided by the DCM, such

10   as Globex Credit controls and the ICE risk

11   controls, which may provide a level of financial

12   risk. But ultimately, they are actually providing

13   a pre-trade risk which is maybe dollarized, or it

14   may be a number of contracts, depending on the

15   type of technology that's been implemented by the

16   DCM to provide that ability to do pre-trade risks

17   for the FCM who is facilitating access.

18   Those controls don't go anywhere near as

19   detailed as what was prescribed in Rule 1.80 or

20   1.81, specifically around – 1.82 I should say --

21   specifically around AT persons and the

22   responsibility of controls for an FCM providing

1   access to an AT person.

2   But they do provide a level of measure.

3   So to your question, is there such a thing as DEA?

4   We believe, yes, there is a thing in DEA, and it's

5   going direct to the market. There are tools in

6   place. These tools that are now in place, post

7   1.73, have removed naked access to the market.

8   But there are still risk controls in

9   place that the FCM can utilize to at least provide

10   a degree of protection. And again, as I say, it's

11   part of the decision tree that the FCM goes

12   through when onboarding a client, whether they

13   decide those controls are suitable based on their

14   knowledge of the client and touch controls they

15   have in place, or if they're unsuitable. Then, if

16   we want to do that business, we have to suggest

17   alternative means of access.

18   MR. PUJOL: Thank you.

19   MR. OTCHIN: Thanks for those comments.

20   I'd like to turn back briefly to the existing

21   Commission Regulation 38.607. And we have an

22   excerpt from that regulation on the screen. And

1   in this excerpt, it contains a description of

2   direct electronic access which it describes as,

3   "allowing customers of futures commission merchants

4   to enter orders directly into a designated

5   contract market's trade matching system for

6   execution."

7   So this obviously has been on the books

8   for a few years. And we'd like to get the

9   panelists' thoughts on what types of market

10   participants are subject to 38.607 and what

11   connectivity methods the market participants with

12   DEA use. Jim?

13   MR. MORAN: Okay, yes. I think 38.607

14   is titled direct access, which we see as a little

15   bit different than direct electronic assess. It's

16   a very general definition in the rule. I think

17   you could interpret this to be pretty much anyone

18   interacting with the bid-ask spread of a DCM. So

19   it's probably going to cover the majority of

20   market participants that use, you know, all

21   different kinds of strategies.

22   You know, and that's, I think, what's

1   covered by 1.73, which 1.73 focuses really on all

2   flow. It requires the clearing member to put the

3   financial risk on all customer and all proprietary

4   activity. So this pretty much is a much broader

5   and much wider catch than what we're talking about

6   when we talk about direct electronic access.

7   MR. PUJOL: And just to be clear, so,

8   Jim, in your view, this concept of 38.607 direct

9   electronic assess, is as broad or broader than the

10   1.3 quad y proposed definition of DEA?

11   MR. MORAN: Yes. That's the way I read

12   it, yes.

13   MR. BARAZI: Sebastian, I think for us,

14   as a smaller DCM, and I think this is probably

15   true for other small DCMs as well, we don't have

16   the same universe of participants. And the

17   overwhelming majority of our market participants,

18   at least because clearing members don't provide

19   their own access through their systems, use the

20   exchange provided GUI.

21   And a small handful of market makers

22   connect to the API. Whether you use the

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 1    definition in 38.607 or the new definition at 1.3

 2    quad y, to us it would achieve the same end and

 3    capture the same type of activity and the same

 4    market participants.

 5           MR. WINDELER:  If I could add a comment

 6    too, it just builds upon my previous comment about

 7    the application of the DCM risk controls

 8    uniformly.

 9           In response to 38.607, ultimately

10    building on what Jim had mentioned in regards to

11    that capturing a population of activity that is

12    ultimately anybody accessing the market and

13    interacting with the matching engine, the DCM risk

14    controls are purposely built so that they apply

15    not only to people using the exchange provided

16    GUI, coming in through a fixed connection, or by

17    way of third party systems, or sponsored access

18    from an FCM, those risk controls apply uniformly

19    for purposes of meeting this type of

20    principles-based discussion or definition of

21    direct access.

22           So to that point, essentially everybody
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      1   is captured. And then that's the challenge here

      2   that we're having in working out this discussion

      3   is, read too narrowly nobody is included, read too

      4   broadly everybody is included, based on existing

      5   controls that are in place, and with the

      6   administration of these controls purposefully

      7   extended to the FCMs as part of their risk

      8   infrastructure.

      9   As they bring on new clients and manage

     10   the risk on a day to day basis, administering

     11   these DCM risk controls are a part and an

     12   extension, regardless of if they have additional

     13   risk controls in any other capacity, these

     14   override, as Douglas has mentioned before, as that

     15   backstop that all orders pass through.

     16   So I think, when looking at this

     17   definition and trying to see if that is any sort

     18   of additional filtering mechanism, the fact that

     19   it, from ICE's perspective it's not. It

     20   capsulates everybody that accesses our market.

     21   MR. CARUCCI: Yes, given -- I think a

     22   good example is the exchange provided GUIs. And

1   the previous definition is, in our opinion, pretty

2   solid.

3   And just to crystallize what might be a

4   little different from that definition is, for an

5   exchange provided GUI, our recommendation is,

6   since it's the exchange that owns the DCM, and the

7   matching engine, and also the interface to their

8   own matching engine, we don't believe that anyone

9   outside of that community, which in this example

10   would only be the DCM, would have responsibility

11   for tracking and governing the market,

12   micro-market structure controls, not the financial

13   ones. Because, I think, clearing, FCMs and such

14   is separate, but just specifically protecting the

15   market structure.

16   MR. PUJOL: So we have just a couple of

17   minutes left. So I'll look to see if there are

18   any final thoughts. I see, Jim, your light is on.

19   Oh, no. Anyone want to leave us with any parting

20   words on this subject?

21   Okay, thank you. We will take a

22   ten-minute break and resume with the second panel.

         1   (Recess- end of first panel)

         2   MR. PUJOL: If we could get seated and

         3   get started please?

         4   Well thank you and welcome back.   Our

         5   second panel today will focus on potential

         6   quantitative metrics to help establish the

         7   population of AT persons in the proposed rules.

         8   This panel is informed by a number of

         9   considerations. For example, the notice of

        10   proposed rulemaking for Reg AT estimated that the

        11   proposed rules would encompass approximately 420

        12   AT persons, including approximately 100 new

        13   registrants and 320 existing

        14   registrants.   Comment letters have suggested

        15   however that the actual number could be

        16   substantially higher.

        17   Staff would like to use this panel to

        18   explore a possible quantitative option for

        19   achieving a more balanced set of potential AT

        20   persons.   Among other features, a quantitative

        21   option or measure should be efficient to

        22   administer and should provide market participants

     1   with clarity or predictability regarding whether

     2   they will or will not be subject to the proposed

     3   rules.

     4   We'll discuss these and other desirable

     5   attributes during the panel and we will present a

     6   number of potential quantitative options and look

     7   for panelists' feedback on which is the

     8   best measure or potentially the easiest or most

     9   efficient to administer.

    10   To begin our discussion today, staff is

    11   very pleased to welcome Mr. Alberto Garcia. Alberto is

    12   a senior officer at the European Securities and

    13   Markets Authority. He will begin our panel

    14   with an overview of certain quantitative metrics

    15   developed in Europe as an outgrowth of MiFID II.

    16   My colleagues Mike Penick and Richard

    17   Haynes will then take up the discussion. Before

    18   turning it over to Alberto, I am going to ask

    19   again that panelists please introduce yourselves

    20   or your position in your organization and then

    21   after that, we'll begin with Alberto, thank you.

    22   Kurt, do you want to start?

 1   MR. WINDELER: I'm Kurt Windeler, Senior

 2   Director of Market Regulation, Intercontinental

 3   Exchange.

 4   MR. NUNES: Adam Nunes, Head of Business

 5   Development, Hudson River Trading.

 6   MR. CHANG: Isaac Chang, Co-head of

 7   Trading at AQR and also speaking on behalf of the

 8   MFA.

 9   MR. BURNETT: Jeff Burnett, Director of

10   Research at Quantitative Investment management.

11   MR. GARCIA: Alberto Garcia, Senior

12   Officer at the European Securities Market

13   Authority.

14   MR. MUELLER: John Mueller, Head of risk

15   technology and compliance technology for KCG

16   Holdings.

17   MR. KOELING: Sebastian Koeling of

18   Optiver U.S.

19   MR. MCCARTY: Matt McCarty, Vice

20   President of Regulatory Group in North America. I

21   am here on behalf the Commercial Energy Working

22   Group.

1   MR. COSCIA: Carl Coscia, I am the Chief

2   Risk Officer at Hartree Partners.

3   MR. PUJOL: Thank you. Alberto, please?

4   MR. GARCIA: Thank you, Sebastian and

5   thank you to the commissioners for inviting ESMA

6   to present the European Regulation and algorithmic

7   trading; we very much appreciate that invitation.

8   First of all, I mean back in 2009, there

9   was nothing in the European Regulation regarding

10   any algorithmic trading or even the mere existence

11   of proprietary trading was excluded explicitly

12   from the financial regulations that we have in

13   place where we were going to cause the market

14   financial instruments directed MiFID I.

15   At that point in time, back in 2009, we

16   started receiving comments from market

17   participants that indicated that this might be an

18   issue and that this might be a problem, then as

19   much as (inaudible), the committee of securities

20   regulation at that time issued the call for

21   evidence and we prepared the -- we started worked

22   on a set of guidelines that were published in

           1   2012, the (inaudible) of systems and controls and

           2   an automatic treaty environment where we used

           3   MiFID I, the existing regulation to identify how

           4   it should be interpreted in the context where

           5   algorithmic traders seem to be excluded by the

           6   regression but they did create some type of risks,

           7   therefore, for the first time we indicated that

           8   sponsored access could not be accepted and another

           9   number -- the necessary existence of (inaudible)

          10   is controlled and so forth.

          11   Many of the guidelines that we said in

          12   those(inaudible) had been translated to MiFID II

          13   which, as a sort of pendulum has moved from a

          14   world where prop trading and algorithmic trading

          15   were not recognized and did not exist to a

          16   situation where it's basically quite difficult if

          17   your algorithmic trade not to be resistant.

          18   If you are executing client orders, you

          19   should become an investment firm and be

          20   registered. If you are tilling on an account, you

          21   should still register as an investment firm if you

          22   are a high frequency trader, if you are doing

1   micro (inaudible) activities, if you're a member

2   or participant of the trading venue or if you have

3   electronic access to a trading venue.

4   And then the requirements are slightly

5   different for an algo trader and for a high

6   frequency trader but still, if you're an algo

7   trader, you still have to notify your competent

8   authority and the competent authority of any

9   jurisdiction in which you are a member or

10   participant of a trading venue, you have

11   obligations in terms of (inaudible) making an

12   agreement if you are running any type of market

13   making strategy, meaning posting simultaneous two

14   way quotes in any type of market if you are not

15   already engaged in a kind of liquid operation

16   (inaudible) also you have to meet certain types of

17   organizational requirements which I will come back

18   later on.

19   If you are a high frequency trader, the

20   obligations are definitely much more burdensome

21   because first of all, you have to become an

22   investment firm and there are a number of

1   consequences out of that.

2   First of all, you have to sign -- you

3   have to become a member of an invested scheme

4   which in particular, if you are a high frequency

5   trader, you are going to be by nature an

6   (inaudible) trader so you do not have clients,

7   you're going to be paying for the eventual

8   bankruptcy of all the investment firms but not for

9   yours.

10   You also have to fulfill the capital

11   requirement relation which is a relation put in

12   place after the financial crisis to ensure that

13   the core capital of certain firms is definitely

14   more demanding than the typical activity which was

15   not (inaudible) beforehand.

16   You also become a financial counterparty

17   for OTC derivatives purposes so under the European

18   Market Infrastructure Regulation, EMIR, in all

19   cases, any transaction on OTC derivatives has to

20   be centrally included and settled, therefore you

21   are making compulsory certain margins and

22   collateral obligations and on top of that, MiFID

1   has established the obligation for high frequency

2   traders to keep sequenced records of each and

3   every order, cancellation of order, "sent to the

4   market" in a specific format so definitely the

5   identification has become critical for many market

6   participants.

7   What MiFID II says about high frequency

8   trading is that this is algorithmic trading with

9   certain additional features which are first of all

10   infrastructure to minimize latency which can be

11   the co-location, proximity hosting or what the

12   directive considers as high speed direct

13   electronic access which is not very clear because

14   we couldn't identify any low access directive

15   (inaudible) but anyway.

16   Second, it requires (inaudible) of

17   (inaudible) routing or execution without human

18   intervention. This basically means that the

19   investment decision algorithm (inaudible) of the

20   older management systems have to be part of the

21   same system and the third characteristic to

22   clarify -- has to have high message intraday

1   rates.

2   This is the critical point for which the

3   European Commission requested the assistance of

4   ESMA and for which ESMA consulted publicly.

5   Initially, we identified two different approaches,

6   one from Germans and one from French. The first

7   one which were two indirect approaches coming from

8   legislation and home countries.

9   Germany had the proof around 2011. A

10   German loan HFT, which is published in an absolute

11   threshold, whereby you were considered as a high

12   frequency trader, you have to become an investment

13   firm, if you on average have sent a trading venue

14   to any financial instrument of trading on a

15   trading venue at least two messages per second,

16   considered as that, on a rolling basis, the

17   previous 12 months so the trading venue has to be

18   counted at all times, counting at all times so as

19   to ensure that -- to see which firms fall under

20   that category of high frequency traders.

21   As we consulted, this (inaudible)

22   evolved and then from this -- when -- from

1   considering just all the messages sent to a

2   trading venue, on the final proposal these were

3   refined and we considered that you were a high

4   frequency trader is if on average on a rolling

5   basis, looking at the past 12 months, you have

6   sent at least two messages per second on any

7   financial -- on one financial instrument on a

8   trading venue.

9   The second proposal was derived from the

10   French tax law on HFT which is the called the

11   relative threshold and considered that more market

12   participants should fall under the category of

13   high frequency trader if the median, not the

14   average, the median lifetime of disorders modified

15   or consult fell below the median (inaudible) to a

16   trading venue and the -- these proposals were

17   publicly consulted and on top of that, we had the

18   advantage that the scientific department of ESMA

19   was running a survey to identify high frequency

20   trading basically in parallel and then, we made

21   use of the information they had collected and

22   tested whether the two indirect approaches that we

1   have identified how they match with their approach

2   and what they have done and for that purpose, the

3   ESMA scientific department have collected data

4   from 100 stocks, traded on the 12 main treating

5   venues in Europe over May 12th, 2013.

6   And then, identifying as well each and

7   every market participant that had sent orders to

8   each and every of those trading venues over this

9   month and then they tried to identify how many of

10   these market participants, which I think there

11   were 1,200, how many were frequency traders using

12   what they called the direct approach.

13   And for the direct approach, they

14   consider it as either they were co-located to any

15   of those venues or they looked at the websites of

16   the firms, they looked at the participating in

17   Florida where they consider themselves high

18   frequency traders or articles in the media, any

19   type of indication that these things we were

20   talking about were high frequency traders.

21   This approach was clearly imperfect and

22   that was acknowledged as well both in our

1   technical advice and in the survey that they

2   published because some venues had outsourced the

3   collocation facilities, therefore it was not

4   possible to provide the information about who was

5   collocated and also it was not possible to

6   identify in which cases some banks had simply

7   (inaudible) somewhere but they didn't quite do

8   that.

9   Nonetheless, out of this population of

10   1,200, they created three buckets, one was high

11   frequency traders, another was investment banks

12   and a third category of just ordered which didn't

13   fit into any of the previous -- and then we tested

14   the results of the polls and direct approaches

15   against this and the results of that were that

16   under the absolute threshold, two messages per

17   second sent over the previous 12 months, an

18   average on any financial instruments -- we found

19   out that from -- we initially, through the direct

20   approach, we had identified 181 high frequency

21   traders but all together, we have only come up to

22   21 firms.

1   Out of them, 16 were high frequency

2   traders under the direct approach and five were

3   investment firms and we captured 13 percent of the

4   volume trade.

5   The conclusion that we draw is that --

6   we could say there was a possibility of too many

7   what we call false negatives. There might be many

8   high frequency traders out there that had not been

9   captured by this approach.

10   As a consequence, we developed -- we

11   maintained this proposal at it was particularly

12   because -- from the NICs that we made, we

13   permitted the commission to analyze if instead of

14   taking two messages per second, you took three

15   messages, 3. 5 and there was also information

16   about how many people will be captured under each

17   and every average so we thought that it would be

18   useful for the commission to take the political

19   decision of exactly where to draw the line but on

20   top of that, we developed a second absolute

21   threshold which was called absolute threshold for

22   trading venue and per instrument whereby you would

1   be considered as a high frequency trader if you

2   were submitting on average a rolling based on the

3   previous 12 months, either two messages per second

4   in any financial instrument, on a trading venue or

5   four messages per second in any financial

6   instrument or trading venue so you consider only

7   one of the financial instruments or each and every

8   financial instrument trading on the venue.

9   Unfortunately, these reports came too

10   late so we were not able to make the impact

11   assessment of that but we naturally considered

12   that it should capture a higher number. Let's say

13   there should be more consistency between the

14   direct approach and the indirect approach in this

15   case. And finally the relative threshold, the

16   median lifetime of the order is modified or

17   cancelled.

18   Then we identified 565 high frequency

19   traders. Out of them it was like 153 HFTs that

20   had been identified as HFTs and direct approach.

21   I -- please remember that we had

22   identified 181 and then we captured 153 HFTs, 221

1   investment banks and 181 other participants, that

2   and the frustrating volume that corresponds to 78

3   percent of the volume.

4   Again, we considered that this system

5   could be improvable because there might be a

6   relatively high number of false positives and as a

7   consequences, we recommended to the commission

8   that we simply -- we delivered the three possible

9   options with the impact analysis on each of them

10   and we recommended the commission, first of all to

11   take into account only trading that had taken

12   place in relation to under the MiFID, it's called

13   liquid instrument which has an impact for

14   transparency purposes.

15   In the case of the relative approach, we

16   recommended to the commission not taking into

17   account only the lifetime of the (inaudible) that

18   strictly fell under the 50th percentile that was

19   strictly below the median lifetime but looking at

20   the -- something between the 40th and 30th

21   percentile and taking only into account only

22   proprietary flow, meaning that if I am the same

1   time a proprietor and I am also providing direct

2   electronic access to my clients, let's say the

3   order of the flow should be taken out for the

4   calculation of any of the three approaches.

5   The commission has very recently -- I

6   think that three weeks ago has released the final

7   delegated (inaudible) that is still being

8   discussed but probably is going to remain as it is

9   and the approach that they have followed is to

10   select this absolute threshold for trading venue

11   and per instrument and the final -- the definite

12   approval is going to take place in the next month

13   but it is important to take into account as well

14   that these regulations will keep MiFID to contain

15   some mandates for ESMA to keep analyzing the

16   evolution of algorithmic trading so that we will

17   have to see exactly which is the impact of these

18   provisions and for eventually any type of

19   amendment in a future MiFID III. Thank you.

20   MR. PUJOL: Alberto, thank you and maybe

21   could you sort of reiterate, before we shift over

22   to Mike and Richard, the numbers one more time for

1   the approach that looks likely?

2   MR. GARCIA: Out of a population of

3   1,211, we have identified 181 HFTs, okay?

4   Under the first actual threshold, two

5   messages per second, we found that out of them

6   only 16 were captured and also five investment

7   banks.

8   And using the relative threshold, we

9   captured 565 firms that should because they are

10   HFTs and out of them, 153 were HFTs identified as

11   such, using the direct approach. 221 were

12   investment banks and 191 were others.

13   MR. PUJOL: I meant also the

14   quantitative metric that the two seconds, any

15   instrument --

16   MR. GARCIA: The final technical advice

17   that we deliver to the commission was based on an

18   absolute threshold, that two messages per second,

19   taking into account, on average, over the previous

20   12 months considered on a rolling basis.

21   The second one was the absolute

22   threshold per trading venue and per instrument and

1   again, it was two messages per second in any

2   financial instrument over the previous 12 months

3   or four messages per second to a trading venue and

4   the relative threshold was the median lifetime of

5   the orders modified or cancelled should fall

6   between the 30th and the 40th percentile, clearly

7   below the 50th percentile that clearly determines

8   the cut off.

9   MR. PUJOL: Great, thank you very much

10   for that presentation, I appreciate it. Mike and

11   Richard?

12   MR. PENICK: Okay, so the staff is

13   considering recommending some kind of metric that

14   would be potentially by way of further balancing

15   the number of AT persons. This will probably be a

16   supplement to some kind of DEA definition for

17   identifying who a floor trader is with an addition

18   of a metric for not just the floor trader but for

19   all AT persons so it would register on such CPOs

20   and CTAs and swap dealers and major swap

21   participants who would just do metric also for

22   them to narrow down the list of 18 persons to what

         1   seems like a number that seems reasonable for the

         2   industry and to the public and so we are going to

         3   be asking some questions about what metrics around

         4   automated activities should be considered and

         5   things we are looking for might be what

         6   measurements are most related to the risks of

         7   algorithmic trading and also of course, we are

         8   interested in measures that are easy to monitor

         9   and calculate on an outgoing basis.

        10   So potential metrics include the MiFID

        11   II proposal that Alberto just described for us.

        12   We could potentially consider the French Metric of

        13   order resting times. Other possibilities would be

        14   trade counts and trade volumes and there might be

        15   others that panelists might want to suggest. I

        16   mean of course another question is what are the

        17   benefits of cross border harmonization, does it

        18   make sense for us to come up with something close

        19   to what they are doing.

        20   In Europe, there's a way of making it

        21   easier for people to do calculations of other

        22   challenges associated with applying those metrics

 1   to U.S. futures markets. Anyway, so at this

 2   point, I am going to pass it over to my colleague

 3   Richard who is going to ask more specific

 4   questions.

 5   MR. HAYNES: So we'll begin with perhaps

 6   the most general of questions. As noted, the

 7   commission is considering a number of potential

 8   ways in which to narrow the population of

 9   automated persons, AT persons. This is one

10   potential method.

11   So my first question will be -- we have

12   zoomed through all the questions already. The

13   first question will be if we do in fact choose to

14   go down this route -- so introducing a

15   quantitative metric perhaps similar to what ESMA

16   did in Europe, are there certain metrics which

17   would be most appropriate within domestic markets,

18   the market regulated by the CFTC (phonetic).

19   MR. NUNES: I will go. I guess to get

20   started with -- Alberto did a good job describing

21   the measures that were proposed for MiFID II. It

22   is important to note that those were specific to

1   high frequency trading, not algorithmic trading

2   and the questions and answers put out on Reg AT,

3   the commission was very specific that this was

4   about automated algorithmic trading, not HFT so I

5   think that when you look at the measures that are

6   being proposed, is this kind of a shift in what

7   the focus is or is this kind of like "well that

8   seemed like too many, let's try to figure out how

9   to get fewer. " That's point one.

10   I think point two is that Reg AT was

11   associated with the risks associated with

12   automated trading. If you look at measures like

13   messages per second or volume or any of those,

14   they are generally going to be looking at when

15   things are operating normally and if the risks we

16   are concerned about are when they are not, then I

17   kind of fail to see the big difference between a

18   high frequency trading firm or a separate

19   automated firm because their malfunctions may

20   start to look very similar.

21   I guess I come from a firm where if you

22   have any definition of this and are not caught

1   under for either high frequency trading or

2   automated trading, you're probably doing it wrong

3   but I would caution against measures that really

4   start to focus in on strategies.

5   When you get to messages per second, if

6   you have a liquidity provision strategy, you're

7   going to trigger it. If you're largely crossing

8   the spread, you may not have enough messages to

9   get to that. Now those, from my perspective are

10   just different approaches at doing the same thing.

11   When you look at volume, is there a real

12   reason we should we thinking about the volume

13   associated with firms that are automated versus

14   individuals who aren't? We've certainly seen some

15   high volume participants who were, or at least

16   claimed to be pointing and clicking so I guess

17   from the earlier panel and I guess that's what

18   Kurt talked about, the DCM's view that their job

19   is to make sure that every single voter that gets

20   to the DCM has gone through -- and to me that

21   seems appropriate but I think that when we're

22   looking at these measures, you're not -- you're

1   going to start to focus in on strategies rather

2   than is it automated, is it algorithmic or does it

3   pose a risk.

4   If you narrow that artificially, you're

5   just going to leave a big portion of the

6   population that you know, really has the same

7   risks, just doesn't look the same day in, day out,

8   to be completely uncovered.

9   MR. GIANCARLO: I just wanted to ask a

10   follow up questions, Adam. It may seem obvious

11   but Adam, if the criteria were seemingly based

12   upon strategy, would you anticipate that firms

13   would then adjust strategy to stay under a

14   threshold?

15   MR. NUNES: I guess the one of those

16   that I have seen was the German approach where I

17   think they had like 75,000 messages per day

18   approach.

19   I think if you're near that threshold,

20   if you are at 76,000, you might say: "You know

21   what? Those extra 1,000, we can do without." If

22   you're a firm that is sending 20 messages a second

1   and the threshold is two or four, that's your

2   strategy and it's frankly a lot harder to change

3   strategies than it is to just register and go

4   about your business.

5   MR. COSCIA: I appreciate what ESMA did

6   and I like it when anybody takes a hard look at

7   data. I want to start by just saying -- putting

8   some framework around all this which is what we

9   are looking at here and what we are talking about

10   is really the natural evolution of any market.

11   If we think about markets, we think

12   about how is everyone communicating originally,

13   well it may have been smoke signals and drums and

14   then it was pony express and then it was telegraph

15   and then it was radio and then it was telephone

16   and now it's computer, and now it's high speed

17   computers and you know, that's not going to stop

18   and I don't think the commission should be doing

19   anything or setting a rule that hampers that

20   innovation.

21   Ultimately, that's good for anybody,

22   that innovation so I really want to start there as

1   the groundwork, that's really what we should be

2   doing is trying to find a set of rules that

3   protect the market without hampering innovation

4   and when I think about the ESMA rules, and the

5   data that Alberto just put forward, I think that

6   they really looked at the data and they looked at

7   who got captured and everything.

8   What they didn't look at and what I hope

9   this commission looks at is what happened to bid

10   offer spreads when traders knew that they were

11   going to be evaluated on this criteria. What

12   happened to slippage of trades? When a large

13   order came in, how much did the market slip when

14   they were observing all these things?

15   And I think those are really important

16   things because speed is not the enemy. All of us

17   are in this room as a beneficiary and take

18   advantage of advances in speed of communication

19   every day and the classic example is almost every

20   one of us will have a car with an airbag, which is

21   completely enabled by the control area network

22   within our car and the ability of our car to

 1   register an impact and deploy an airbag faster

 2   than our head can hit the steering wheel. Now we

 3   are seeing it -- we are seeing further advances,

 4   we are seeing lane change things so speed per se

 5   is not the enemy and I really want to get that on

 6   the commission record.

 7   So my opinion is there is no bright line

 8   that you can set because whatever bright line you

 9   set today will be obsolete tomorrow because

10   everything is getting faster, okay? And if

11   someone is telling you that they don't have a

12   quick algorithm today, they probably need one

13   tomorrow because they've got a telegraph and I've

14   got a telephone, okay? So therein lies the

15   difference and the reason there is no bright line

16   is because what looks like -- unfortunately, to

17   kind of paraphrase a pretty famous judge, you

18   don't know HFT when you see it, okay?

19   You can't just look at the data and say

20   that's HFT because I might be running a spread

21   algorithm and facing another algorithm that is

22   trying to do something different. Those two

1   things become (inaudible) so you get a lot of, you

2   know, messages and cancels because one is acting

3   one way and one is instantly reacting and going

4   the other way so you can't just look at the data.

5   I think we need to go back to what the panel

6   talked about and we need to say what is the focus

7   on the risk metrics?

8   What should be the pre trade risk

9   controls and we should set it there and you know,

10   it should be how quickly can you disengage if you

11   have a risk system breach. How quickly can you

12   recalculate your risk metrics? What is your

13   message order rate between recalculation of risk

14   metrics and risk metrics breach? What is the

15   volume in that market? Is that message rate

16   potentially detrimental to that market and once

17   you define those, those become measurable, right?

18   So I tell you that I've reached my --

19   I've breached the limit and. When I have breached

20   it, what do I do? Do I instantly get canceled?

21   Do I shut down orderly? How quickly can I shut

22   down? How many fail safes do I have when I shut

1   down?

2   It's not the trading, it's not the

3   speed, it's the safety of all that stuff and I

4   don't -- to just put on the record and disagree

5   with what some of the panelists said first and

6   just tell you who we are, we are directly

7   connected, we trade algorithms, we don't HFT and

8   we are an end user and we think we're not going to

9   be alone in this space and so, you know, I hope

10   the commission considers all of that in its

11   totality, thanks.

12   MR. PICARDI: Thanks. On behalf of

13   commercial energy work group, I think I want to

14   echo some of the comments that Carl was making

15   from the perspective that we're represented by a

16   lot of folks that are first of all focused in and

17   should be concerned about the risk and who can

18   manage the risk.

19   We did have a discussion about, and a

20   concern about a one size fits all approach and

21   I'll also echo what Adam said originally from a

22   high frequency perspective. I think from our

1   group's perspective, we're looking mostly from

2   people that are using simple or third party type

3   programs to conduct order management and

4   execution. We're not -- for the most part

5   thinking about doing high frequency and writing

6   proprietary algorithms in order to participate in

7   a market because most of our business is

8   physically based and we're trying to manage our

9   business through our trading activities so the

10   concern, it even trickles back to the first panel

11   is we don't think you're meant to pick up most of

12   that activity but when you get into the idea of

13   coming up with specific metrics. The concern

14   would be that for example, you know, how do you do

15   it across, especially if it's not high frequency

16   based but volume based or order based, how do you

17   measure that across timeframes and different

18   product markets and for example, you look at a

19   shop like a lot of our members where we transact

20   in multiple markets so we're in oil, we're in

21   products, we're in electricity, we're in gas.

22   One element crosses the threshold, now

1   it's my whole company that transacted in that

2   subject to being an AT person and all the

3   regulation and recordkeeping and burdens that come

4   with that which is something that we don't feel

5   that at this point is a way to manage the risk so

6   that's kind of where we generally come from, we're

7   probably looking at it more from the bottom up

8   from the first panel and our concerns are that we

9   end up with a regulatory framework and a burden

10 that might not be balanced well with a risk that

11 we can manage and that should be better managed by

12 maybe people upstream from us like the FCMs and

13 the DCMs.

14   MR. PUJOL: So thank you and Adam, I'll

15 turn it back to you in a second but I just want to

16 make sure that given the fact that we have an hour

17 for the panel that -- and since this is just staff

18 speaking right?

19   We understand that there are both policy

20 arguments against pursuing a quantitative

21 threshold at all and we want to hear those

22 perspectives but I want to make sure we also get

1   the perspective of if this is something the staff

2   chooses to explore as a potential recommendation

3   that we do have enough time to go through

4   Richard's questions on the structure of those

5   quantitative measures so just as you're making

6   your comments, please keep in mind sort of both

7   the policy argument but also the practical

8   questions that we as a staff have to wrestle with

9   and that we would like to be able to get

10   information on, thank you.

11   MR. CHANG: If I might be able to offer

12   a few observations, so we started this panel

13   talking about the number of participants

14   potentially captured and wanting to reduce it.

15   One of the questions, I think that

16   certainly is on my mind in generally wanting to be

17   helpful is it's a little unclear to me who exactly

18   you would like to narrow down that group to be

19   because I think the metric you choose actually

20   then is very dependent because any metric you

21   choose will affect different groups of people

22   differently, or different groups of market

1   participants differently and so any feedback that

2   the staff or the commissioners could give on that

3   to help be more concrete, I think certainly would

4   be helpful.

5   I would say the following also though,

6   every role has -- one thing though that -- I think

7   one observation about hard limits and the way that

8   they've been described by ESMA and others is that

9   I think it's very difficult to make comparisons

10   across both products from a risk perspective using

11   those types of metrics as well as through

12   volatility regimes.

13   Any message per second, any message per

14   second threshold, when it's really quiet and there

15   is nothing going on in the marketplace, versus a

16   message per second threshold after non-farm

17   payrolls when there is a massive surprise, you're

18   very naturally going to get very different message

19   levels and I think have fixing it any hard number,

20   a message -- something like a message per second

21   level or a trade count or even a volume count, you

22   run the risk of not understanding or not being

 1   able to adjust that based on the market conditions

 2   and I think that's -- the other message also is an

 3   interesting metric because as someone who has

 4   grown up as a trader in this business, if I put an

 5   order to buy one (inaudible), that's a message and

 6   if I put in an order to buy one long bond future,

 7   that's a message but if I actually look at the

 8   economic risk associated with each of those

 9   contracts, it's actually quite different and

10   similarly across any product, right?

11   In fact, how do you -- you can --

12   (inaudible) even with the same underlying risk so

13   to me anyway, messages, while I understand the

14   underlying rationale, it's a very difficult,

15   almost by its very construction, measure to

16   calibrate accurately and so I just wanted to sort

17   of point that out.

18   I think one of the other risks that's

19   already been highlighted is any fixed message --

20   any fixed message count or any fixed order count

21   or trade count or volume count is to some extent,

22   for lack of a better term, gameable. If you're

1   close to the threshold and the burden for crossing

2   that threshold is very high, you're just going to

3   stay under that threshold and that may or may not

4   have the -- that may or may not then serve the

5   goals of what Reg AT is meant to achieve, which I

6   believe is to ensure the safety and integrity of

7   the futures market places.

8   The last point I wanted to mention is

9   that -- again, any given arbitrary metric is

10   difficult to apply because a market making high

11   frequency algorithm, by its very nature is going

12   to have a high cancel ration, particularly in a

13   volatile market because you're always going to

14   want to be on the best bid and offer and if the

15   market is moving around a lot, you're going to

16   move your price based on where the current

17   prevailing market price, because you're going to

18   want to but on the bid and sell on the offer.

19   Now, if you were to essentially tax

20   those cancels, you might have, or I would suggest

21   you would have the unintended effect of them

22   widening spreads and making it more difficult to

1   provide liquidity in the marketplace.

2   Additionally, I would actually argue that -- and

3   this is a point I think that Carl started to bring

4   up. As markets are getting more electronic, AQR

5   is a long term investment management firm but in

6   thinking on how to execute -- and many of the MFA

7   -- almost all of the MFA representative are as

8   well.

9   But in thinking how to officially

10   execute in the marketplace and how to avoid

11   slippage and how to minimize market impact, you're

12   -- even just deploying an algo provided by a bank

13   FCM, where you want to essentially passively get

14   into a position over a long period of time. In a

15   volatile market, you're going to wind up with

16   cancel rations that look a lot like a classic high

17   frequency trading strategy so again, if I think

18   about -- you know, if I think about some of the

19   ESMA proposals, if you think about the number of

20   messages per venue, well if you just trade one

21   product, say treasury futures, that's one level of

22   activity under any fixed level of messages per

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 1    venue but if you happen to trade treasuries and

 2    dollars and ags, and metals and oil and you might

 3    trade them on a long term basis, almost by

 4    definition, you're going to wind up with more

 5    messages per second just because you are trading

 6    more products, without any reference actually to

 7    the underlying strategy, underlying time horizon

 8    or any of those measures so I guess what I am

 9    trying to say is I find it difficult to pick any

10    one metric to be helpful here because I feel like

11    any quantitative metric is very difficult to apply

12    in a one size fits all matter across the

13    marketplace.

14           MR. WINDELER:  Sure and I appreciate it.

15    I'll keep the policy discussion at a minimum.  I

16    understand that we want to get into some of these

17    specifics but building on Adam's point and Isaac's

18    points here that ultimately when you do apply a

19    quantitative measure as a filtering mechanism,

20    ultimately, you are creating a subset of

21    participants based purely on a representation of

22    their strategy and not based on the method of
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1   their execution or whether they are engaging in

2   algorithmic trading and so as we claw back, the

3   idea of what is this quantitative measure

4   attempting to do, what is DA attempting to do,

5   it's trying to narrow down by some measures, a way

6   to say who is required to be registered and I

7   would echo the point that we should be focusing on

8   what is algorithmic trading in that definition and

9   as we capture that definition, as we move to

10   seeing who needs to actually be registered or have

11   additional obligations applied to them, that's

12   when a filtering mechanism is applied based on

13   whether we qualify whether that activity

14   introduces risks, not how often they are engaging

15   in a strategy, not the method of connectivity but

16   the measure of exclusion for registration should

17   ultimately be whether we think that that method of

18   automated execution or routing introduces a risk

19   so building off of the definition of algorithmic

20   trading that ESMA has actually put out in MiFID II

21   as -- or has alluded to in MiFID II is that there

22   is an explanation of what they believe is the

1   algorithmic trading but what they also set out are

2   exclusions to that.

3   Those exclusions are not quantitative in

4   and of themselves and they talk about excluding

5   types of automated auto routing activity and

6   again, those are -- then the idea behind that is

7   that the entry of an order was instigated by a

8   user, by a person and that the method of the

9   submission happened to be automated.

10   Now that certainly has its own risks,

11   that automated routing can have its own set of

12   risks but the pre trade risk controls that you are

13   applying at these (inaudible) at the DCM should be

14   appropriately be attuned to address those risks to

15   then you start lowering it down and you can start

16   excluding smart order types, you can take out

17   smart order management types of functionalities

18   and base types of -- order types of the exchange

19   offers like icebergs where there is concern right

20   now with a broad a definition of algo trading that

21   those are what's being brought in here and if we

22   narrow it through exclusions, saying we define

  1   algorithmic trading as such but only people that

  2   engage in a certain capacity of that, not

  3   automated order routing, not using smart order

  4   management, would then have the additional

  5   obligations for compliance of monitoring, of

  6   oversight, of development and the like.

  7   The reason that's important is that as

  8   we focus on strategy, order to trade ratios, trade

  9   frequencies and trade volumes are wholly

 10   unrepresentative of whether somebody is using an

 11   algorithmic trading engine to generate those

 12   orders.

 13   It may be correlated to that but you

 14   then create a loophole, you create a whole swath

 15   of participation that is engaging in algorithmic

 16   trading that just don't do it in the same

 17   frequency and to Isaac's point, as we focus in on

 18   high frequency, we then turn this into a

 19   registration of market makers.

 20   We turn this into a -- somebody that

 21   meets a threshold of number of seconds, of orders

 22   that go through the market. It truly then becomes

1   a registration process for market makers and

2   people that engage in a high frequency activity.

3   It stops being a registration process

4   surrounding and implementing protections around

5   people that engage in algorithmic trading.

6   MR. PUJOL: Let me make sure there isn't

7   anyone that hasn't gotten to speak yet.

8   Commissioner, please?

9   COMMISSIONER BOWEN: Yes, I am really

10   interested in hearing whether there is specific

11   market behaviors that create unwanted risk,

12   particularly for those of you that are in the

13   markets, besides the manipulations, spoofing (sic)

14   those types of things. How do you see risk

15   vis-à-vis the behavior of market participants?

16   How would you define it?

17   MR. CHANG: I'll take a stab -- anyone

18   else feel free. I would say you kind of divide

19   risk into at least a couple of buckets. I think

20   one I would put market based risk and maybe kind

21   of put spoofing (sic) into that category but the

22   others are sort of operational risks where

 1   essentially there is intended behavior and then

 2   there is unintended behavior and maybe we can

 3   characterize the risks that way but you know, I

 4   think -- our firms thing very hard around

 5   operational risks and every simple example is you

 6   think you have a limit to put a maximum order size

 7   of five and because of a bug in the coding, you

 8   put in a maximum order size of 10 and that doesn't

 9   get caught and then that can have all sorts of

10   effects that translate into market based risks for

11   your portfolio, for your position but those fall

12   into operational -- I would say operational based

13   risk and maybe that's a very trivial example but

14   certainly there are other examples you wanted to

15   -- you wanted to send one buy order -- if someone

16   wanted to send one buy order but then they

17   potentially sent a sell order because we had a bug

18   in the system or a miscoding or someone wanted to

19   send one buy order and sent ten. Those sort of

20   examples are pretty myriad but I think largely you

21   can bucket them into intended and unintended or

22   maybe market and operational type risks.

1   MR. NUNES: So I'll break it down a

2   little bit differently. I think that you think in

3   terms of financial risks. I think frankly in the

4   U.S. futures market, we come at that from a very

5   strong spot with (inaudible) credit controls and

6   with (inaudible) controls where before any order

7   hits the market, it's going through a credit risk

8   filter.

9   To me that's the most basic and

10   fundamental risk is the risk to the clearing

11   organization and kind of the soundness of the

12   settlement process and the clearing process so we

13   come at that from a good spot.

14   That one also is easy to quantify by

15   participants and across participants and that's

16   frankly why it's probably already solved and the

17   others are more tricky to do. You mentioned

18   things like manipulation. That's extremely

19   difficult to filter and order for that before it

20   hits the market. That's a thing that has to

21   happen and be seen in order to catch. I don't see

22   how you can know that when a single order comes

1   in.

2   The last part, and I think this hits on

3   the operational risk is really risk of disruption.

4   So that would be any single market participant

5   disrupting either the overall market operation or

6   other participants in the market's operation. I

7   would put that one as probably between the other

8   two and the ability to stop that before orders

9   come in but things like throttling and such can at

10   least help limit that and if you look at that

11   combined with a financial risk, you're going to

12   catch a lot of stuff before orders hit the market.

13   MR. BURNETT: I would concur with what's

14   been said already about operational risk. For us,

15   risk is kind of defined as when things happen that

16   are unexpected. Whether that's orders slipping

17   out in some way that's unanticipated or limits

18   not, you know, not being in place so we have lots

19   of checks in place, just like the other firms do

20   to ensure before the orders leave our doors, we

21   want to know what's going to happen and to some

22   extent, it's not really a risk but introducing

 1   some of these quantitative measures that have been

 2   proposed, I think can create artificialities that

 3   have sort of been addressed by some of the other

 4   people on the panel where it might change market

 5   behavior if you really are close to a threshold so

 6   I would hope that we can try to find something

 7   that strikes a balance between capturing the right

 8   people's algorithmic traders but not introducing

 9   artificialities that actually affect the way that

10   people transact in the marketplace.

11   MR. KOELING: I think if I look at the

12   question on the risks, I would focus with regards

13   to what Reg AT is trying to cover, specifically on

14   let's say unintended consequences to the market so

15   orders that will generate prices that are no

16   longer at an equilibrium where they should be due

17   to the fact that they weren't meant by the

18   original sender to be executed to the levels where

19   they are.

20   I agree largely with most of the things

21   that have been said so I am not going to focus too

22   much on the quantitative metrics that were

1   mentioned but one thing that I do think is

2   important is that we're trying to -- in my opinion

3   at least figure out who needs to be registered but

4   also I am going to grab back what Nitin said on

5   the first panel as to where we should put specific

6   risk controls in place because I think that's one

7   of the other things that we are trying to figure

8   out.

9   The AT persons are owning the risk

10   controls and where should those things actually be

11   managed, we should own those things. I believe

12   that it's actually not important to figure out

13   which participant should be regulated but trying

14   to figure out the best way how we can get out all

15   of the orders that are going into the market to

16   actually get regulated because the person that

17   sends a single order can cause a lot of trouble, I

18   think that's something that was concluded for

19   instance in (inaudible).

20   It has nothing to do with the amount of

21   orders sent, maybe with the size of the order.

22   All of these kinds of things aren't captured by

1   any of the quantitative metrics that were just

2   said and I think what was explained in the first

3   panel actually makes a little sense trying to go

4   on a principled approach to figure out who should

5   the AT persons be whether they are registered and

6   who owns the risk controls.

7   The two layered approach sounded like an

8   interesting idea. I would be curious to hear some

9   more about that but I do agree with the fact that

10   there is -- the position of the FCM who knows --

11   know your customer, that model I think that could

12   be a very good model to try to figure out where

13   should risk control sit and who should own them

14   and who should manage them and I think that's a

15   bit of the focus that I feel like we can't capture

16   in a quantitative metric but we should do on a

17   principled basis.

18   MR. PUJOL: John, I know you haven't

19   gotten to speak yet so please.

20   MR. MUELLER: Largely, people have

21   mentioned what I was going to say. Typically --

22   or similarly to what Isaac said, a singular order

1   can cause a market disruption so trying to put a

2   metric around trying to find what that potential

3   disruptive order in the marketplace is a very

4   difficult process so again, looking at where those

5   controls lie, who manages those controls, who has

6   developed those controls, is, I think a better

7   approach to identifying who should be the

8   registrant.

9   MR. HAYNES: So in looking at the time

10   here, we might as well probably switch over to the

11   next slide and final slide here. But

12   actually before I go into the specific questions

13   on this second slide, I do have some follow up

14   questions on the discussion so far. One of the

15   claims, I think mentioned by a number of people, is:

16   let's say we set a quantitative metric. Depending

17   on the quantitative metric, this might mean hey,

18   what we're doing is we're basically registering

19   market makers because market making is probably

20   the place where the highest number of

21   orders or the shortest -- or the highest order to

22   trade ratios are -- in fact exist.

 1   So kind of two related questions to

 2   that, let's assume that a certain subset of

 3   metrics is highly correlated with market making.

 4   Does this one argue for, in the ESMA approach,

 5   there was a subset of orders that got exemptions

 6   to this count right?

 7   For instance, differentiation between

 8   agency and principal orders. Does this argue for

 9   another set of exclusions, perhaps for certain

10   types of order behavior or behavior we think may

11   not provide the same number of risk as others.

12   Two, once again, let's say there's a subset of

13   market participants that do in fact come under

14   this quantitative metric and therefore are subject

15   to the AT person regulations. Are there certain

16   requirements of AT persons that would not be

17   appropriate for that set of participants? We're

18   saying that -- it seems that a lot of the claims

19   are the requirements for AT Persons would not well

20   align with the set of persons identified by the

21   quantitative metrics. Where is that

22   differentiation?

1   MR. COSCIA: Sorry, this is Carl, can I

2   just take a stab -- I want to go back and -- since

3   you've said, you know, is there a suitable metric,

4   I want to point out and I think this puts a fine

5   point -- Nitin used examples and I think that was

6   -- that helped drive his point home.

7   If you decide on a metric, let's just

8   say you think that ESMA is way too slow, way

9   behind the times and you say well the order rate

10   is 400 orders per second. Anything over 400

11   orders per second, that's an AT person. Well that

12   would exclude anyone who trades on ICE and that

13   goes to harmonization also. So for example, Ice's

14   message rate is 300 orders per second, CME's

15   message rate is 3,000 orders per second so when

16   you draw this hard line in the sand, not only have

17   you excluded the ones that trade in Ice, you've

18   heard CME's liquidity.

19   Not only have you excluded everyone who

20   trades on Ice but you've diminished Ice's

21   incentive to invest in their technology because

22   why should they? Right?

1   They are already the lowest common

2   denominator and I think therein lies the risk is

3   that you really really risk creating a lowest

4   common denominator set of principles when you walk

5   down this road and think about our smoke signals

6   to high speed computers analogy. You really don't

7   want to be doing that and I would just like to

8   touch on Commissioner Bowen's questions, you know,

9   do you see algorithms out there that you think,

10   yeah, that's predatory and the answer is you do,

11   okay?

12   And sometimes you know it when you see

13   it and sometimes you don't. So for example, if

14   you're out there, you're an ends user and you're

15   going for best execution and you're trying to

16   execute a spread and every time you put your order

17   in, the (inaudible) moves on you.

18   What you are probably facing if that

19   happens say a million times and you've cancelled

20   your order and you've cancelled your order, what

21   probably happens is you're facing an algorithm

22   that's faster than you and every time you put your

 1   order in, that algorithm reacts and moves the

 2   market in a different direction but trying to get

 3   you to chase it up. It's trying to get you to

 4   cross it and chase it up, okay?

 5   So you would like to maybe regulate

 6   that, you would like to maybe put some limits on

 7   that. That's not going to be easy but it's out

 8   there, it exists, you know, and you see it.

 9   I am going to go back to if you're going

10   to put a hard metric on this, that hard metric

11   should be -- and this echoes Nitin's comment

12   which it should be in a two stage risk controls.

13   Now I am going to put on the record that

14   I disagree it needs to be implemented by a third

15   person because I really don't think we need to

16   reinvent the wheel here. I think we've got a

17   model looking at equities, I think we've got a

18   model looking at fur. I think we've got a model

19   looking at other markets where we're sitting in

20   the enforcement agent. We are sitting in the

21   CFTC, this is the enforcement agent. We have

22   representatives from the DCMS who are the

```
 1    administrative agent and we have entities like

 2    other people who are direct electronically

 3    connected and we are the compliance agents so the

 4    question becomes what level of compliance should

 5    we be forced under?  Okay, and that goes under

 6    should we be a floor trader?

 7             I would say no.  If I -- me, a safety

 8    standard designated by my DCM that says I am not

 9    going to be disrupted so in other words I

10    calculate real time pre-trade risk controls and I

11    calculate after every fill post trade risk

12    controls, I would be hard pressed to name an FCM

13    capable of doing that at the speed I do it.  I

14    don't think that makes me risk me --

15             MR. PUJOL:  Let me make sure -- I just

16    want to make sure that we had an opportunity to

17    engage with Richard's questions.

18             MR. COSCIA:  Hopefully I did answer it.

19    Hopefully I did answer that.  Any metric you've

20    said is outdated.

21             MR. HAYNES:  One brief follow up which

22    may confuse more than clarify.  Carl and Isaac
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 1   noted that, you know, in fact, message rates

 2   differ not only by product over time, by exchange,

 3   certainly a high message rate in corn futures is

 4   not the same as a high message rate in mini

 5   futures which is certainly not the same as even

 6   many options.

 7   It may be -- it is likely to be orders

 8   of magnitudes different across products and across

 9   exchanges and so therefore any absolute number may

10   be difficult to implement on a kind of one size

11   fits all basis.

12   Is there any benefit, is there any added

13   value in deciding on a relative metric, a relative

14   metric may be percentage of total volume, perhaps

15   at a DCM, percentage of total volume within a

16   product which would naturally adjust, not only

17   over time but across different instruments rather

18   than this absolute level?

19   MR. COSCIA: Before I surrender, can I

20   just say -- can we just -- like Nitin's two stage

21   approach, the DCM, similar to the position on its

22   rule is in the best position to evaluate the

         1   safety of their market and when (inaudible) comes

         2   in, as it was said in the first panel, they know

         3   what's going to happen and they are the only

         4   person who knows so if the CFTC is trying to

         5   arbitrarily dictate -- that's going to be a

         6   constraint and as any mathematician will tell you,

         7   the maximum over an unconstrained set is certainly

         8   larger than the maximum over a constrained set.

         9   It absolutely can't be anything different so as

        10   soon as you constrained that, you've limited

        11   things.

        12   MR. HAYNES: As a mathematician, I

        13   appreciate that.

        14   MR. WINDELER: So I want to build on a

        15   point that was introduced earlier by Sebastian

        16   earlier in terms of the risks and what this is

        17   identifying. If we take a look at say an order of

        18   trade frequency or as you're saying a relative

        19   measure of activity, rather than an absolute

        20   because you're right, it is fully conditional on

        21   market -- on the market and the market conditions

        22   as to whether those frequencies and philosophies

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1    will be reached.  What I want to caution is that

2    the reliance on a relative measure itself is any

3    representative of a risk, either, and that would

4    be representative of some sort of activity that

5    you would want to capture some broader, greater

6    risk protocol around, like envisioned under 1.81.

7              We have direct experience in regards to

8    the efficiencies of messaging in how we apply our

9    own messaging policy.

10             Ultimately, when we apply at the

11   exchange level, full granted it's an after -- it's

12   a post-trade measurement.  It's purposely and it

13   has to be a post trade measurement but what it

14   encourages is more efficient quoting and Sebastian

15   brought up a point that was related to the risk of

16   an order actually being submitted that is away

17   from the market or not representative of a price

18   that should be on the market at the time or that

19   was intended by the person submitting it and in

20   fact, as we encourage through the messaging policy

21   more efficient messaging, we have applied a

22   waiting mechanism that says the further away from
```

1   the book that you are, the more you're going to be

2   penalized according to this policy and therefore,

3   the greater amount of messaging you do at the top

4   of the book, the more efficient and therefore more

5   representative of beneficial price discovery

6   processes, that's what we are actually encouraging

7   in that regard.

8   Here, if we apply a relative measure as

9   to the number of -- the frequency of quoting, we

10   would encourage, we would drastically encourage

11   more frequent quoting at top of book yet the --

12   when you look at a relative measure, people would

13   be then penalized or actually they would escape

14   actually being captured by this mechanism if they

15   were inefficient in their quotes, didn't receive

16   the amount of trades because their order just sat

17   out there yet the number of frequencies, the

18   number of messages that they were submitting were

19   far less than people that were making active

20   markets and were actually getting trades and

21   responding to the range of the book so I really

22   want to raise a concern about applying any sort of

 1   frequency of relative measure absolute in the life

 2   as to messaging activity because again, it's not

 3   representative of the risks that are involved with

 4   the prices and the messages that get sent out,

 5   it's purely then capturing the frequency of that

 6   and so that's where I come back to the idea that

 7   we should shift the conversation about setting a

 8   metric for registration to focus on then the

 9   activity that's in question, not a symptom or a

10   frequency of that activity.

11   MR. NUNES: So I guess I'll try to give

12   you guys a little bit what you're actually looking

13   for. So from my perspective, the harmonization

14   thing on something like this, either you have to

15   register or you don't. It's not hard to figure it

16   out. I don't really see a great deal of value on

17   harmonization.

18   Harmonization is incredibly valuable for

19   things you have to do all the time and that you

20   have to build systems for. I don't think anyone

21   needs to build a system to figure out how much

22   they traded or what their order to trade ratio is.

         1   I would say that on order to trade

         2   ratios, that's just not a good measure at all. I

         3   could have the same algorithm -- the same pricing

         4   algorithm, doing the same logic and I can express

         5   that by waiting for the market to disagree with it

         6   and cross the spread and have an order to trade

         7   ration of somewhere close to one or I could

         8   express that by making markets and have an order

         9   to trade ration of like whatever 200 to one and I

        10   don't feel like I am necessarily imposing a

        11   different risk.

        12   If my price is wrong and I disrupt the

        13   market, it's wrong either way so I would caution

        14   against that because again, you're just getting to

        15   market making and you're not really getting to

        16   algorithmic trading or even high frequency trading

        17   with that.

        18   I feel like most of the other measures

        19   are just going to measure that thing that we're

        20   looking at, do you do it a lot?

        21   And we can say that thing that we're

        22   looking at, do you do it a lot absolutely or

1   relatively. You're likely to end up catching

2   generally the same people and I think ultimately,

3   if you look at the ESMA approach, they came up

4   with a measure and were like: "Well this captures

5   too many people, let's exclude end users" and then

6   all the end users are happy and the non-end users

7   are sad so ultimately that's just kind of getting

8   to here's a list of (inaudible), let's cherry pick

9   some measures that get us really close to that and

10   there may be a couple of people who are sad

11   because they actually weren't on that list and now

12   they're in and there are a few people that were

13   happy because they were on the list but whatever

14   measure you can come up with you can't get him so

15   I kind of like the notion of this is about

16   principles. If you do these things, you know, if

17   you are an algorithmic trader, you register, if

18   you're not, you don't.

19   Or coming up with measures that just

20   look at -- we need to protect the market against

21   specific activity types, what's the best way to do

22   that and maybe the best way to do that isn't to

```
 1    register thousands of people.  I think if you just

 2    get into do you do it a lot, you may have the

 3    effect of capturing the people who are most likely

 4    to be the most diligent about it.

 5         We are captured under the ESMA one, we

 6    are already registered as an investment firm in

 7    Europe.  We already do the testing, we already do

 8    all that stuff versus getting someone who uses an

 9    algorithm where they found a developer in a user

10    group, maybe didn't go through the same diligence

11    that a firm like ours would do.

12         MR. GIANCARLO:  Sebastian, can I just

13    follow up what Adam was saying?  Underlying what

14    you just said, Adam is an assumption that doing

15    something a lot is not inherently risk than doing

16    a little and I just want to flesh that out for a

17    second because maybe there are some people that

18    believe that doing something a lot is inherently

19    risky for that one distinction.

20         MR. NUNES:  So I think -- well I guess

21    one I should say that I kind of just somewhat

22    contradicted myself on your earlier questions.
```

1   One thing you can do if the thing was

2   based on order to trade ratio is you could have

3   the same algorithm and say I am not going to make

4   my bids, I am going to wait for others to do it

5   and trade when I disagree with them so there are

6   behaviors that could change that are more

7   fundamental so to your question on that. I guess

8   when it's all said and done, if we have measures

9   that are approaching doing something a lot, that's

10   not -- that has not been what Reg AT has been

11   focused on.

12   In my comments earlier, I focused on if

13   we're just worried about normal operation, then

14   maybe you say: "Hey, we want to register market

15   makers. "They do stuff a lot, they're important to

16   the market system, that's fine, that can be a

17   proposal, however, if you are necessarily saying

18   that if you're looking at the risks associated

19   with automated trading, the risk is somebody does

20   something wrong. The risk is not in the normal

21   activity where everything is functioning properly.

22   It's in the abnormal activity when a bug is

 1   introduced or something like that happens so in

 2   those cases, maybe people who generally do things

 3   a lot maybe pose more risk but maybe they don't,

 4   right?

 5   It depends on what the disruption is.

 6   We heard about the single order. The single order

 7   that puts the price on the size category and the

 8   size on the price category could be extremely

 9   disruptive and that could be one, entered by a

10   person so I think it's important to check when

11   people enter orders and two, that could be entered

12   by somebody who does things very little but that

13   finds its way through and that can be extremely

14   disruptive so maybe they end up affecting the

15   market in somewhat different ways but it's not

16   obvious to me that they pose -- that people that

17   do things a lot necessarily always pose a greater

18   risk and should be registered and those who don't

19   shouldn't.

20   MR. GIANCARLO: I think that's a salient

21   question. Doing things a lot does provide a

22   greater risk and it's a legitimate distinction to

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 1    be drawn.  If it doesn't make a difference, then I

 2    think we struggle to use that as a proper

 3    distinction.

 4             MR. NUNES:  Yeah, I agree.  I just kind

 5    of point to there's a proposal that wasn't based

 6    on that.  If there's a proposal based on that, I

 7    think that would be a legitimate proposal, it's

 8    just not what we have seen.

 9             MR. PUJOL:  I want to make sure that

10    Matt and Sebastian get a chance, but one thing

11    that I am hearing in

12    this conversation-- maybe there were some things

13    that Reg AT got right in the proposal?         14
      That's good to hear!

15             MR. PICARDI:  Yeah I just wanted to add

16    a quick foot note to try to put a little more

17    detail on the thinking that the working group had

18    on this from the perspective that -- you know, two

19    things that came to mind at any threshold you put

20    in place, whether it's volume or frequency, let's

21    say you pick a product and maybe you pick one

22    metric or another and then things change so
```

        1   someone could do something with volume that they

        2   couldn't do with frequency so are you really able

        3   to get to the disruptive activity or prevent the

        4   disruptive activity you're trying to get after if

        5   you don't pick the right metric or you put too

        6   many metrics on the market and so we did kind of

        7   think a little bit about that but in our

        8   particular group, one thing that we did have

        9   struggle a little bit with in order to provide

       10   even a more detailed response here is we don't

       11   have all the market information so in order to say

       12   is this a good metric because this activity might

       13   affect the market, if we don't have all the

       14   information it would take to make that analysis,

       15   especially when you're asking us to do it in the

       16   context of all these proxy trades, it's kind of

       17   hard to come up with a specific answer.

       18   It almost would be easier if you said:

       19   "What if we put this metric there, how would you

       20   react to it" and maybe that would be an exercise

       21   in futility because you have to do that a million

       22   times to get the right thing so I'm just trying to

1   get some background, a little more detail, it's a

2   little more practical than the policy type of look

3   that originally we discussed.

4   MR. KOELING: I would like to take

5   another stab at the question that the commissioner

6   just asked. The risks of doing things a lot I

7   think there's actually two sides to that. If you

8   do things a lot, you obviously have a lot of

9   historical observations already of whether the

10   argument works very well so you could argue that

11   you could actually feel more safe about it.

12   The one thing I will say is that we also

13   have a lot of controls in place to make sure that

14   we don't send our own orders out that we don't

15   like and we don't want to send out and we do that

16   for our own protection because that's in our own

17   interest as well.

18   What we noticed is not so much whether

19   you do things a lot, is the risk but most of the

20   things that tend to go wrong is when you change

21   something and when you change something, the first

22   time you use a piece of sulfur that's changed or

 1   an algorithm that's changed, that's when you

 2   should be most worried about potentially something

 3   going wrong. If it's been in practice for months

 4   and months on end, I don't think that there is an

 5   additional risk of it all of a sudden it breaking

 6   the next day.

 7   It doesn't mean you shouldn't be

 8   cautious about that anymore but the amount of

 9   times you do something, I actually think could

10   mean that you could feel pretty good about the

11   piece of sulfur and the algorithm that you use

12   because it's got a proven track record versus

13   something that hasn't been used before so I think

14   that -- and the distinction of doing something and

15   it being more or less risky could be a different

16   way of looking at it.

17   MR. PICARDI: Sorry, I just wanted to

18   add a footnote, maybe more for the benefits of the

19   staff and the commissioners as some of these

20   programs that we do use are specifically designed

21   to mitigate the risk and avoid disruption in terms

22   of not pushing too big an order into the market at

1   once and causing a disruption so the irony would

2   be if using programs that are intended to reduce

3   risk, all of a sudden gets us into a situation

4   where we now have to be regulated more because we

5   are trying to do something that's positive for the

6   market so, you know, not that there's not a risk

7   in and of itself using these things but I just

8   want you to be aware that we are using some of

9   these things for the very purpose of preserving

10   market integrity and limiting market structures.

11   MR. GIANCARLO: Is there an argument to

12   made that in fact, there's perhaps a greater risk

13   from algo traders who less frequent in the market

14   than from those that are more frequent?

15   MR. KOELING: That could be the case.

16   It all depends on how they've built their

17   algorithms as well of course and what kind of

18   testing they've put into place and what kind of

19   limits they have for themselves, what kind of risk

20   protections they use.

21   At the end of the day, dependent on what

22   the firm's perspective is, in our case we're a

1   proprietary firm so whatever we do wrong is going

2   to impact us on a financial matter as well as on a

3   reputational side so we have a large incentive to

4   make sure that we get it right.

5   Whether we do it less or more, I'm not

6   so sure whether that gives you more risk. The

7   point I tried to make is if you've already

8   utilized an algorithm a whole lot of times, I

9   think there's a track record that can give you

10   somewhat more confidence, no infinite confidence

11   but more confidence that it actually works well.

12   For an algorithm that's been used less,

13   you have less of that track record. I can't say

14   that it's automatically more risky but I am trying

15   to point out that the amount of messages sent is

16   not necessarily a good metric to figure out

17   whether it's more or less risky.

18   MR. MUELLER: Yeah, if I could comment,

19   I think it's probably not so much on the frequency

20   but more along the technical maturity of the firm

21   or their technical experience that they have in

22   that particular API or technical space rather than

1   the frequency of the trading itself.

2   MR. COSCIA: Could I just take the

3   opportunity to ask a question back of the

4   commission and of ESMA.

5   MR. PUJOL: No questions of us but --

6   MR. COSCIA: When we think about this

7   quantitative threshold and metric and

8   harmonization, why can't we agree to harmonize

9   around risk controls?

10   MR. PUJOL: Well, fortunately we are

11   here to get information from you all so I think

12   what I would say and I think we're out of time for

13   this panel so we will close it. A couple of

14   things, right. So first, obviously the feedback

15   here from the panel is that folks generally don't

16   believe that quantitative measures are

17   appropriate, that we should continue to focus

18   instead on potentially the definition of direct

19   electronic access, potentially the definition of

20   algorithmic trading. We have reopened, the

21   commission has reopened the comment period for

22   this rule. I think it's helpful to engage with,

     1   frankly both of those definitions in ways that are

     2   productive.

     3   The comment letters that we received in

     4   response to the proposal indicated that most

     5   people think that as structured, we are

     6   potentially capturing too many entities. Entities

     7   that should not be captured, to put it more

     8   appropriately so the question frankly remains what

     9   is the vehicle for capturing the appropriate

    10   population and that question, I think, remains so

    11   I would encourage folks to take advantage of the

    12   new comment period to address that question.

    13   MR. COSCIA: Sebastian, sorry, and I

    14   don't want to make this a debate but I guess you

    15   know, what I want to put on everyone's mind is if

    16   I go back -- and I understand, you can't --

    17   because you are bound to whatever is in the act,

    18   you can't make up a new registration category

    19   right?

    20   So floor trader is kind of the one that

    21   you've said: "Hey, these old pit traders, they

    22   were maybe market makers or whatever. Whatever

1   they were, we registered them. That's the new

2   guy." Right?

3   Okay, I get it. I am not a lawyer but I

4   do get it. If I got back to 1993 act and it says

5   the reason you registered these floor traders is

6   to examine the fitness of these individuals

7   vis-à-vis the other registrants, so let's think

8   about who the other registrants are.

9   They are MSPs and they are swap dealers,

10   okay? So when we think about this and we think

11   about who should be the registrant, shouldn't we

12   be looking at it not in terms of some bright line

13   test of are you acting in this but what are you

14   doing and how are you managing the risk and I

15   think going back to 1993, that grounds us in

16   exactly what we are supposed to do with this

17   particular name of registrant.

18   I can't change the language, I can only

19   repeat it but to me that seems like where we're

20   going here and you know, market making, given that

21   market making can get you labeled a swap dealer,

22   unfortunately for market makers, that may be the

1   nexus between the two.

2   I mean -- and then people would have to

3   decide are they going to market make exactly as

4   they did when they faced the swap dealer

5   registration but I kind of want to -- I know you

6   want to send us all to lunch but I want to put

7   that out there and on the record that that's the

8   purpose of this particular name and registrant.

9   MR. PUJOL: Anybody want the last word?

10   All right, that was the last word then. We will

11   reconvene in an hour, thank you.

12   (Recess- end of second panel)

13   MR. PUJOL: All right. Let's please

14   start our afternoon session now. Our third panel

15   today will focus on more quantitative metrics.

16   No, just kidding. (Laughter) In reality we're

17   going to focus on potential alternatives to

18   certain elements of the regulatory structure

19   proposed in Reg AT. Such an alternative could

20   rely on FCMs or on DCMs to ensure that they're AT

21   Person customers implement appropriate pre trade

22   risk controls and standards for the development,

1   testing, and supervision of their algorithmic

2   trading systems.

3   In this regard FCMs or DCMs could

4   supplement or even replace a role which Reg AT

5   currently contemplates could be filled by the

6   Commission. To be clear, under the alternative

7   scenarios we will discuss today, AT Persons would

8   still be required to implement effective pre trade

9   risk controls and other safeguards for their

10   algorithmic trading. However, industry entities

11   such as FCMs or DCMs could have responsibility for

12   specifying or defining the required controls.

13   While these scenarios could potentially result in

14   additional work for FCMs or DCMs they might also

15   respond to some commenters desire for a more

16   industry based approach to Reg AT.

17   Our panel discussion will explore this

18   tradeoff and how such alternative models could

19   potentially be structured to provide both the

20   greater flexibility or industry involvement that

21   has been requested while ensuring effectiveness of

22   pre trade risk controls and other required

1   measures. We will begin again with an overview of

2   certain conceptually similar approaches undertaken

3   in Europe where investment firms have certain

4   responsibilities and due diligence obligations

5   with respect to their DEA clients. Afterwards my

6   colleague, Marilee Dahlman will continue the

7   conversation.

8   As with the last panel I'd like to begin

9   by asking each panelist to please introduce

10   yourself, introduce the firm you work for and your

11   position, and then we will turn it over to our

12   colleague from ESMA for an overview of measures

13   there.

14   Maybe we could start with you again,

15   Adam.

16   MR. NUNES: Sure. Adam Nunes, head of

17   Business Development for Hudson River Trading.

18   MR. CHOUSSY: Good afternoon. I'm

19   Andrés Choussy. I head the derivatives clearing

20   business in the Americas for JP Morgan.

21   MR. BARAZI: Waseem Barazi, Chief

22   Regulatory Officer of OneChicago.

1   MR. PALAPARTHI: Venu Palaparthi, head

2   of Regulatory and Government Affairs for Virtu

3   Financial.

4   MR. GARCIA: Alberto Garcia, ESMA.

5   MR. MORAN: James Moran, CME Group,

6   Executive Director Regulatory Technology and

7   Strategy.

8   MR. LISLE: Good afternoon, Matthew

9   Lisle, ABN AMRO where I'm the Chief Compliance

10   Officer of the FCM.

11   MR. WOODS: Greg Woods, Director

12   Electronic and Algorithmic Execution for Listed

13   Derivatives at Deutsche Bank and Securities.

14   MR. COSCIA: Carl Coscia, Chief Risk

15   Officer, Hartree Partners.

16   MR. PUJOL: Great. Thank you, everyone.

17   Alberto, I'll turn it over to you now.

18   MR. GARCIA: Thank you, Sebastian. And

19   coming back to my previous presentation I

20   mentioned that just for the fact of being

21   considered as an algorithmic trader you were

22   subject to a number of obligations, meaning that

1   notification to national competent authorities and

2   the obligation to keep up a certain amount of

3   information available to national competent

4   authorities per request, market making agreements,

5   and in particular some organizational

6   requirements. I would like to insist on the fact

7   that for that that is completely independent of

8   the fact of being considered as an investment firm

9   or not. And the identification of an algorithmic

10   trader in Europe, it is not that much based on the

11   fact in isolation of let's say a quantitative

12   metric or not, but just on the use let's say of

13   order management system or order execution systems

14   which have algorithmic in essence.

15   The organizational requirements that

16   ESMA has just approved in September 2015 and that

17   I think they're literally about to be approved by

18   the Commission in the coming days, are heavily

19   based on the ESMA guidelines on systems and

20   controls that ESMA approved in 2012. And when it

21   comes to the relationship between -- I mean the

22   pre-trade controls and the controls and

1   requirements which are there I think that it is

2   worth to differentiate two levels. First would be

3   on the firm as such, and the second will be on the

4   second as a DEA provider if that is the case.

5   With regards to requirements on an

6   investment firm which is engaged in algorithmic

7   trading, I would say that the main requirements

8   that are there in terms of governance, there has

9   to be clear lines of accountability so that it is

10   clear who is responsible for an algo and who has

11   authorized the (inaudible) of an algo. And also

12   we put the accent as we did in the original

13   guidelines on maintaining a (inaudible)

14   involvement of the compliance department in the

15   development of the program of the algos.

16   There is also very heavy testing

17   obligations not only on the infrastructure but

18   also on the algos and the strategies. And here we

19   have made a very clear differentiation between

20   what is an investment decision algorithm and order

21   execution systems or order management algorithms,

22   meaning that a pure investment algorithm, which is

 1   going to be implemented by a human being, could be

 2   excluded of this testing obligation, however, any

 3   other algorithm which is going to be implemented

 4   by algorithmic means is subject to testing

 5   obligation.

 6   Again, under the testing obligation

 7   there are two types of testing to be taken to into

 8   account. The first one is the conformance testing

 9   with the requirements of the trading venue where

10   we are trying to ensure that the orders sent by

11   one algo trader to a venue are consistent with the

12   trading venue's matching logic and also that the

13   system of the firm, of the ago trader, interprets

14   correctly the data feed that comes from the

15   trading venue. Also, in terms of testing systems

16   we impose, a heavy requirement in terms of

17   segregation of testing environments from the

18   production environment. Also, as a next step once

19   an algorithm has been sufficiently tested, and

20   that is the responsibility of the investment firm

21   as such, there is an obligation to carry out the

22   controlled deployment of the algorithms, which is

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 1    not sufficient to think that we have had the great

 2    idea, but also it is necessary to go little by

 3    little.  We didn't establish any type of mandatory

 4    or hard limits in terms of -- I mean how an

 5    algorithm should be deployed by this.  What we say

 6    is that the limits should be carefully set at the

 7    beginning so as to assure that only once that the

 8    algorithm -- we have seen that it is operating in

 9    practice correctly -- I mean it can be, let's say,

10    fully deployed.  There is also a requirement in

11    terms of an annual revision of the algorithms and

12    the infrastructure.  Being the main purpose of

13    that, ensuring that at all times an investment

14    firm is meeting the requirements, establishing the

15    regulation, but also an obligation to be sure that

16    even if the algo trader has outsourced part of the

17    software of this hardware, I mean they have to

18    know exactly how it works -- I mean if he's

19    meeting the requirements imposed in the

20    regulation.  Also in the context of this annual

21    review there is an obligation to carry out an

22    annual stress test in terms of the number of -- I
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1   mean which is the -- taking into account which has

2   been the previous market conditions in the

3   previous six months.

4   And finally, we have a number of

5   requirements with respect to what we call the

6   resilience of the trading system, which cannot be

7   construed in terms of let's say the capacity to

8   manage a certain number of orders which is

9   partially covered by the stress test I was just

10   mentioning. It is more about the creation of the

11   trading conditions.

12   I want to highlight here that there are,

13   in terms of testing, come back to that, I think

14   that there are two types of testing. One was the

15   conformance testing I was mentioning, but there is

16   a second one I forgot, which is testing against

17   these early trading conditions. This is something

18   that has been created by the co-legislators in

19   Europe, which obviously aims at ensuring that when

20   an algorithm or a strategy is deployed in the

21   market it doesn't create havoc, but it turns out

22   to be very difficult to implement that. For those

1   purposes the responsibility of the testing always

2   falls in the algorithmic trader, so they have to

3   carry out the sufficient testing and trading

4   venues to have the obligation to provide means to

5   carry out that test, that at the same time the

6   investment firms are not obliged to use those

7   systems.

8   When it comes to the resilience of the

9   (inaudible) of disorderly trading conditions there

10 are a number of requirements here in terms of the

11 -- that investment firms have to have preparation

12 or a kill switch so they are able to cancel all or

13 part of unexecuted orders submitted to the market.

14 And in relation to this there is also an

15 obligation of the firm to know at all times which

16 algos traders or clients are responsible for an

17 order so that in case they identify that one of

18 the order flows is creating problems they can be

19 able to cancel just that order flow and not cancel

20 the whole -- not cutting the access of the firm as

21 a whole to the market. There are a number of

22 pre-trade controls which are mandated in terms of

1 price (inaudible), maximum order volume, maximum

2 order value, and maximum number of orders. And on

3 top of that there has to be an execution throttle

4 whereby -- when a strategy has implemented X

5 number of times it cannot be redeployed in the

6 market unless a human being authorizes that.

7 In terms of the pre-trade controls and

8 also in relation to the capacity of the trading

9 venue to automatically block or cancel orders in

10 case there's an unauthorized access of a trader or

11 to the -- reaching a certain degree of exposure,

12 or somebody is trading on a financial instrument

13 for which it is not authorized, we have to say

14 that ESMA has not proposed any type of hard limits

15 or any parameters in which -- I mean the firms

16 have set up that, they simply have to have them in

17 place. And at the same time these requirements or

18 these risk controls, we have forced in the

19 possibility of being overwritten in case of

20 necessity by the investment firm, being that it is

21 possible to beyond the pre-trade controls if it is

22 authorized by an empowered individual within the

 1   firm, and also with the knowledge of the risk

 2   function within the investment firm.

 3   Also in relation to all of this there is

 4   the obligation of the investment firm to carry out

 5   real-time monitoring of the performance of the

 6   algorithms, therefore the systems of the first

 7   should be able to generate in real-time,

 8   considered as real-time within five seconds, an

 9   alert in case one algorithm is performing in a way

10   which is completely unintended. It is important

11   to note, as well, that the reaction from the

12   investment firm is not expecting those five

13   seconds, is the alert that should be generating

14   that timeframe.

15   And there also are a number of

16   post-trade controls that the firm should have in

17   place and that we differentiated between

18   post-trade control for derivatives, where only

19   maximum long and short position and an overall

20   strategy position, and the general post-trade

21   controls, which are based on the created market

22   risks. And there the main obligation for the firm

 1   is to have information real-time about their

 2   exposure and that of their clients based on the

 3   orders which have been submitted to the market.

 4   Here, both in the case of the real-time

 5   monitoring and the case of the post-trade

 6   controls, the obligations fall under the trader in

 7   charge of the algorithm and also on the risk

 8   counter function. So we're following a four eye

 9   principle to ensure that I mean there is always

10   somebody there who is capable to react. All that

11   goes as far as the investment firm is concerned.

12   However, when that firm is providing that direct

13   electronic access the requirements are enlarged to

14   a certain extent. Because I was attending the

15   discussion this morning relating to the concept of

16   that direct electronic access and the concept that

17   we used in Europe is radically simpler I would say

18   because the concept in MiFID is based on the

19   provision of a service whereby you simply enable

20   your clients to submit all orders to the market

21   using your trading code without considering we

22   have decoupled, the discussion of the execution or

1   the clearing. We are aware that many DEA

2   providers are at the same time being the clearing

3   firms, but not in all cases. So that discussion

4   has been decoupled in our case and we focused on

5   the submission of the orders.

6   In relation to the concept of DEA as

7   well, ESMA was asked by the European Commission to

8   clarify as much as possible the concept of direct

9   electronic access. And in our case what we

10   considered that was critical to qualify any

11   arrangement to submit orders to the market was

12   that that arrangement should provide the client

13   the capacity to determine the fraction of a second

14   in which an order can be submitted, modified, or

15   cancelled, and then by doing that we carve out

16   both with interfaces whereby a client can get an

17   order executed, that do not get that type of

18   control with that, you know, that latency, and

19   also we (inaudible). It is not the client itself,

20   the one who's determining the fraction of a second

21   in which the order is submitted or modified, but

22   it is the router instead which is determining the

1   size of the order, the slice of the order, and all

2   that.

3   In terms of requirements as a DEA

4   provider, the general principle is that the

5   investment firm, the DEA provider is responsible

6   for all trading that takes place under its code.

7   And in relation to that, and in line with the

8   comments made by many of the panelists this

9   morning, we have considered that it was necessary

10   to reinforce as much as possible the principle of

11   the due diligence before engaging a DEA client.

12   And therefore that due diligence has to be

13   reviewed at least annually. But the main element,

14   again in line with the comments by the (inaudible)

15   from Optiver, from Deutsche Bank, were literally

16   the know your client principle, however we have

17   noted that there is an obligation of the potential

18   DEA client to inform the DEA provider about its

19   envisage trading strategies, but clearly not

20   informing about the source code or not providing

21   the algorithm or not providing -- this is clearly

22   commercially sensitive information and covered by

 1   intellectual property rights, however, there has

 2   to be a clarification of which type of strategy

 3   you want to carry out. And secondly, the

 4   potential DEA client has to inform the DEA

 5   provider about which is the infrastructure setup

 6   and whether it has systems and controls which are

 7   equivalent. It is not necessary they are exactly

 8   the same, but they have to be equivalent to those

 9   required in MiFID II, meaning that they have -- so

10   in plain terms, there should be order price

11   (inaudible), there should be maximum order volume,

12   there should be maximum order value, and there

13   should be -- as well at the level of the client

14   there should be some type of -- there should be --

15   it was a maximum number of orders. So all these

16   controls should be there as well for the client.

17   Also it's important to know that -- so

18   there has to be always with two layers before they

19   order, which is the market at the level of the DEA

20   client and at the level of the DEA provider

21   because the DEA provider has to set up for each

22   and every one of its clients some type of -- has

1   to set up the parameters of the pre-trade

2   controls. And by no means it is possible as it

3   happened in the past, mainly before the

4   guidelines, that it is their own firm, the one

5   that sets up those parameters. It is the

6   responsibility of the DEA provider and should at

7   all times be responsible for that.

8   There is also a new obligation in terms

9   of identification of order flow, meaning that all

10   the order flow that comes from a DEA provider has

11   to include in it -- the messaging has to include

12   in it some type of additional field informing that

13   there is this order flow belongs to this client,

14   this client, or this client. And this is relevant

15   because there is also a high risk -- at least in

16   Europe is permitted the possibility of sub

17   delegation, meaning that once you are a DEA

18   provider your clients might be granted direct

19   electronic access to all the clients and so forth.

20   So you might have an undetermined number of people

21   sending orders through your systems. So for that

22   purpose that is critical that in cases necessary

1   for the provider to take some action in terms of

2   pushing the kill switch or taking a type of

3   action, to be able to identify to as much of a

4   granular level as possible, I mean who is

5   responsible for the order flow. Again, the

6   requirements (inaudible) for real-time monitoring

7   are maintained and the automatic broker cancel

8   orders, which are from unauthorized individuals

9   who in terms -- in relation to unauthorized

10   instruments are maintained. And also it is

11   important to note here that we have analyzed all

12   this from the side of the investment firm, which

13   seemed to be the object of this panel, that

14   trading venues are obliged as well to have

15   pre-trade controls as well as the aggregated

16   level, but they have to have as well their own

17   pre-trade controls. So we, let's say, we have set

18   out a type of three level lines of defense in that

19   respect.

20   Thank you.

21   MR. PUJOL: Great. Thank you, Alberto.

22   MS. DAHLMAN: Yes, thank you. That was

1   very helpful. So you you've described the major

2   points of the European approach to risk controls

3   for investment firms and DEA providers. Many

4   firms that operate in both the U.S. and European

5   markets will have to comply with those rules under

6   MiFID II. So in the context of this round table

7   we want to keep those points in mind in terms of

8   what might be a possible workable alternative

9   approach under Regulation AT.

10   So regarding Regulation AT, commenters

11   expressed concern over the redundant risk control

12   structure where you have, you know, risk controls

13   that the DCM, FCM, as well as the AT Person level.

14   As to AT Persons some have characterized the

15   proposal as being too one size fits all. So we'd

16   like to discuss some alternative approaches. We

17   would like to hear from the panelists on any other

18   alternative models that they think would be

19   appropriate. But to start we'd like to focus on

20   an FCM based model.

21   So under this model the CFTC would not

22   directly impose on one or more risk control

1   testing and monitoring requirements directly on AT

2   Persons. Instead the CFTC would require that FCMs

3   impose requirements on specified AT Person

4   customers and then perform due diligence regarding

5   their AT Person customer compliance.

6   So, in essence, there are three elements

7   to this model. FCMs would implement their own

8   risk controls. Second, FCMs would require that

9   certain customers, meaning their AT Person

10   customers, apply pre-trade risk controls and

11   implement testing and monitoring standards. And,

12   third, the FCMs would perform due diligence

13   regarding such AT Person customers' compliance

14   with the risk control and similar requirements

15   that were set out as being appropriate by the FCM.

16   Okay. So Commission staff has several

17   questions regarding this particular FCM based risk

18   control structure. The first one gets at the

19   burden that it would place on FCMs, and in

20   particular -- well, just to read the question --

21   you know, what AT Person resources and

22   technological development would be necessary for

1   FCMs to comply with the second and third elements

2   of the structure? So, Greg, do you have any

3   comments on this area?

4   MR. WOOD: Thank you very much, Marilee.

5   I think Matt and myself and Andres we can talk

6   specifically about FCMs. What I'd like to do is

7   just give you a very quick overview of the status

8   quo and we can see how we can build on that

9   obviously to provide a framework that would be

10   acceptable to the Commission.

11   So as an FCM we do business with a lot

12   of clients, a lot of different types of clients.

13   Some of those clients may be engaged in

14   algorithmic trading, some may not. Some may

15   prefer to route orders to us via voice or care

16   order methods, where they send it electronically

17   but we still execute it from the FCM desk. Others

18   prefer to be totally self execution, with route

19   orders direct to market, or we use tools that are

20   either provided by the FCM in terms of execution

21   algo tools that we create and provide as part of

22   our service to clients, or third-party tools,

      1   which could cover a whole range of things, as we

      2   were talking about in earlier panels, with regard

      3   to vendor provided systems. They may be simple

      4   GUIs, APIs, order routing systems, which can then

      5   include algorithmic trading functionality.

      6   When we onboard a client and FCM we go

      7   through a very lengthy process in terms of

      8   understanding what the client requirements are,

      9   looking to see how the client satisfies our

     10   various requirements around risks. And skipping

     11   through all of the, you know, what is their credit

     12   worthiness, et cetera, et cetera, one of the

     13   things that particularly where you're -- such to

     14   myself where I'm engaged in electronic trading, is

     15   understanding more about the client's requirements

     16   and how they would like to access the market and

     17   what means they would like to access the market.

     18   And understanding a little about what their trade

     19   in strategies are in terms of what are their means

     20   and how they're going to be accessing the market,

     21   what sort of activity we are going to be seeing

     22   going through our membership on the exchange.

1   These types of clients, particularly if

2   they're using an algorithmic trading, may not

3   necessarily be principal trading firms. We spent

4   a lot of time talking about market makers earlier

5   today. There are a lot of CTAs who are

6   increasingly engaged in algorithmic trading of one

7   sort of another where they're using investment

8   decision algos to place orders. Similarly, we are

9   seeing more and more culprits and pension funds

10   looking to automate order flow to one degree or

11   another where they may have a trading model that

12   generates a signal that may either go to a person

13   to then work it in the market, or be routed

14   directly through to some form of execution means.

15   And again all these things are very

16   important for FCM to understand so that then we

17   can understand what sort of controls we put in

18   place. And as we were saying earlier in the

19   conversation about DEA, DEA is increasingly in

20   this day and age a privilege, to provide a firm

21   with direct access to an exchange where we are

22   reliant on risk tools that are provided to us to

1   use by the DCM. We increasingly have to feel more

2   comfortable in terms of what the client has in

3   terms of their own controls around how to interact

4   with the market.

5   Now different FCMs are approaching that

6   in different ways. Several of us are going

7   through due diligence exercises where we're

8   actually asking questions around types of

9   procedures and processes that are in place that

10   are very similar to some of the things that are

11   proposed in Reg AT. But the point I would make

12   here is we can only go so far in obviously doing

13   that due diligence and then feeling comfortable

14   with providing access. One thing that the FCM

15   would strive to do would be to be able to ensure

16   compliance with a set of requirements that was

17   mandated through the Commission.

18   MR. LISEL: Thanks, Greg. That was very

19   well put. We share the same philosophies in terms

20   of how we onboard, how we monitor our clients. We

21   do have in our business model a fairly high

22   proportion of the DEA HFT types of firms. We are

     1   comfortable with providing them that access, but

     2   that access comes with some considerations.

     3   Considerations would include this heavy on

     4   boarding process where we need to crawl inside and

     5   get inside their strategies, methodologies, and

     6   those types of things. And then it doesn't stop

     7   there obviously. We have a risk limit procedure

     8   that's highly robust and it's divided amongst two

     9   different layers of the firm.

    10   So the request goes into our access

    11   services department for a limit change. It then

    12   has to go to risk to look at their financials and

    13   everything to make sure that they're comfortable

    14   with raising the limits, for example. And then it

    15   goes back if it's approved and then the approval

    16   is actually implements by access. So it's divided

    17   up and it's a fairly robust comprehensive

    18   procedure that is reviewed and monitored

    19   constantly. It's subject to our internal audit

    20   function, it's subject to outside regulatory

    21   scrutiny. And believe me, we just went through a

    22   1.73 exercise with a couple of gentlemen from the

 1   CFTC who are on site for a day looking into all

 2   these processes. So, you know, obviously the CFTC

 3   understands what we're doing currently.

 4   I don't think I have anything more to

 5   add, but I think you were going to get into the

 6   actual question, or do you want me to handle that

 7   in terms of -- do you want to talk a little bit

 8   about the --

 9   MR. PUJOL: Can we maybe let Andres take

10   that up?

11   MR. CHOUSSY: I think I can take a stab

12   at answering the question. And in a sense,

13   Marilee, the answer to your question is that

14   depending on how those end rules and obligations

15   get stated the resources that we would need would

16   essentially in my mind be at one person for each

17   individual client that we service. Because the

18   reality is that the pre-trade risk controls that

19   each individual client utilizes are completely

20   independent. The testing processes and their

21   systems -- in order for us to be able to really go

22   in front of each individual client and require

1   that they're actually carrying out pre-trade risk

2   controls that are effective require that they

3   oversee that they're performing effective testing

4   and monitoring. The only way that I believe we

5   could do it is be essentially having someone from

6   our organization essentially embedded inside each

7   individual client.

8   That might be a little bit of an

9   extreme, but again depending on how those rules

10   end of being stated, and how prescriptive or how

11   they end up being presented, it really would place

12   a significant burden in terms of the number of

13   resources and also in terms of the technical

14   expertise that those resources would need in order

15   to be able to face up to each individual client

16   and really be able to carry out proper due

17   diligence in the full sense of the word.

18   MS. DAHLMAN: Okay; thank you. And we

19   do appreciate those types of details, you know,

20   one person per firm. It's helpful at the staff

21   level to know the kind of challenges that you

22   face. Greg or --

     1   MR. MCGONAGLE: But would that be -- I'm

     2   just curious, in terms of -- so the ESMA facing

     3   business, is that pretty much the way you would

     4   set yourself up, as one person in the compliance

     5   staff for one customer?

     6   MR. CHOUSSY: I think that some of these

     7   things are still being discussed internally. We

     8   haven't gotten to that level yet, but what I want

     9   to emphasize is that again when some of these

    10   rules are described as one size fits all, the

    11   reality is that the infrastructure, the processes,

    12   the organization that each individual client has

    13   is significantly different. And I do think that

    14   we need to account for the fact that there is

    15   significant differences. And I'd love to hear

    16   from some of the clients or buy side firms here in

    17   terms of whether they think that essentially --

    18   what would be the resources that we would need.

    19   Because to Greg's point, you know, some

    20   of the folks on the panel here are also clients

    21   and they know the resources that we have on our

    22   risk organizations, on our technology

 1   organizations, that are carrying out the due

 2   diligence that Greg was alluding to earlier. So

 3   yes, I think that remains to be seen.

 4   MR. WOOD: And just to add to that --

 5   MR. PUJOL: Hold on. Let me follow up

 6   with a question for Andres real fast. I

 7   apologize. So -- and this is not in any way a

 8   referendum on ESMA's approach, but I'm curious to

 9   know for firms that might potentially have to

10   comply in both situations, if you have a DEA

11   client in Europe what is the anticipated staffing

12   load or work load that you believe a firm like

13   yours will have to have in place to do the due

14   diligence that is required of a DEA client in

15   Europe?

16   MR. CHOUSSY: I don't have a specific

17   number for you, but I think that what I quoted,

18   that a high level earlier would probably still

19   hold in the sense -- and I'm not as familiar with

20   the underlying ESMA -- I mean how deep and how

21   granular those rules and obligations really go

22   into is going to have a significant influence in

 1   the answer to that question. So I don't know the

 2   specifics, but I could say that depending on how

 3   far it goes it could be as high as one.

 4   MR. PUJOL: Greg, I'm sorry I cut you

 5   off.

 6   MR. WOOD: No, problem, Sebastian. The

 7   one thing I just wanted to say on top of what

 8   Andres said earlier is when we look around the

 9   room the various trading firms here, regardless of

10   what type of activity they're engaged in, they

11   also trade with multiple FCMs. So when we talk

12   about having a degree of staffing to meet these

13   sort of requirements at one firm, that needs to be

14   duplicated at other firms quite often for the same

15   client that we're looking at.

16   MR. LISLE: So I in principle and in

17   philosophy I agree with Andres in terms of what we

18   do now and then putting something codifying

19   something that says you are responsible for

20   compliance or your client's compliance with that.

21   It's another huge step up in our burden, in our

22   resources, and frankly at the end of the day our

1   cost.

2   So to provide you with maybe my own sort

3   or -- or our firm's estimate. When I was talking

4   to my risk and my market access people and my

5   compliance department we think that conservatively

6   it would probably require, you know, for our

7   client base -- which is fairly small -- for our

8   client base it would be about three additional

9   people, with the head person who would have to

10   have some high level of knowledge on development.

11   And we would be competing with our customers for

12   that talent. So we would have to pay those

13   prices. So our very I think conservative estimate

14   is we're looking at another $1 million a year in

15   costs just to put the personnel and the systems in

16   place in order to carry out this higher standard

17   of due diligence.

18   MS. DAHLMAN: Okay. Thank you. Those

19   details are very helpful to know. Before me move

20   on to the next question does anyone else on the

21   panel want to --

22   oh, Venu?

 1   MR. PALAPARTHI: Sure. I just wanted to

 2   give you like an end user perspective, because we

 3   are in certain markets where in principle this

 4   kind of rule exists and I would liken it to we

 5   have a car and our friends at ABN financed it.

 6   They did their due diligence, they checked our

 7   license, everything is done. We have the car, but

 8   if you insist that they sit in the car, maybe it's

 9   2 days a year or 365 days a year, and then we use

10   4 banks to finance that car, now we have 7 or 8

11   guys in the car. It's not going to work for us.

12   So I know it's a loose analogy, but we are

13   responsible drivers, do you KYC, and let us drive.

14   MR. MORAN: One other thing, if I may.

15   I'm not as familiar with ESMA and all the rules in

16   Europe as perhaps Alberto is, but in the U.S. we

17   also have rules that put responsibility on each

18   and every market participant. So, for example, we

19   have a rule against -- at CME Group disruptive

20   trading is prohibited. Each and every

21   participant, no matter who they are, need to

22   follow those rules, and they can be held

1   accountable in their own person, for that

2   compliance. So it doesn't seem quite right to say

3   that an FCM has to step in there and take some of

4   that responsibility away from that client. We

5   feel it operates best when that responsibility is

6   placed on the participant who actually might

7   engage in the conduct.

8   MS. DAHLMAN: Okay. Thank you.

9   MR. PUJOL: Jim, is that another vote in

10   favor of the original approach in Reg AT?

11   (Laughter)

12   MR. MORAN: I'll hold my votes for now.

13   MS. DAHLMAN: Okay. Thank you for those

14   comments. So the next question that staff has is,

15   you know, we've heard that it would increase

16   the burden for FCMs, but assuming that

17   that burden was placed on FCMs could you please

18   describe some options for how an FCM could go

19   about evaluating the adequacy of its AT Person

20   clients' systems and controls? And in particular

21   if you could give us some idea of the kind of

22   criteria that FCMs would use to evaluate the

1   adequacy of the systems and controls that its AT

2   Person clients would use.

3   Go ahead, Matt.

4   MR. LISLE: I'll start. As I mentioned

5   before we currently do have a process with our AT

6   clients to go into their shop at least once a year

7   and go through an extensive questionnaire with

8   them and review it and then produce a report that

9   comes out with an overall risk score and people

10   have to sign off and agree on that risk score.

11   So the types of things that they're

12   looking at, you need to divide I think this task

13   up into two general parts. The first part would

14   be let's look at your execution risk controls.

15   The standard, you know, what have you got in

16   place, what's your system that you use, do you

17   have responsibility, who's responsible, who's

18   monitoring those kind of things you need to

19   evaluate. The second thing I think is a little

20   more difficult for us. We don't do it right now,

21   we don't evaluate algo development. We don't even

22   develop algos ourselves. So we're going to have

1   to go out and get that talent and bring it in

2   house in order to go and evaluate a client's algo

3   development.

4   So I can't really necessarily speak to

5   the algo development piece and how you evaluate

6   that, but certainly it's a well wrought standard

7   right now in terms of what's done on the execution

8   risk side.

9   MS. DAHLMAN: Okay. Go ahead, Greg.

10   MR. WOOD: I was just going to say we

11   have a similar approach which we apply to some of

12   our clients. Not necessarily all of our clients

13   are engaged in automated trading because we did is

14   we have clients where we give direct access, so we

15   want to understand more because we're giving them

16   that privilege. But to the point, where someone

17   is engaged in algorithmic trading, there is an

18   inherent risk as we've said before, regardless of

19   the means of access, regardless of whether it's

20   going through direct to the exchange, through our

21   pipes, via another set of pipes that maybe we have

22   administrative control over.

 1   To the point about how do we go through

 2   this due diligence exercise, Jim made the point

 3   that there are various market requirements. So

 4   within most of our electronic agreements across

 5   the street we will remind clients of their

 6   obligations and we will do that on an annual basis

 7   or semiannual basis, et cetera. For certain

 8   clients we will go and have this sort of more

 9   principle space conversation because we can't --

10   as Matt says, we can't go in and talk about every

11   individual client, types of controls, types of

12   development, software methodology, development

13   methodology the use. What we have to say is, do

14   you have key operating procedures in place with

15   regard in these standard principles around

16   software development, testing, deployment, and

17   monitoring. And everyone signs off on that and

18   then we say yes, okay, we're happy, we will

19   revisit again next year. And if we bring on a new

20   client we will obviously do that again from

21   scratch in terms of understanding how they have

22   access.

1   But again, we try and do as much as we

2   can within the additional protection that we put

3   pre-trade risk controls in place, as I say in

4   today's U.S. markets those risk controls exist at

5   every level now because every DEA access has a

6   layer that's provided to us by the DCM where we

7   can put some sort of control in place.

8   And ultimately these controls are there

9   for the benefit of the FCM and for the benefit of

10   the firm that's engaged in trading. But they're

11   speed bumps, they're there to try and prevent or

12   mitigate issues in case of accidental over

13   trading, whether it's a simple fat finger or

14   whether it's a system that may have been, you

15   know, may have reacted in correctly to market

16   conditions or may have been deployed incorrectly.

17   MS. DAHLMAN: Okay. Thank you. The

18   next question staff has is actually a follow up on

19   that. So under this FCM based structure aside

20   from having FCMs evaluate the adequacy of client

21   systems and controls in what other areas do you

22   think it might be appropriate to have FCMs

183

1   conducting due diligence, you know, in particular

2   in getting at the risks of algorithm trading? Are

3   there certain areas that you think ought to be

4   built into the structure in terms of what FCMs

5   should be looking at?

6   MR. LISLE: I'm not sure if this is

7   brand new or different, but it's kind of the same

8   theme in terms of once you talk about and discuss

9   the tools that they use, you also want to know

10   your client well enough to know how they trade, do

11   they pick up a phone, do they use an algo, that

12   kind of thing. And then what markets they're in,

13   look at the volatility in those markets, look at

14   the liquidity. Those additional concerns will

15   also have an impact. So anything in the trading

16   environment that would be relevant to the actual

17   activity I think would be in scope.

18   MR. CHOUSSY: And to add to that, I

19   think that in some instances what we also do is

20   that like Matt mentioned, we look at the number of

21   markets, how much the products that they want to

22   particularly trade, the means of trading, the

 1   venues that they want to utilize. We also look at

 2   the capital that each individual firm has and how

 3   much is actually available resources they have for

 4   us as a clearing member in the event of something

 5   potentially going wrong.

 6   And to the point that Greg was

 7   mentioning before, we then try to size the limits

 8   and a risk appetite to each individual client

 9   based on the level of comfort that we derive from

10   those conversations and from that due diligence.

11   MS. DAHLMAN: Go ahead, Carl.

12   MR. COSCIA: I guess, you know, from my

13   perspective, and I touched on this with Gregory,

14   is that you at least for a large number, or at

15   least a few DEA clients, they don't route their

16   orders through their FCMs, so I'm a little bit at

17   a loss as to why we would expect the FCM to kind

18   of exercise this scrutiny. And again I'm going to

19   agree with CME in that, you now, when we enter

20   into a CME market we agree to abide by its rules,

21   we certify our testing, we go through our pre and

22   post- trade risk controls. And then our FCM, who

1   ultimately gets the give up and clears it for us,

2   you know, they do the due diligence that we're

3   financially sound to cover what we're doing.

4   And I guess what I'm at a loss for is

5   some of these rules seem like the Commission is

6   questioning the FCMs pre and post-trade risk

7   controls and whether or not they're actually

8   meeting a standard. And I guess as someone who

9   you -- again, I'll just reiterate who I am -- I

10   have direct electronic access, I write my own

11   algorithms, and I trade. They are execution

12   algorithms, not HFT, and I'm an end user. I don't

13   know why I want those five guys in the car with me

14   because I don't know why I should have to pay for

15   them.

16   So if you're questioning the FCMs pre

17   and post-trade risk controls I think the

18   Commission should just be up front with the FCMs

19   and question them.

20   MS. DAHLMAN: I don't -- speaking from

21   staff's perspective, you know, it's not quite that

22   we're questioning FCMs own risk controls. You

1   know the structure under the NPRM is that there

2   are three different levels, the AT Person, the

3   FCM, and the DCM. And we certainly got some

4   comments saying that that as overly redundant, but

5   at least at the staff level we do think that

6   there's some value added to having controls at the

7   AT Person level. So one thing we're thinking

8   about really is how to make sure that there's a

9   consistent baseline across all trading firms,

10   across AT Persons at least in terms of the types

11   of controls that they have. So if a structure

12   where the CFTC is imposing requirements directly

13   on AT Persons is going too far, you know, we're

14   looking for alternatives. And so one alternative

15   that we're thinking about right now at least at

16   the staff level that we're kind of working through

17   is this FCM based structure where there's an

18   enhanced role for FCMs compared to what they're

19   already doing right now.

20   MR. PUJOL: I would add to that that,

21   you know, we can also talk about a more DCM based

22   model where the DCMs are looking at the customers

     1   and introducing that sort of baseline of pre-trade

     2   risk controls required at the AT Person level. I

     3   don't think that at this point we are sort of

     4   making an affirmative suggestion. We are asking

     5   for your views on alternatives, but alternatives

     6   that nonetheless result in AT Persons having

     7   controls on their systems.

     8   MR. MCGONAGLE: I think we start over --

     9   MS. DAHLMAN: Go ahead.

    10   MR. NUNES: I have been doing my best to

    11   bite my tongue and wait for that to be suggested,

    12   so now that it has I think what I'm hearing from

    13   the FCMs is they don't want to do it and what I'm

    14   hearing from the users is we don't want them to

    15   use it, to do it. So from my perspective there

    16   are a couple of reasons for that. One is there

    17   are certain aspects of business where we might be

    18   competing with FCMs and having them as our

    19   effective regulators doesn't really feel right.

    20   The other, which I would be thinking

    21   about if I were in your shoes, is you have more

    22   potential for an unlevel playing field because

1   different FCMs may apply different standards.

2   It's been suggested a couple of times that

3   typically the firms with DEA are members of the

4   DCMs and that seems like a very obvious place to

5   have this. I sit across the table on a lot of

6   these due diligence meetings, I also sit across

7   the table when we're audited by various

8   regulators. I think that having the CME and ICE

9   and the other futures exchanges come in require

10   this function of any members, perhaps require --

11   if you want DEA you must be a member so that we

12   can ensure we capture everyone, and setting out an

13   effective standard of here's what we expect to

14   see, we expect you to have policies and procedures

15   that document what you do, and we expect to come

16   in and have you produce to demonstrate that you

17   actually do it, is a very effective model and it's

18   a model we see all across the world. In the U.S.

19   the structure of the futures market is a little

20   bit different in that my firm is reasonably

21   unlikely to become an FCM, but we have been an

22   investment firm for several years. Similarly on

1   the equities side, we're a broker dealer. So

2   we're very familiar with the model of you're a

3   member of this regulatory organization, they have

4   rules, you have to abide by those rules, and

5   they're going to come in and check and make sure,

6   and that anyone who gets access to that exchange

7   has to have pre-trade controls in place.

8   And, you know, on the first panel they

9   discussed kind of the two layers of risk controls.

10   It's a very effective means of having it, and

11   frankly the U.S. futures market is starting from a

12   better point because we have them at the DCM and

13   most places don't. So that's a model where you

14   say if you have direct access, frankly whether

15   you're algorithmic or not, you should have certain

16   risk controls. I think that you guys were right

17   in having some flexibility because different firms

18   are going to be focused on different risks.

19   Frankly within a certain firm we have trading

20   strategies that we need different risk controls

21   and risk limits for, so having flexibility there

22   makes sense. Having a regulator come in and say

1   is what you're doing documented, does it make

2   sense, you know, are the controls robust, and then

3   having the FCM have control and robust credit

4   controls and ICE risk controls, that's a pretty

5   good system.

6   MS. DAHLMAN: Thank you. We'll go down

7   the line I guess. Matt?

8   MR. LISLE: Can I jump the queue here

9   just because I want to respond right to Adam and

10   then I'll let you have the microphone.

11   Adam, I don't think I was saying that we

12   don't want to do it, but I just wanted to

13   highlight, you know, in Chairman Massad's opening

14   remarks he asked for some practical facts and so

15   forth. And I was just trying to provide that

16   there is a real cost. We all know the compliance

17   departments are not profit centers, so if it's a

18   cost to us we're not going to just turn around and

19   invoice our clients for their fair share of it, it

20   will passed along probably indirectly and it goes

21   through the chain like that, but it's a while

22   before you kind of like recoup that back. That

1   kind of dynamic is at play here and that's all I

2   was trying to do was illustrate that.

3   MR. WOOD: Thanks, Matt. I was going to

4   touch on that as well. To the point made earlier

5   about redundancy of risk controls and then also

6   the point do the FCMs want to do what we're

7   talking about? The FCMs accept they have a

8   responsibility. Everyone within the market has a

9   responsibility. The DCMs have a responsibility to

10   provide a fair and functioning market that allows

11   for risk transfer and price discovery. The FCMs,

12   as the clearing members and the facilitators of

13   access to those markets have a responsibility to

14   ensure not only do we protect ourselves but we

15   protect clients as well in terms of how they

16   access those markets. And similarly any market

17   participant has a responsibility around how they

18   engage in a market, and that includes if they're

19   using types of technology that goes above and

20   beyond just picking up the phone and saying hey,

21   can you buy me a 1000 e-minis. If you're now

22   generating a signal that says I need to buy 1000

1   e-minis and I'm going to work that into market,

2   you need to have appropriate controls around that.

3   So the approach that was suggested in

4   Reg AT certainly does not go against what

5   generally in the industry we've been propagating

6   for the last six-seven years. There are different

7   responsibilities and there should be different

8   levels of risk controls in place. Probably our

9   biggest concern certainly we've had from an FCM

10   perspective is we don't want to have duplicative

11   controls that do the same thing. The DCM puts

12   controls in place to protect market integrity, the

13   FCM puts their controls in place, a trading firm,

14   particularly one engaged in algorithmic trading,

15   has controls in place that are appropriate to that

16   type of activity. And all of these controls work

17   together in a good way, as Adam said, that

18   provides a degree of protection to the

19   marketplace. We can do our bit, and in fact the

20   general consensus of the FCM community is as much

21   as we've talked about 1.73, which is risk

22   management for clearing firms, 1.82, as proposed in

 1   Reg AT, would be a very good template for ensuring

 2   that there is a standard playing field in terms of

 3   pre-trade risk management for an executing FCM

 4   providing access to a marketplace. And I think

 5   generally the FCM community that I've spoken to

 6   would be very happy to something that is

 7   principles based in that approach to ensure that

 8   there is that level of protection from our

 9   perspective.

10   The one thing that the FCM would

11   struggle to do, and as we've said it would also be

12   very duplicative across FCMs, is to try and spend

13   too much time ensuring compliance of our clients

14   to their particular responsibilities.

15   MS. DAHLMAN: Okay, thank you. Carl, go

16   ahead.

17   MR. COSCIA: You know I think Greg did a

18   good job and Adam did a great job. I think from

19   Hartree's perspective, and you heard me say it on

20   panel 2, we feel pretty strongly that the

21   administrative agent of this rule should rest

22   largely with the DCM, particularly in the case of

1   a client with direct electronic access outside

2   their FCM, that it would seem reasonable that the

3   DCM could delegate that to an FCM to the extent

4   that the FCM was effectively the direct access

5   provider. That seems very reasonable I think. In

6   that case the client is electing to face that

7   additional compliance cost and that they're

8   basically saying I will take it because you're

9   giving me a service and I'm paying for it.

10   Where we really struggle is if we feel

11   like yes, there's this layering on of these

12   entities that really at the end of the day the

13   value add is questionable because you know if

14   you've ever gone to a mathematics seminar the

15   number of people in the room are very few because

16   when you get to really high level math, very

17   people actually understand what that guy is really

18   doing. And so to put a lot of people in the room

19   who understand it is a tough ask. And so, you

20   know, you employ very bright people and you enter

21   into a contract with a market and you agree to

22   face the consequences if you break it. And I

1   think that's kind of where you're at.

2   SPEAKER: Let me ask a follow up

3   question -- oh, I'm sorry, Commissioner?

4   COMMISSIONER GIANCARLO: Just a follow

5   up question. To the thing we're exploring here of

6   an FCM providing this service to AT Persons and

7   the concern about multiple FCMs, is it possible to

8   have a mechanism where they can designate one if

9   they use multiple FCMs, just to at least get

10   around the problem of having supervision provided

11   by the five different FCMs they utilize?

12   MR. COSCIA: Can I just take a first cut

13   at that? I think there is still a question of

14   whether or not that -- when you're being provided

15   that service through your FCM and maybe using

16   something like TT or something other than that and

17   executing an algorithm whether or not you are an

18   AT Person. I want to make sure that that's clear.

19   It's not clear to me that you are an AT Person,

20   but given that it seems like there ought to be a

21   way you could pick one. But then of course one of

22   those FCMs is relying on the other one to in

1   essence ensure what is their fiduciary liability.

2   And I don't want to speak for them, but I would

3   guess if I were in their shoes as the chief risk

4   officer I would be a little nervous about that.

5   COMMISSIONER GIANCARLO: I fully get

6   that and I know there's policy. It's just that

7   when I was -- Venu's analogy to riding in the car,

8   I think it's possible to just -- if somebody is

9   going to ride in the car you can pick one of the

10   five and work out the rest as opposed to have all

11   five in the car, but.

12   MR. WOOD: Or alternatively you find a

13   third-party who would be the AT Person that

14   obviously we then, you know, delegate that

15   responsibility to.

16   MR. LISLE: You know, from the financial

17   audit side you already have that imposed at this

18   point, the Designated Self Regulatory

19   Organization, or the DSRO. But of course that

20   implies that's a regulatory function and maybe I

21   should point out that asking us to do this kind of

22   a thing makes us into a quasi regulator actually.

        1   MR. PUJOL: So I wanted to follow up on

        2   Adam's point initially. You saw some benefit in a

        3   greater role for the DCMs and I'm wondering if I

        4   might get some reaction with Waseem or Jim to that

        5   -- such a role for your entities.

        6   MR. BARAZI: Yes, I think we would

        7   actually prefer a DCM approach over an FCM

        8   approach. When we first read this FCM based

        9   proposal, the risk control structure, our first

       10   thought was the FCMs aren't going to be very happy

       11   to implement this. It's going to be costly, we've

       12   already lost quite a few FCMs, how many more FCMs

       13   would we potentially lose due to this cost. I

       14   mean Matt estimated $1 million. I mean some FCMs

       15   might not be able to afford that at all.

       16   I also don't imagine that the AT

       17   Persons, the low latency firms themselves would

       18   want the FCMs to be in the car with them as

       19   they've expressed. I think that from our

       20   perspective we would rather apply those risk

       21   controls on a gateway level for our participants

       22   rather than have an approach where we're

1   necessarily reviewing policies and procedures. We

2   would be responsible for establishing those risk

3   controls at an exchange level.

4   That would be our preferred approach.

5   MR. PUJOL: That sounds like, you know,

6   a one level approach rather than the two, right.

7   How do we get the second layer in there?

8   MR. BARAZI: I agree. I think from our

9   perspective the technological risk controls at the

10   exchange level are -- that's the first level. I

11   agree with the rest of the commenters that the DCM

12   might be a better place to perform those reviews

13   of the AT Persons or low latency firms rather than

14   the FCM level. That that's a bit of an unusual

15   solution as someone pointed out that put them in

16   kind of an SRO capacity. I think that will be

17   preferable -- a DCM approach would definitely be

18   more preferable to an FCM approach.

19   MR. PUJOL: Jim, any thoughts?

20   MR. MORAN: So I'm struggling a little

21   with the whole concept of a third-party

22   supervising somebody and being somehow responsible

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 1    for their compliance.  Certainly as DCM, you know,

 2    we have a self regulatory unit and we do a lot of

 3    scrutiny of the markets.  You guys know that.  You

 4    come in and you look at everything we do.  We have

 5    a lot of people and a lot of different processes

 6    in place to look for rule violations every single

 7    day.  And that's kind of one of the ways that we

 8    manage our markets.  When we talk about -- earlier

 9    I talked about how we might we divide up so when

10    we have an AT Person or we have somebody with

11    direct access, how to decide whether the FCM could

12    apply the risk controls or the party themselves

13    becomes more responsible to apply the risk

14    controls and becomes an AT Person.  And I think

15    the idea there is that you're identifying that

16    party that has this increased responsibility.

17    Certainly, you know, you can go to that party and

18    you can make sure they know what those

19    responsibilities are and you can get them to

20    certify that they are meeting those requirements

21    and you can specify what it they have to do.  But

22    I don't think to take like a DCM or an FCM and
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1 make them the party that's responsible kind of for

2 being on the customer, you know, internal to that

3 client to watch everything they're doing and

4 actually supervise them on a day to day basis,

5 that's doesn't make sense to me. I can't picture

6 how that could possibly work in practice.

7   MR. WOOD: Thanks, Sebastian. I was

8 just going to say, this brings us back to the

9 question of who is an AT Person. Because

10 obviously then that has -- how you define an AT

11 Person has a wide ranging impact on obviously the

12 amount of resources that are required in terms of

13 overseeing the responsibilities of the AT Person.

14 And it comes back to the questions like what are

15 we trying to achieve with Reg AT? Are we trying

16 to protect market integrity, in which case you're

17 looking more at the what of algorithmic trading,

18 or are we looking at particular types of market

19 participants who are looking at the who. And

20 depending on how that decision falls, whether

21 we're looking at the who or the what, that raises

22 then very different questions in terms of what we

1   have to do as an FCM, what the DCM has to do, and

2   ultimately who then has a responsibility as an AT

3   Person.

4   MS. DAHLMAN: Thank you. Carl, go

5   ahead.

6   MR. COSCIA: Yes, sorry. You know, I

7   just want to follow up on that. I think when

8   you're looking at who is an AT Person I think the

9   direct follow on that who is a floor trader. And

10   I think from our perspective while you may have

11   direct electronic access, you may trade

12   algorithmically, we don't think that lends you at

13   the same risk level and subject to the same

14   scrutiny as other registrants which you would be

15   tied to under the floor trader definition.

16   So I think when you say who is an AT

17   Person, in my mind that's like asking who is an

18   ECP, who is an eligible contract person. That's

19   not the same as asking who is a swap dealer. And

20   I think the proposed rule basically puts those two

21   things together and that's a break in Commission

22   policy, it's a break in Commission precedent, it

1   seems like a very odd link to me that you're

2   saying if you do this then you're that, with no

3   facts and circumstances test otherwise with regard

4   to your risk

5   MR. PUJOL: Thank you. So we are nearly

6   out of time. I want to maybe go over -- we'll go

7   over time just for a second here and maybe try to

8   sum up where we are and folks can react to that.

9   So, you know, we have floated here in

10   this conversation a couple of potential

11   alternatives. One alternative, and FCM based

12   model, at least a model that gives greater

13   responsibility to the FCMs. And I think part of

14   the reaction that we've heard is that this is

15   potentially undesirable from the point of view of

16   the potential AT Person and potentially

17   undesirable as a matter of cost or even of

18   feasibility from the point of view of the FCMs.

19   I think we also floated an idea of great

20   responsibility for the DCMs, but I think maybe a

21   little bit of divided opinion there as to whether

22   or not that's a desirable approach. Certainly at

1   least some perspective that DCMs are not also --

2   that it's a new role that potentially is not

3   desired.

4   So I think we sort of go back to the

5   original question, and I don't know if folks want

6   to have a final thought on this, of if there is a

7   population that it is appropriate for that

8   population to have certain pre-trade controls in

9   place on its trading systems. What is the

10   appropriate source of that regulation or of that

11   instruction to that participation? I mean there's

12   only limited universe of options of who could be

13   instructing that.

14   MR. PALAPARTHI: So there are

15   participants who are not direct members, they are

16   going through FCMs, and for them of course you

17   could carve them out. FCM would therefore be

18   direct and exclusive owner of the control

19   surrounding their trading.

20   Going back to the car analogy, it's the

21   FCM's car so the FCM should control it. In our

22   case we are subject to the regulation, we have

1   direct control, we have our risk

2   system, and make us an AT Person.

3   MR. PUJOL: Anyone else?

4   MR. NUNES: Well, I mean, so if we make

5   you an AT Person or we make us an AT Person who is

6   coming to make sure those risks and controls are

7   there, right? So to me I say my preference would

8   be having the DCM do it. It's something that the

9   NFA could do. That's perhaps the third-party

10   approach where there's someone else whose kind of

11   job it is to look at -- I kind of think in terms

12   of, you know, the DCMs do a great deal of market

13   regulation. This would be a little more on the

14   member regulation side, which they already do,

15   this would just be an added component to that. So

16   to me adding a there makes sense. It's to me the

17   most clear path to get forward because we're

18   already members and we're not members of NFA, so.

19   MR. WOOD: I was just going to say I

20   think the place where we ultimately -- where

21   everyone would feel comfortable with is we have

22   general principles based requirements around the

1   sort of controls and software to better testing

2   procedures for anyone who engages in algorithmic

3   trading. That seems to be the best approach for

4   protection market integrity overall. If you focus

5   on a particular type of participant that you feel

6   that has to be more specific requirements around,

7   just from the perspective of being an FCM, we are

8   clearly defined as an FCM, we have very specific

9   requirements around our risk management programs

10   under 1.11, we have requirements under 1.73, and

11   multiple rules that Matt can probably read off the

12   top of his head when he's asleep.

13   So I think the key to what you're trying

14   to achieve here is being able to define very

15   carefully who you feel should have these

16   additional controls. And again it makes it

17   focuses as opposed to broad, but there should

18   still be broad principles in place. And then

19   ultimately once you've actually focused it's much

20   easier than for you to regulate those people in

21   terms of how they meet those requirements.

22   MR. PUJOL: Go ahead, Matt.

1   MR. LISLE: If I could add to that,

2   which was very well said, Greg; thank you. I

3   would urge that particular attention is paid to

4   the objective of the rule versus the burdens of

5   that rule. The cost is real and it's practical.

6   I'm not saying the industry doesn't have an

7   overall concern about the next flash crash, we do.

8   We share your concern with that. We may differ on

9   how to get there, but we certainly -- none of us

10   want -- or none of us in a responsible way want

11   this to happen.

12   But, yes, please weight it against the

13   very real costs of what it would take to ensure

14   compliance.

15   COMMISSIONER GIANCARLO: Are you saying

16   that when these rules are in place the next flash

17   crash won't happen?

18   MR. LISLE: I don't have a crystal ball.

19   COMMISSIONER GIANCARLO: Do you think

20   that it's less likely to happen?

21   MR. LISLE: I think the current regime

22   status quo that we have is robust. I think that

1   the CFTC has tools in place already in the form of

2   rules and requirements and in audit function to

3   essentially focus on this particular issue. So I

4   think that the objective, which is to try and

5   prevent flash crashes, can already be achieved

6   with what you have right now in the rulebook.

7   This would include Rule 1.73, which we all abide

8   by and have since it went into effect in 2013. It

9   also includes a robust comprehensive risk

10   management program which is overseen by an

11   independent risk management unit. So that unit is

12   charged with looking at the overall firm risk and

13   they take that job very seriously. And then you

14   have an internal audit function -in our firm and

15   in most firms that would come in and periodically

16   review how you're carrying that out. We have a

17   CCO report every year that we have to essentially

18   represent that we are in compliance with all the

19   relevant rules. And we have to carry out

20   monitoring and testing to show you that we're in

21   control.

22   And then at the end of that you have the

1   ability to come in and look at our processes and

2   procedures and how we're carrying that out. So I

3   think that it's all there right now. That's my

4   personal opinion.

5   MR. WOOD: The one thing I would just

6   add to that, Commissioner Giancarlo, is if you

7   look at the types of controls that were generally

8   in use back in 2010 compared to the types of

9   controls that have evolved in the marketplace now,

10   I'm not saying the change for another flash crash

11   wouldn't occur, but definitely the market has

12   learned from it, they've developed. We always try

13   and put ourselves ahead of potential failure in

14   the marketplace, but we can never totally prevent

15   something happening. The best we can do is

16   obviously mitigate the effects of something

17   happening.

18   MR. PUJOL: Carl, we'll -- please

19   briefly, and then we'll close.

20   MR. COSCIA: Yes, I'll be quick. I mean

21   I'm just going to echo something that was in the

22   FIIA comments, which is that -- and again as a

1   chief risk officer I hope everyone who trades in

2   this market, whether they're an algo trader or

3   they're just pushing a button, I hope they all

4   have pre and post-trade risk controls. I hope

5   someone is calculating their bar, someone is

6   calculating their limit, someone knows how much

7   money they can lose. Okay.

8   As somebody with direct electronic

9   access and algorithmic programs, you know, I would

10   like to work with those -- you know, we've read

11   the CFTC guidelines, we meet or exceed everyone on

12   pre and post-trade risk controls. And then from

13   there I think it's your interaction with the DCM,

14   because that's who you have the arrangement with,

15   that's who you have the contract with, that's

16   whose market you're in. And, you know, again, as

17   I pointed out, on ICE it's 300 messages a second,

18   on CME it's 3000 messages a second, they know

19   their market, they know how it works, they know

20   what's going to hurt it, and that's where you've

21   got to find that agent for your rules.

22   MR. PUJOL: All right, Venu, you get the

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 1    last word.

 2             MR. PALAPARTHI:  Thank you.  Yes, to

 3    Carl's point, I just brought our risk controls

 4    with me.  They're in font 2 because that's source

 5    code.  But, you know, I think -- and I don't want

 6    to sound too arrogant, but we have -- it's in our

 7    interest to have the best in class risk controls.

 8    And I don't know if the FCMs would have the same

 9    level of controls because we build our systems and

10    our controls are, you know, they mesh very well

11    with our systems.  A third-party can never build

12    the same level of sophisticated controls.

13             So that's just my view.  I think having

14    a third-party build this, it's probably not very

15    practical and a practical rule would probably

16    allow for somebody like us to know what our risks

17    are and to keep a tight control over them.

18             MR. PUJOL:  All right.  Thank you very

19    much everyone.  We will take a 10 minute break and

20    reconvene at 2:15.  Thank you.

21                  (Recess- end of third panel)

22             MR. PUJOL:  Okay.  Thank you.  So let's
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1   get started with our fourth panel of the day.

2   This fourth panel will focus on AT Person's

3   compliance with elements of the proposed rules

4   when using third-party algorithms or systems. In

5   particular staff would like to consider comments

6   in response to Reg AT suggesting that AT Persons

7   may be challenged in complying with design,

8   testing, and other proposed requirements when

9   using third-party technology. Staff is very

10   interested in identifying practical solutions to

11   the obstacles that have been raised in the comment

12   letters regarding these third-party situations.

13   We are sensitive also to the idea that any

14   potential amendments we may recommend should

15   maintain an even playing field between market

16   participants that develop their technology in

17   house and those that obtain it from third-parties.

18   Before beginning this fourth panel I'd

19   like to note that our discussion on this panel

20   could potentially branch off into conversations

21   around Commission access to algorithmic source

22   code. Staff is aware that the source code

1   provisions have raised strong concerns among a

2   number of commenters and we note that our last

3   panel today will provide for ample opportunity for

4   discussion on the source code access related

5   matters.

6   So we ask panelists to please help us

7   focus this discussion in this fourth panel on

8   practice questions of how AT Persons can comply

9   with design, testing, and related requirements

10   when using third-party algorithms and to save

11   their Commission access discussion for the fifth

12   panel. And I note incidentally that the panelists

13   for both will be the same, so you will certainly

14   have your opportunity.

15   As with our other panels I'd like to ask

16   the panelists to introduce themselves and then

17   I'll turn the conversation over to my colleague,

18   Mark Schlegel.

19   Thank you. Just introduce yourself.

20   MR. STANLEY: Am I introducing myself?

21   MR. PUJOL: Yes.

22   MR. STANLEY: I'm Marcus Stanley from

1   Americans for Financial Reform and I'll be here

2   for this panel and the net one.

3   Thank you.

4   MR. LISLE: Matthew Lisle with ABN AMRO

5   Clearing Chicago. I'm the Chief Compliance

6   Officer there.

7   MR. GAMBHIR: Nitin Gambhir from Tethys.

8   I work on algorithmic trading solutions.

9   MR. PICARDI: Matt Picardi, Shell Energy

10   North America, and I'm here on behalf of the

11   Commercial Energy Working Group and I'm Vice

12   President in the Regulatory Group there.

13   MR. CHANG: Isaac Chang, co-head of

14   trading at AQR. Also representing the MFA.

15   MR. KOELING: Sebastiaan Koeling, CEO

16   for Optiver US.

17   MR. MUELLER: John Mueller, responsible

18   for clearing, compliance, and risk technology at

19   KCG.

20   MR. SHIELDS: Drew Shields. I'm the CTO

21   at Trading Technologies.

22   MR. SCHLEGEL: Thank you for those

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 1    introductions.  I think we'll go to the first
 2    slide here.  As we begin I think we'd like to get
 3    some specificity around what types in particular
 4    of third- party algorithms or systems we're
 5    talking about here.
 6            So to the extent that or panelists
 7    either use algorithms or systems that they have
 8    let's say leased or purchased from third-parties
 9    or themselves offer those types of systems to
10    clients or customers, if you could give us some
11    information about that, that would be helpful
12            MR. LISLE:  I could start.  ABN AMRO
13    Clearing Chicago, we don't do any proprietary
14    trading ourselves, but we do offer market access
15    services and functionality to our customers.  To
16    the extent that we use third-party vendors we use
17    ISVs such as like TT or CQG, that kind of thing.
18    And the types of algorithms that those types of
19    front ends will provide or make available to
20    customers would include VWAP and other time volume
21    execution algo, and auto spreader, which would
22    work with both routing and execution.  And then TT
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1   I guess provides a design lab functionality, but

2   the CTO is right over there, so I'll let him talk

3   about that.

4   And I will just point out that these

5   types of algorithms are not that sophisticated in

6   my mind. We're not talking about the type of

7   algorithms that some of our DEA clients would be

8   deploying. It's just pretty much simplistic

9   functionality.

10   MR. SHIELDS: I guess I'll go next then.

11   So TT offers -- and I think we're fairly standard

12   in kind of our breadth of offering when it comes

13   to ISVs. We offer a handful of different ways

14   that people could execute automated trading.

15   Matt's right, there is a suite of I would call

16   them pretty vanilla algorithms. They're the kinds

17   of algos that just about everyone provides in some

18   form or another. Not especially proprietary, but

19   they do some automated trading and he's right,

20   it's basically around slicing large orders across

21   volume and time so that you don't enter the market

22   with especially large size.

1   We also offer some APIs. So you could

2   integrate and write your own algos in a variety of

3   different languages, you could even do that in

4   Excel, and then using the APIs we essentially just

5   provide you a way to execute orders so you could

6   pull market data out of the system and you can

7   send order instructions into the system.

8   We also have what we call the algo

9   design lab, which Matt referenced, which is a way

10   of trying to provide traders who don't have

11   particular programming experience with a way to

12   use what we'd call visual programming language to

13   construct business logic and then execute those

14   algos on co-located servers. Sometimes we host

15   for our clients, sometimes we do not. There are

16   quite a few customers who run their own

17   infrastructures. So it gets deployed in a variety

18   of different ways.

19   But that's kind of the breadth of what

20   we offer. I guess I'll move on a little bit to

21   question two, which I think is probably the more

22   interesting one around what do we as a third party

1   give out to our customers or other market

2   participants. We're pretty open with our

3   customers. So we don't give out source code, but

4   -- especially when we -- if we work with an FCM,

5   for instance, to get even just our basic VWAP algo

6   approved, it goes through first just a high level

7   discussion, then there's detailed questions, then

8   they'll actually be able to run that algo in a

9   simulated environment for a certain amount of

10   time. I shouldn't even say a certain amount of time,

11   they could run it as long as they want in a

12   simulated environment to test. So by the time an

13   FCM turns on a VWAP they can use inside TT's front

14   end, it's gone through extensive testing by the

15   customers themselves.

16   I think the same type of approach would

17   work across all of our offerings. We offer

18   simulators so that no one has to just develop an

19   algo and put it into production. But depending on

20   the nature of what they're doing they might need

21   more or less help from us. So, for instance,

22   someone who is building an algo in Excel is not

1   getting a lot of help from us, whereas someone who

2   is using the algo design lab, while you don't have

3   to write code, it is fairly complex and what you

4   can do with it can be fairly complex. So we offer

5   extensive training and that sort of thing.

6   When it comes to APIs, algo design lab,

7   Excel integration, we're not building algos for

8   customers, we're simply trying to provide them

9   tools and we provide documentation around that.

10   And while we do extensive testing internally

11   before we release that software, they obviously

12   have the ability to do extensive testing on their

13   own independent from us before they use it.

14   MR. CHANG: I just wanted to mention for

15   completeness both AQR, and I believe many members

16   of the MFA use a combination of -- depending on

17   market and type of trade -- both internally

18   developed as well as external, both ISV as well as

19   FCM offered algorithms to execute in the relevant

20   markets.

21   MR. GAMBHIR: So we as a firm focus on

22   developing high performance execution algorithms.

1   In addition to futures we do equities, options,

2   and foreign exchanges as well. We are not into

3   the alpha algorithms as well, so there are no

4   trade suggestions made by us, but efficient

5   execution to get the best possible price with

6   lowest possible benchmark variance is our

7   objective.

8   In terms of the development process, you

9   know, there is extensive testing. There's a whole

10   QA department plus there is an extended period of

11   testing across recorded data, across different

12   market conditions. This includes high volatility,

13   low liquidity. So a certain algorithm is changed

14   or a new algorithm comes up, it has to go to

15   testing of various pre recorded market conditions,

16   plus we will also synthetically create market data

17   Essentially, you know, you have assumptions about

18   distribution of returns and then you can create

19   synthetic (inaudible) essentially a quasi Monte

20   Carlo if you think about that.

21   In terms of our clients, our clients are

22   generally asset managers or FCMs themselves, or

1   broker dealers, et cetera, if you go outside

2   the futures world. And we have an extensive

3   simulation environment where they can not only

4   test against real-time data, historical data, but

5   also put in shock conditions, et cetera, to see

6   how the algorithm would perform.

7   Since we do a lot of cross asset work as

8   well, you could be trading equities versus

9   futures while hedging affects, so that becomes

10   quite important for them.

11   We do have APIs where clients could

12   write their own algos. Generally don't have too

13   many clients who end up writing that because the

14   value proposition of our firm is market micro

15   structure research and appropriate techniques.

16   Both machine learning plus sort of classical

17   statistical techniques to develop execution

18   algorithms.

19   MR. SCHLEGEL: Drew, I just want to

20   follow up on one of the comments that you made.

21   When you're offering algorithmic products do you

22   also offer clients, for example, a set of testing

1   guidelines or best practices around specifically

2   how to test those algorithms? And related to that,

3   is there a written record that's produced when

4   that testing occurs of the various simulations

5   that have been processed?

6   MR. SHIELDS: So to the first part of

7   that question, we do not recommend best practices

8   for algo testing. I don't think it would really

9   be appropriate for us to do that. We work with

10   our customers to ensure that they have what they

11   need to meet the regulatory requirements. That's

12   been the case for 22 years. We wouldn't be in

13   business if we didn't help customers remain

14   complaint. But we don't go so far as recommending

15   what they should or shouldn't do, especially when

16   it comes to automated trading. We're not trying

17   to tell them how to trade. They're the traders,

18   we're simply trying to provide the tools they need

19   to lower the barrier of entry to get into the

20   market, because they don't necessarily have the

21   capital and expertise to do what some people with

22   direct electronic access can do.

1   I'm sorry, what was the second part of

2   the question then?

3   MR. SCHLEGEL: Just if any

4   documentation was produced as to the simulations

5   produced.

6   MR. SHIELDS: Sure. So internally all

7   of our test cases are documented. We know every

8   time we run them, there's logs of all that kind of

9   thing. So we certainly know all of our own

10   internal testing. We are not tracking or

11   controlling customers' tests.

12   MR. PUJOL: With respect to internal

13   testing, or even to customers once they're using

14   third-party systems, our proposed testing

15   requirements address, among other things,

16   compliance, and algorithm trading compliance issues.

17   So there's embedded within the rules the idea that

18   testing should include a component for compliance

19   with the Commodity Exchange Act and the provisions

20   around appropriate trading there. Is there

21   a part of the testing that you do that thinks

22   about how the algorithm once put into production

1   or likely ways in which it might be put into

2   production by a client would or would not

3   facilitate an abusive or violative trading

4   practice?

5   MR. SHIELDS: So certainly -- I mean

6   when we're providing things like APIs and very

7   open tools, there's no doubt people can misuse

8   APIs. And so we don't have control over that

9   aspect. We certainly test with our own internal

10 pre-trade system, which many FCMs use. Just about

11 every FCM is using our pre-trade risk system in

12 some form or another. And so all of our algo

13 testing includes pre-trade risk testing, whether

14 it be position limits, messages per second, all

15 those kinds of - - I think what was really the

16 industry standard limits across the board. So no

17 algo testing is done in isolation without also

18 including pre-trade risk components. So in that

19 sense I do think all the testing essentially

20 captures the testing requirements that would be

21 laid out by the regulators.

22   MR. PUJOL: Anything from your

1   perspective at Tethys?

2   MR. GAMBHIR: So as we develop

3   algorithms, since they are developed for each

4   product and each market, market specific risk

5   constraints are taken into account or the

6   regulations are taken into account. For example,

7   let's say you are trading in LSE, London Stock

8   Exchange, you are putting an equity order in, and

9   if you are, let's say, becoming a best bid, you

10   have to obey what's called MQAT. So what my point

11   is, when we do algo development it takes into

12   account -- it deals in crises and regulations of

13   each exchange and the specific product. But

14   that's a focus for our firm when we develop our

15   product.

16   MR. SCHLEGEL: That's perhaps a helpful

17   segue to our next question. So to the extent that

18   developers are creating their own algorithm

19   systems or the types of systems you're just

20   describing there, do you see market participants

21   who are leasing or purchasing those systems, are

22   they asking for certifications or statements as to

1   representations as to the type of testing or

2   design or compliance that was considered when a

3   firm creates its own algorithms that are

4   essentially a black box when provided to market

5   participants?

6   MR. GAMBHIR: I mean certainly all of

7   our clients do. Pretty much every client of ours

8   is an institutional client. So, you know, they go

9   through extensive due diligence in what we do.

10   But I mean the way -- but, you know, to look at

11   this thing, you have to look at it in terms of a

12   broader community. You know, pretty much most

13   FCMs, major FCMs, provide their own algo suite,

14   you know, like VWOPs, TWOPs or plus other more

15   sophisticated algorithms. We are essentially a

16   similar provider, we just don't happen to be an

17   FCM. And where we stand is that look, we're

18   providing a unique analytic technology, if you

19   may.

20   But coming back to your question, is,

21   you know, they go through a pretty substantial due

22   diligence with us. We don't have a standard

1   document we give them. Typically they'll give us

2   an RFP, request for proposal, with will include

3   all kind of questions. We'll give them

4   performance numbers, algo details about what each

5   algo does, what the risk parameters available for

6   each algo is, and then that's pretty much how it's

7   done.

8   MR. SHIELDS: In our case, we wouldn't

9   have representations like in a contract if that's

10   what you mean. We have extensive conversations.

11   There are times where getting simple features

12   turned on with a given FCM may take months if not

13   more than a year because it's -- so much extensive

14   testing and dialogue happens about that feature

15   and there's so much concern about managing risk on

16   the FCM side.

17   So we don't make representations

18   contractually, but we absolutely go over things

19   like how do we test, what do we test. There are

20   times where we'll execute tasks. I'm sure Tethys

21   is similar where someone will ask for a very

22   specific test, and we execute that either with

1   them or on their behalf. So there's lots of

2   dialogue that goes around it, but it's not

3   necessarily formal and standard for every

4   customer. And it's certainly not baked into the

5   contract.

6   Our contract is slightly different I think

7   than maybe Tethys. We're definitely not in the

8   same arena. You know, our licenses are straight

9   software licenses. The software does what the

10   documentation says it will do is pretty much the

11   extent of our contract. Anything that goes into

12   regulatory compliance is essentially bespoke with

13   each customer where we work with them to ensure

14   that their particular interpretation of the

15   requirements are met.

16   MR. SCHLEGEL: Do you see market

17   participants coming to you and describing unique

18   compliance or regulatory requirements that they

19   are subject to? Would you work with them

20   to fulfill those requirements?

21   MR. SHIELDS: Yes. I would say, you

22   know, in any given market there's not a lot of

1   divergence across FCM. So when we're dealing with

2   U.S. markets I think in general the requests are

3   very similar. But we service 45 markets globally.

4   And so, you know, taking a single thing like a

5   simple VWAP algo that they may have been very

6   comfortable with in North America when they want

7   to turn it on somewhere in AsiaPac, there's a

8   whole new set of analysis they have to do for that

9   regulatory body to make sure that they're

10   comfortable turning that algo on there.

11   So they have very, very fine controls

12   around who can access what down to the product

13   level, the market level, the individual user, and

14   they have the time and freedom to do the testing

15   they need and then to work with us. And we

16   certainly modify the software based on regulatory

17   demands. We have a team working on MiFID II

18   compliance. It started well over a year ago and

19   we know that if we don't ensure that they're

20   compliant we can't stay in business. So we

21   certainly modify and adjust to meet the kind of

22   moving regulatory demands.

1   MR. SCHLEGEL: We have heard a lot from

2   Tethys from TT. Does anyone else on the panel --

3   would you like to jump in? Do you have -- go

4   ahead.

5   MR. CHANG: You know, just quickly. So I

6   would say, you know, certainly at AQR our

7   experience has definitely been that we do work

8   with our providers in testing. I mean I think

9   particularly in risk controls; I think that's

10   always been a big area of focus. You know, we

11   don't have representatives from JP or Deutsche

12   anymore, but I do wonder I guess if there's a

13   difference in the level of software testing

14   between sort of the large bank FCMs who provide

15   algos almost as a service so that they can earn

16   execution and clearing fees versus the software

17   providers who are sort of stand alone, you know,

18   living and dying by the software they provide. I

19   think that would be an interesting comparison

20   though. We probably don't have the information on

21   this panel.

22   I would say contractually every contract

1   I've ever seen -- and I can't speak for the two

2   companies represented here -- has a pretty lengthy

3   disclaimer where the software provider does sort

4   of disavow any responsibility for any actual

5   market risk that might happen as a result of the

6   use of the software, which you kind of get into

7   this point -- on the points you raised here on the

8   slide, you know, to move into that sort of regime

9   potentially would be different than I think

10   most -- at least third-party either algorithm or

11   stand along software providers that I've seen

12   before.

13   MR. SCHLEGEL: And when you say market

14   risk, are you taking specifically about potential

15   losses that may be incurred through use of the

16   algorithm, or are you referring specifically to

17   the degree of testing and design that was

18   accomplished to create the algorithm?

19   MR. CHANG: I think it's less around

20   testing and design, but I would say it's, you know

21   -- you mean generally market loss based on either

22   intended or unintended behavior of the software.

         1   MR. PICARDI: I was just going to add at

         2   this point as more representing end users of a lot

         3   these products, most of the ones that we're using,

         4   at least in the energy space, are what we call for

         5   order management functionality. The trading

         6   decisions, most of the parameters around those

         7   remain with the traders. We're trying to find

         8   better ways to execute the transaction so auto

         9   spreaders, things like iceberg and sliced order

        10   type standard programs are the types of things

        11   you'd see used in our firm. So the question

        12   really becomes in our mind to what degree are all

        13   algorithms the same. So if you're looking at a

        14   process that required this certain degree of

        15   testing just because we used some of this

        16   third-party software, and we would hope the

        17   upstream folks, the ISVs, the FCMs, would be more

        18   responsible for ensuring testing the software,

        19   making sure it works, and keeping records about

        20   the performance. But whatever other things come

        21   down to regulate what we do hopefully it would not

        22   be as an IT person considered as a floor trader

1   for using simple programs that help with order

2   management because then it brings in a lot more

3   regulatory (inaudible), including one that I

4   probably should mention. Another (inaudible) that

5   concerns us, if you make us a floor trader -- and

6   this kind of I think fits with the topic -- we

7   then become considered a financial entity, which

8   then if we have are conducting swaps, now it could

9   bring in margin requirements and other issues for

10   our whole business because you've now classified

11   us as a floor trader simply for using these types

12   of functionality.

13   Which brings me to my main point, is

14   maybe using certain types of algorithms, all

15   algorithms aren't the same and hopefully that gets

16   thought about as we consider the rules.

17   MR. LISLE: So I just wanted to add to

18   the discussion a little bit. Isaac did bring up

19   that we don't have the bank clearers here who are

20   actually developing their own algos or white

21   labeling their own algos, what have you. We're a

22   fairly -- we're a more simplistic shop in terms of

1   just offering the off the shelf kinds of

2   functionality that is out there in the

3   marketplace.

4   But what I wanted to talk about is the

5   fact that we're not asleep at the switch. It's

6   another point of risk that we need to address in

7   our overall risk framework and we do. We have a

8   policy in terms of on boarding a new vendor or

9   ISV. It requires maybe a more subjective standard

10   that Drew was referring to or Nitin as well in

11   terms of you sit down, you get a request for a

12   quote, you talk about it, you talk about it with

13   people that know what they're talking about in

14   terms of engineers, but I've already referred in

15   the previous panel that we're not developers

16   ourselves, we're just customers. And then in

17   terms of the negotiation with these vendors, it's

18   been fairly one sided I think in terms of the

19   written agreements, in terms of the disclaimers

20   and the standard software, license agreement

21   format, and so forth. But I think there is also,

22   you know, in this world as risks are identified

 1   from a regulatory perspective, there's an

 2   awareness, a growing awareness in the FCM

 3   community that we have to start insisting on a

 4   little more give and take in terms of these

 5   relationships. But bottom line, embedded in the

 6   responsibility of a registrant is that you are

 7   ultimately responsible whether you are using a

 8   vended product or not.

 9   So I think that that's the driving force

10   with our due diligence, is that we don't sit there

11   and say well, you know, if something goes wrong

12   and we're charged, we're going to be able to just

13   say hey, it was TT's fault. That's not our

14   mindset at all. It's on us, we know this, and we

15   try and do as good a job as we can to try to

16   forestall anything like that happening.

17   MR. SCHLEGEL: That is probably a good

18   segue to our next point here, which is number

19   four. Sebastian mentioned in his introduction I

20   think one of our regulatory goals here is to

21   ensure that a market participant that is

22   generating and developing its own algorithms and a

1   market participant that is, for example, leasing

2   them from a third-party are subject to essentially

3   equivalent regulatory schemes. That there is not,

4   as Commissioner Bowen said, a loophole for someone who

5   is simply leasing them and does not have the

6   opportunity to say that I'm not responsible,

7   because I leased from a third-party -- and it was

8   a black box – so I had no insight into how it works.

9   So that's our challenge here. And

10   should Regulation AT require some sort of

11   certification, due diligence framework perhaps

12   similar to the one that I think Drew was

13   describing, or some of our other panelists that

14   may already be happening in practice. Is

15   something like that foreseeable as part of

16   Regulation AT?

17   MR. GAMBHIR: You know, I will take step

18   back again and talk with the practicality of it,

19   right, because in the real world there are sort of

20   not A and B really, there are shades of gray which

21   go with it. So let me give you a few examples to

22   add to what probably Drew was saying earlier as

1   well. How people sort of work with these

2   algorithms. At one side you have, let's say, you

3   know, a DEA firm, and by DEA I mean somebody who

4   is going direct to the DCM, and is completely

5   writing their own algorithms, et cetera. So let's

6   keep them aside for a second. Generally these

7   firms also have their own technology stack. If

8   you get outside that it ranges from complete

9   outsourcing of the algo, which could come from an

10   independent provider like us or an FCM, to

11   situations where people are sort of taking

12   (inaudible) off what's coming from this software,

13   enhancing it, writing their own controls over the

14   top of it, et cetera.

15   So it really comes down to who is the AT

16   Person really. If you ensnare everybody into this

17   thing, do you include a retail guy who could be writing

18   a pretty sophisticated algorithm. There are a lot

19   of independent single person shops, maybe not

20   trading too much capital, but very sophisticated,

21   very smart. You know, you get into a problem of

22   certifying, watching out after who's doing that,

1   the whole meeting the standards problem. So it

2   really will come down to who is the AT Person.

3   And without that it just becomes very difficult to

4   manage.

5   MR. SCHLEGEL: Yes, and I think the

6   question we're looking at here does not implicitly

7   expand or reduce the number of AT Persons, it just

8   -- let's assume there's a constant, let's say, 100

9   persons for purposes of this example, if 50 of

10   them are generating, they're creating their own

11   algorithms, 50 are then leasing them, how do we

12   create a level playing field between the two of

13   them in terms of their obligations to test and

14   focus on design?

15   MR. SHIELDS: From my perspective I

16   would say there's not a lack of level playing

17   field because they can test. It's not like

18   they're given an algo and they have to just turn

19   it on in production. There is essentially the

20   same opportunity to test that they would have if

21   they built it themselves. They can run in a non

22   production environment for as long as they want,

1   they can run it through as many scenarios as they

2   want. I don't think it's true that simply because

3   they didn't write the code themselves they in some

4   way can't comply, especially because I think the

5   focus of the regulation would end up being around

6   testing and not how you wrote code.

7   So I think as long as our customers are

8   able to test thoroughly and extensively they

9   should be able to comply without any additional

10   certifications or something like that.

11   I also think that the focus should be

12   more on risk controls rather than like algorithmic

13   APIs. You know, we expose an API where someone

14   can subscribe to market data and they can submit

15   an order. Putting testing around -- or putting

16   some kind of certification around that I think is

17   missing the point. I don't think we're having a

18   lot of problems out there because one call on an

19   API had a bug in it and it caused massive

20   disruption. It's because of places where risk

21   controls break down. And rather than focusing on

22   trying to test around algos from the automated

1   side, I think we should be focusing more on how we

2   test around pre-trade risk and how we control

3   access to markets and that sort of thing.

4   In general I would agree with Nitin. I

5   just think doing this is potentially impractical.

6   I think at scale it's very challenging. It

7   potentially hurts the little guy or the small

8   trader who maybe doesn't even want to pay for TT,

9   but wants to just hire someone as a consultant to

10   write some code for them. That consultant

11   wouldn't be able to do business unless they went

12   through some kind of extensive certification, but

13   if they're writing custom code for that client

14   then where are lines drawn and what's considered

15   inside the bounds of certification and not.

16   So I think rather than building an

17   extensive framework for something like

18   certification focusing on testing requirements,

19   especially pre-trade risk, and forcing vendors

20   like ours to stay in business by ensuring our

21   customers can meet those requirements, is far more

22   practical and less burdensome for everyone, except

1   for maybe us who will have to ensure that our

2   customers can comply.

3   MR. SCHLEGEL: I guess it -- go ahead.

4   MR. GAMBHIR: One thing I'll add.

5   Sorry. Look, if you're going to talk about

6   imposing those kind of standards on independent

7   providers like us, FCMs also provide algorithms.

8   Are you going to have AT Persons do the same kind

9   of thing for FCM provider algos? Because the

10   majority of the execution algos provided are by

11   FCM algo providers. So, you know, it would be

12   hard to create a level playing field both for

13   independent algo providers and FCM algo provision

14   as well.

15   MR. CHANG: Well, I think the -- sorry,

16   if I may -- the level playing field is not though

17   just between say the algo providers, whether

18   you're an ISV or an independent FCM, but I think

19   you are also saying -- and I think the third leg

20   of this is the in house or the firm that writes

21   their own code and takes responsibility for their

22   own execution algorithm development. And it

     1   strikes me as inconsistent that the standard of

     2   care if you write your own algorithm and the

     3   standard of care if you lease someone else's

     4   should be different. And I think that -- anyway,

     5   in my head that doesn't -- at least I haven't -- I

     6   think -- and while I agree, I mean I think we're

     7   very focused on pre-trade risk controls, so I

     8   agree with that. Lots of bad things can happen

     9   from a malfunctioning algo. Having been in this

    10   space for some time I can have the battle scars to

    11   definitely say that with assurance.

    12   So I mean if I think about it, if the

    13   developer or the firm who develops their own

    14   algorithm in house has to certify at least in --

    15   you know, exactly what this looks like because of

    16   the regulation as still proposed is unclear, has

    17   to do some amount of certification that they did

    18   some amount of testing and so forth, it seems t

    19   least unfair that a third party provider, whether

    20   bank or independent ISV, wouldn't have to do at

    21   least the same -- you know, meet that same bar.

    22   MR. SCHLEGEL: I think we generally

1   agree with that as a regulatory objective. And

2   maybe we can just provide a little bit more

3   clarity around how potentially this item number

4   four here might work. I think in this

5   scenario the obligation would probably remain with

6   the AT Person. So going to the concern of whether

7   an FCM providing algorithms or an independent

8   organization providing algorithms would be treated

9   equally, there would not be an obligation per se on

10   those providers, but rather the obligation would

11   rest with the AT Person to ensure that whether

12   that AT Person is developing it themselves as in

13   your example, or whether they're going to a Tethys

14   or a TT or another provider, that that AT Person

15   has an ongoing obligation to perform this type of

16   due diligence, get some sort of certification.

17   MR. CHANG: Well, I guess the

18   theoretical question, hypothetical question in my

19   head is okay, so proprietary firm or asset

20   manager, whoever, some market participant writes

21   their own algorithm, there's a bug, they meant to

22   buy 1 contract and they buy 100,000 contracts.

1   It's very clear where the accountability lies in

2   that case. It's with the market participant who

3   wrote the algorithm themselves and they're the

4   responsible -- they're the AT Person. And I'm a

5   big fan of TTs, so maybe I'll use them as the

6   example, but it might be the case that there could

7   be some edge case somewhere, and maybe in some

8   market, maybe a new product or something, and

9   despite best efforts some bug slips through. I

10   mean I'm sure it doesn't happen a lot, but again,

11   having lived in this world for some time, it's

12   inevitable that something happens somewhere. In

13   that case, where does the responsibility lie? So

14   say the responsibility lies with the market

15   participant when they had absolutely no control

16   over the development of that software, that just

17   seems to me to be unbalanced. Like you're

18   shifting incentives I think to some extent if you

19   do that.

20   MR. PUJOL: So, Isaac, I think you've

21   hit -- we'll come to you in a second -- but I

22   think you've hit exactly on the question that we

1   are exploring today because certainly the

2   Commission, the Commission's rules speak in the

3   first instance to registrants. And so the

4   question is what is an appropriate methodology for

5   the registrant to obtain the assurance that it

6   needs given the liability that it potentially has,

7   from the third-party provider that is not a

8   registered entity.

9   So assuming that it will have to obtain

10   something what does that look like?

11   MR. SHIELDS: I don't disagree, Isaac,

12   that something could go wrong somewhere anytime.

13   But I think the issue is about control and I think

14   the user still has control. They don't have to

15   use the algo until they've done the testing that

16   satisfies their own internal controls, and CFTC

17   mandated controls. You know, simply because they

18   purchase a license from TT doesn't mean they have

19   to turn on an algo. They can only do it when

20   their risk department or their FCM, or whoever is

21   overseeing that user deems it appropriate for them

22   to have that.

 1   So I think it is about control and I

 2   think the user still has control. The question is

 3   really can they test and if we say that you only

 4   have control if you have access to the source

 5   code, that's a very different conversation and I

 6   think it's somewhat misguided. At the end of the

 7   day you have control if you can do the tests that

 8   you need to do to meet whatever demands you have

 9   and to meet your own comfort level. And then from

10   there it's up to you to choose whether or not to

11   take the risk.

12   MR. LISLE: Hold on, I was going to make

13   a point to that. So as an FCM and a customer and

14   user I have heard that, you know, the tools are

15   there, you know, the sandbox or whatever they call

16   the testing environment, and there is a lot of

17   access to engineers. It's not necessarily

18   formalized or specific, but there is a great

19   history in this era of electronic trading of

20   collaboration amongst -- and partnerships with

21   vendors.

22   I will say, though, that if something

1   goes to into effect that's a requirement that says

2   a third-party user of an ISV has to ensure

3   compliance with -- you know, ensure that its

4   vendor has tested, we're going to need help with

5   that. We are definitely going to need help with

6   that. Not only just on the testing though, you

7   know, we need to know that you're doing what you

8   have said you're doing. An audit is, just to

9   break it down into its most simplistic form, is

10 okay, tell me what you say you do and then show me

11 that you're doing it. We're going to need help

12 with that. We need access to that and it can't be

13 very burdensome to you or us. So I just wanted to

14 put that out there.

15   MR. SHIELDS: I think that all makes

16 sense. I'm not our legal counsel, so I can't

17 speak to the details of contracts and how those

18 things work, but I do know that conversations

19 about audit and transparency with our customers is

20 something that comes up in every contract

21 negotiation and in some form or another gets

22 addressed. I'm confident that our legal

1   department has limits on what certain people can

2   do, but I know that there is a lot of transparency

3   and at least an openness to -- especially when it

4   comes to APIs and automated trading -- to working

5   through how these tools are built, how they're

6   tested, how they're deployed.

7   So I think some ability to expose what

8   we do to customers is not a problem. I don't know

9   that putting a burden -- again, I think if every

10   person is responsible for a certain type of

11   testing then the playing field is level. And

12   whether you choose to hire a developer or licensed

13   software, either way you're essentially hiring a

14   developer and the question comes down to testing.

15   And I think if it's always going to come back to

16   access to source code that proves problematic

17   long-term.

18   MR. GAMBHIR: I am right there with you,

19   Drew. Look, people like us who work with a

20   variety of institutional players will certainly be

21   happy to do all that's required to certify the

22   products. We already do. I mean the kind of due

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 1    diligence we go through can sometimes last six

 2    months for an asset (inaudible) it will take us.

 3    The problem happens if somebody licenses some

 4    software which is written by some independent

 5    contract provider, there's a substantial cottage

 6    industry globally of cottage developers from India

 7    to Ukraine to U.S., everywhere who write this

 8    software.  How do you sort of capture all that

 9    stuff, right?  And there is a lack of skill set at

10    the asset management level.  And that's why I said

11    it really depends upon who is an AT Person because

12    there are certainly people here who are very

13    sophisticated both at computing market micro

14    structure and various exchange regulations and

15    rules.  But a lot of asset managers are -- you

16    know, they focus on alpha, they're not that

17    sophisticated in terms of those level of details.

18    Will they be able to control that, would they be

19    able to assess that what's presented to them is

20    correct or not correct.

21              And that's why the discussion has to be

22    on risk groups.  How do we manage if there is some
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1   issue that the risk layers, the dual risk layer if

2   that may be, is strong enough to prevent any kind

3   of an untoward incident?

4   MR. LISLE: Can I just double back? I

5   know you didn't want really get on the source

6   code, but I'm going to say that as a customer of a

7   third-party ICE fee I don't want your source code.

8   I wouldn't know what it looks like, I wouldn't

9   know what to do with it, and frankly I'd be

10   terrified that I'd lose it.

11   MR. PUJOL: I promise there's a panel

12   coming; I promise.

13   MR. SCHLEGEL: Well, on that note we

14   may skip ahead by a couple of questions.

15   Sebastian, if you can just jump us to the final

16   slide here. And this I think will be a segue into

17   our next panel as well. So I'm sure we won't

18   exhaust this question in the next two or three

19   minutes here.

20   But very briefly, we've talked a bit

21   about contractual agreements as sort of

22   diligence documents and other documentation, but

1   do these types of diligence procedures or

2   agreements contain provisions around regulator

3   access to third-party technology and source code?

4   So if there is an investigation when you have a

5   relationship between a market participant that's

6   using, like purchasing or leasing, third-party

7   software, who would in theory provide that access

8   to regulators under existing agreements?

9   MR. SHIELDS: So source code is not

10   given to anyone. You know, I don't think there's

11   any software vendor in any industry who is going

12   to give their source code out, whether it be to

13   customers or to regulators.

14   In terms of regulator access to our

15   third-party technology, CFTC has been given access

16   to TT software many times. I've been in multiple

17   meetings doing demos for members of the CFTC. I

18   think we've got a 20+ year history of working

19   really closely with both our customers, but also

20   the regulators to try to help improve an

21   understanding of how the technology works.

22   So I think we've got a long track record

1   of being able to not necessarily give out the

2   source code, but to give access to our technology,

3   do training on the technology, and we're happy to

4   do more of that. So I don't think there's any

5   problem in giving the regulators everything they

6   need to know to understand how software works, how

7   it's deployed. The countless variables that go

8   into how that software may be impacted by a market

9   and vice versa. But it's not built into our

10   contract with our customers. It's very much been

11   a relationship between us and the regulators,

12   which has always been very positive. And I think

13   -- and again I'm not the legal guy, so I'm not in

14   the different dealings, but I know in 20+ years

15   source code has never come up. There have been

16   many, many, many meetings where we help regulators

17   understand how our software is used. And it's

18   never come to, "we need the source code" to be

19   able to piece together how the software works. I

20   don't think it ever needs to be necessary. And in

21   the end subpoena power means you can get access to

22   the source code if you need it, but there's an

1   extra check there because that is the intellectual

2   property and the lifeblood of our firm, so it

3   requires something extra to get. But I think

4   we've proven that again we won't be in business if

5   we don't work well both with the CFTC, but also

6   with our customers, and I think there's a track

7   record that proves that.

8   MR. SCHLEGEL: I think with that we

9   might take a five minute break and then we'll go

10   into the source code issues in more detail.

11   MR. PUJOL: Before we take the break,

12   just is there anyone that didn't get to speak on

13   these issues that wants to say anything? No?

14   Okay. We'll take a break then. Thank you.

15   (Recess- end of fourth panel)

16   MR. PUJOL: Okay. We have saved the

17   best for last, see who really wants to be here on

18   a beautiful Friday afternoon. These are the true

19   believers in the issue.

20   So our fifth panel, and our last panel

21   of the day, will focus on source code, source code

22   retention, and Commission access. At the outset

1   staff would like to address some potential

2   misconceptions regarding this particular aspect of

3   Reg AT. Proposed 1.81(a)(6), the source code

4   provision, makes reference to a source code

5   repository. Some commenters and observers have

6   misconstrued this to mean that the Commission will

7   require the warehousing of all market participants

8   algorithmic trading source code in a centralized

9   facility, or that algorithmic trading source code

10   would be required to flow from market participants

11   to the Commission as a routine and regularly

12   scheduled matter. That is not the intent.

13   Staff's understanding of proposed

14   1.81(a)(6) is that it is a record keeping rule.

15   As with other Commission record keeping rules it

16   is intended to ensure that records are maintained

17   and that they are available to the Commission when

18   necessary. Staff is aware of some commenters'

19   view that algorithmic trading source code is a

20   unique type of record. We hope that this panel

21   will help lead to practical solutions that respect

22   reasonable concerns around the safety of

1   algorithmic trading source code while also

2   addressing the Commission's legitimate need to

3   ensure the preservation of and access to records

4   on occasion.

5   I think we are also cognizant of perhaps

6   a potential bifurcation in the conversation with

7   is around the Commission's access to source code

8   when needed versus the Commission's ability to

9   keep it safely when requested and potentially

10   depending on the method in which it is produced to

11   the Commission.

12   I think with that introduction in mind I

13   will turn it to my colleague, Carlin Metzger.

14   MR. METZGER: Thanks, Sebastian. The

15   focus of the panel will be to gain some further

16   insight and perspective from panel members about

17   certain technical aspects of the proposed source

18   code retention and access requirements. But

19   before I turn to some of the questions that I

20   think will help guide the discussion I'd like to

21   give Marcus Stanley, who didn't have an

22   opportunity to speak on the last panel, open it up

1   to you to offer some of your perspective.

2   MR. STANLEY: Thank you. And this is

3   nothing to do with the last panel, it's on the

4   source code issue. And I think you sort of went

5   to it when you opened up by raising the question

6   of whether source code is a unique kind of record.

7   And from our perspective we don't see that it is

8   really a unique kind of record. Source codes is

9   essentially trading instructions. It's very

10   complex trading instructions, it's trading

11   instructions that a lot of capital has invested

12   into developing, but it is trading instructions

13   and it is routine as I understand it or trading

14   instructions to be part of the books and records

15   of a brokerage or of a trading entity, including

16   instructions that might actually have algorithmic

17   logic in them, like limit orders and the like.

18   And the idea that if I write it down as a computer

19   program these trading instructions are going to be

20   exempt from being part of the books and records,

21   but if I send them as an email they are part of

22   the books and records seems to me to be a

 1   significant problem if something like that were to

 2   occur.

 3   And just two other points. Within the

 4   world of financial regulation, not as much as the

 5   market regulators, but you see it more with the

 6   prudential regulators, the bank regulators do get

 7   access to a lot of highly confidential business

 8   strategy information to risk models that may

 9   represent significant investment by the banks, and

10   they are required to keep that information

11   confidential. But this would not be the only case

12   in financial regulation where there is access to

13   some pretty confidential materials by regulators.

14   And just the final point that the

15   description of the repository, which as you said

16   is meant to be a record keeping requirement for

17   the entity, not a repository located at the CFTC,

18   seemed to have a lot of elements of good business

19   practice in it to me. I mean if I were entrusting

20   my trades to an automated trading program I would

21   certainly want an audit trail of all the changes

22   that have been made to that program and who made

1   them. So that was a prospective we laid out in

2   our comment letter.

3   MR. METZGER: Thanks very much. And I

4   think that everybody else on the panel will have

5   an opportunity to talk about some of their

6   comments and concerns about the source code

7   retention and access requirements.

8   But before we do that what I'd like to

9   do is look at a few questions that are based on

10   some of the comments and suggestions that we

11   received as a part of the comment letter process.

12   One suggestion in certain comment letters was that

13   the Commission should consider defining the term

14   "source code" in order to provide additional

15   clarity about the scope of the term as used in the

16   proposed rule.

17   And so the three questions on this first

18   slide that is up on the screen right now are

19   geared towards helping us better understand it if

20   there is some prospected, and if there are some

21   lines to draw and if, where should they be drawn.

22   What I'd like to do is look at the first two

 1   first. First, how would you define source code if

 2   there is to be a definition of source code. And

 3   second, and a related question, is what software,

 4   hardware, files, or records would you examine to

 5   assess a perceived discrepancy in your trading?

 6   Real quick before I turn it over to

 7   panel members for their thoughts on this,

 8   perceived discrepancy, somebody may have put it

 9   better in an earlier panel. It's really nothing

10   negative about the term, it's more about if

11   something happens that wasn't expected it could be

12   good. It could be a situation where the strategy

13   did better than expected. So I just want to lay

14   that out for your thoughts.

15   With that I'll open it up for

16   discussion.

17   MR. MUELLER: I think to the first

18   question about how to define source code, I think

19   it would be helpful to look at what the execution

20   path of that order would be and how that order

21   would traverse that path. You know, for example,

22   our firm we have a lot of code, some of which is

1   within the execution space, much of which is not,

2   whether it's self clearing, whether it's risk,

3   other areas of the firm. I would say that that

4   would fall outside of scope for source code. You

5   would need to look at what was the instance where

6   the order was created, what made the decision to

7   create the order, was there a decision somewhere

8   along the lines to modify that order and/or cancel

9   that order. And within that execution path or

10   that decision tree path, that would be defined

11   within what we define source code for this

12   particular case.

13   MR. SCHLEGEL: That sounds a lot

14   actually like the definition of algorithmic

15   trading that we proposed. I mean is there a way

16   to sort of talk about the code that accomplishes

17   algorithmic trading as defined or should a

18   proposed definition of source code be wholly

19   unrelated to the proposed definition of

20   algorithmic trading?

21   MR. MUELLER: I think you could

22   certainly take the algorithmic trading definition

1   as a basis to start with, taking a look to see

2   does that impact the execution path. I think

3   that's certainly a good place to start.

4   MR. KOELING: It sounds like we're

5   touching a bit on a different definition indeed

6   than what source code is. I went to my CTO to ask

7   him what his definition of source code was and see

8   if he could explain it to me. And he said to me,

9   he said -- or he wrote it down, that's why I'm

10   looking at my screen here -- he said the engineer

11   expressed the intent of the applications in a

12   format that is easily understood by a human being.

13   That form could be C++ or a java program. The

14   text is the program source code, but computers

15   don't understand source code. They require that

16   to go to a more low level format, which you call

17   application binary or object code. So the

18   software engineer process involves an engineer

19   expressing functionality in source code format and

20   that gets translated into something mechanically

21   that's object code, that's compiling the source

22   code into an executable and a binary. And the

 1   executable is the program that actually does

 2   something. Source code is just alphanumerical

 3   text. If you're really going for a definition of

 4   source code I think that's --

 5   MR. METZGER: Well, that's a very

 6   technical definition, and I think that one of the

 7   comments that you made, John, was related to the

 8   decision making process. And so what I'm kind of

 9   interested in is yes, I think that we appreciate

10   that there can be some very complex machine

11   interaction, but if you want to look at how the

12   decision was made, how the decisions to place the

13   trades we're making -- if you had to look at

14   something unexpected that happened where would you

15   look? You would look it sounds like to the human

16   readable format at the very least and you'd be

17   following the decision path or the execution path.

18   So if you could talk about the various components

19   where you would look in your systems to assess

20   what decision was made and follow that path. If

21   you could help us kind of understand the

22   components involved from a human kind of look back

 1   at those components, that would be very helpful.

 2   MR. MUELLER: Sure. And I think just

 3   kind of stepping a point back is, you know, we

 4   certainly feel that the source code and what we're

 5   talking about here is very, very different than a

 6   normal book and record because, to that point,

 7   rather than just the instruction, I sent this

 8   order at this point in time, you're getting into

 9   why and how and that real higher level thought

10   process that is crucial to every single firm that

11   is developing this type of code.

12   So yes, there are trading instructions,

13   but it's at a much higher level that if that type

14   of information was outside of those four walls of

15   that building it would cause significant amounts

16   of harm.

17   But, you know, back to your question of

18   if something did go wrong how would we go back and

19   try to triage what was happening. It certainly

20   would be well what type of control was alerted,

21   was it a messaging control, was it another type of

22   risk control, what type of control fired the

1   operation staff or the trader saw that there was

2   an issue. At that point in time you'd look at

3   some log files to see was it a data issue,

4   incoming data issue, was it something that was

5   part of the algorithm, was it a control that

6   misfired. You'd look at the log data to see if

7   there's anything in there that would start to

8   point you in a direction of where the issue might

9   become. At that point in time you might bring in

10   a developer to help walk through a code. This is

11   the data we saw come in, this is the execution

12   that happened, why did it behave the way it

13   behaved? But it's very difficult -- you know,

14   I've played both sides of the developer, the

15   compliance analyst, the risk analyst, walking

16   right into a set of code without seeing it, it's

17   very difficult to determine why that code behaved

18   the way it did. You almost always have to have

19   the developer with you to say this is what this

20   part's doing, this is what this part's doing. If

21   you saw this bit of data this is where it went

22   down this particular tree. Without that it

1   becomes very cumbersome and without all the entire

2   data set it becomes nearly impossible.

3   MR. SHIELDS: One other thing I'd add to

4   that, the developer is not just going to look at

5   the source code and say oh, that's where it is.

6   Because if it was that simple chances are the

7   issue wouldn't have made its way into production.

8   They are going to have to actually start up the

9   process where the failure happened. And you're

10   right, they've probably come through log files to

11   try to narrow it down. But once they narrow it

12   down it's not just looking at source, you actually

13   have to run the system, you have to have

14   controlled data inputs, you have to recreate the

15   scenario. And a lot of the time that's spent in

16   debugging, especially tricky problems that you

17   can't just look at the code and figure out, you

18   actually have to have the running system and be

19   able to simulate the exact same scenario. So you

20   essentially have to recreate the scenario again.

21   So I guess I'm just trying to call out

22   the potential limits of source code. I don't

 1   think many of the developers at our firms can just

 2   look at source and say, I see a bug. We do that

 3   already, we do code reviews before code gets

 4   committed. So someone writes code, one, two,

 5   three, sometimes four other people will review

 6   that code and read it, sometimes they'll run it,

 7   and all that happens before the code can actually

 8   get put into a repository as a committed version

 9   of that file or whatever.

10   So the visual examination happened long

11   before any problem happened in production, in real

12   trading. To get at issues in production in real

13   trading takes a lot more than just the source

14   code.

15   MR. MUELLER: Yes, I guess I was making

16   the assumption, and Drew brought up a very good

17   point, that just for our code to even get into the

18   production system it's already passed through

19   multitudes of checks, whether it's unit tests,

20   regression tests, part of the automated bill

21   process. Before it's even in "production", it's

22   already run through a litany of tests before it

 1   even gets there. And quite often what we see in

 2   this particular case is it's very difficult to

 3   truly simulate what will happen in the real

 4   marketplace in a type of simulation environment,

 5   even with the simulation environments that the

 6   exchanges provide.

 7   So to get to that nuance of this race

 8   condition, this race condition, this race

 9   condition, you have to take almost what happened

10   at that point in time and, as Drew said, replay it

11   to see how everything played well together or

12   didn't play well together.

13   MR. PUJOL: Sebastiaan, you mentioned a

14   sort of a two part definition source code which

15   might be more human readable, and then object

16   code. From your perspective is the sensitivity

17   around both or is the object code more than the

18   human readable source code, or maybe the strategy

19   is simply written in some manner?

20   MR. KOELING: From what I understand is

21   that the compiling of a source code into an object

22   code is -- we use a third-party compiler for that

1   and that's pretty standard I think. So the source

2   code put into a compiler would lead to the same

3   kind of object codes. In my sense a source code

4   is the part that you'd want to protect.

5   MR. METZGER: Both Drew and John I

6   believe mentioned, you know, one place you might

7   look if you're looking back to assess some sort of

8   unexpected trading activity or event would be not

9   only the source code but you'd also have to look

10   at some of the log files. I'm sure that this may

11   vary across various firms in the industry, but can

12   anybody give us a little bit of perspective on the

13   types of information that you'd be looking for to

14   kind of assess the discrepancy, both in the log

15   files to direct you to the right place, let's say,

16   in the code or elsewhere within the trading

17   system?

18   MR. KOELING: I can start that. So log

19   files, they are massive pieces of information as

20   well. Everything that changes in the system gets

21   logged, so pieces of market data that come in we

22   log, piece of parameter changes we log, new orders

1   that enter the market which might trigger us to

2   send a different order into the market, every

3   order will have a specific reason for why we sent

4   it based on parameters, based on the algorithm,

5   based on the input from traders. So we'll start

6   looking in the log file and trying to figure out

7   what was the trigger for us to send this order,

8   was it a human interaction, was a piece of market

9   data that we got, was it a change in parameters

10   that we put in our algorithm, could be time based,

11   all these kinds of things. So the first thing

12   we'd start looking at is the log file and say what

13   actually triggered the order, and only after that

14   would we start thinking well maybe it's a source

15   code problem, maybe it's a market data problem,

16   maybe we actually got a piece of information from

17   the exchange that was wrong and we reacted in the

18   right way, so our algorithm is fine, but the input

19   was wrong. So we start looking in the log and

20   then determine where we go look, which might be in

21   the source code.

22   MR. SHIELDS: I think it's also

1   important to note that, you know, logging is very

2   useful. Gratuitous logging can also impact the

3   performance of your system. So it's a balancing

4   act. There's not hard and fast rules. What we've

5   done is we've tried to standardize how we log as

6   much as possible so that from one developer to the

7   next you can count on consistency around how

8   things are logged. But it's important to note

9   that if you literally log the action of every line

10   of code you would have so much text to make that

11   unusable as well.

12   So the goal is to find the right

13   balancing act for when decisions are made you know

14   the inputs that triggered the decision, but you

15   don't necessarily log every line at the same time.

16   So it's a balancing act and the goal is to set

17   standards so that there's consistency across the

18   organization.

19   MR. METZGER: Sebastiaan, I believe you

20   mentioned, you know, parameters may show up, a

21   change of parameters may show up in log files.

22   Would you consider parameters to be a part of the

1   source code within a definition of source code?

2   If you were going to look at source code to

3   understand what was happening it seems to me you

4   might want to look at the configurations or the

5   parameters. Do any of the panel members have any

6   comment on including parameters and if so how to

7   describe them accurately?

8   MR. KOELING: Let's start off -- I

9   definitely don't think that I'd consider them part

10   of the source code. I do consider them part of,

11   let's say, the trading decisions that get made and

12   how we decide what kind of orders we send. I'm

13   not entirely sure -- we are interested on having

14   the parameters that affected the orders that we

15   sent for our own, let's say, checking of what

16   happened in the system. So if we're going to

17   figure out what happened we're going to need to

18   have those.

19   And it comes back a bit to what Drew

20   said, if you're going to try and figure out what

21   actually happened you nearly have to replay the

22   incident, which would also mean you'd have to

1   replay whatever your own inputs at the time were,

2   because if you use different inputs you might not

3   trigger whatever went wrong and you won't know

4   what's wrong.

5   So it's not part of source code, it's a

6   different field, it's parameters. And market data

7   is yet another one. and then we get into the

8   exact same as what Drew just said, if you try to

9   actually save every individual piece of market

10   data that comes into your system there's no way to

11   do it. It's an impossible task to try and save

12   every individual piece of market data that might

13   hit our system. So the same applies to this.

14   MR. MUELLER: Yeah, I would agree that

15   classifying a parameter value as source code would

16   be challenging. I think, you know, as we said, we

17   like to -- because when you talk about source code

18   you're talking about the repository, the testing

19   processes, the build processes, the deployment

20   processes, parameters fall outside of that.

21   MR. SHIELDS: One thing that we have

22   done to help capture parameters is when an algo is

1   launched -- and I'm not referring necessarily to

2   an algo we build, but when someone uses our tools

3   to write their own strategy -- the actual

4   parameters are essentially part of the new order

5   single message that launches the algo. So every

6   time a parameter change happens we essentially

7   virtually create an order, cancel, replace. It's

8   not an order, cancel, replace that goes to the

9   market, but it ends up in the audit logs, it's

10   tracked like it's attached to an order, and in

11   that sense it's able to be captured for books and

12   records. But I would agree, it's not source code,

13   that's much more information about trading

14   decisions and not necessarily a technology

15   implementation, most importantly because it' snot

16   done by the same teams. I mean there are controls

17   put in place so that the person writing the code

18   is not the person setting the parameters in a real

19   trading environment. And I think comingling those

20   two is probably not the best thing.

21   MR. PUJOL: Are the log files from your

22   perspective at the same degree of sensitivity as

```
 1    the source code in terms of your desire to protect

 2    them?

 3            MR. MUELLER:  I think they -- well, it

 4    depends exactly what we were talking about -- log

 5    files.  I mean much of the -- if you're talking

 6    about log files in some respect all that activity

 7    is already available via the trade blotters via

 8    the exchanges.  And so depending upon what gets

 9    captured within that log file, similar to how

10    we're having the discussion around source code,

11    some of it we probably wouldn't have any issue at

12    all.  I think all the sudden if you're starting

13    getting into why that decision was made we're

14    getting back to the point where that's really

15    where the IP is, that's where the intellectual

16    property, the trade secrets start to come into

17    play.  So we'd also have to then draw that line

18    somewhere within the log file too.

19            MR. PUJOL:  And I was referring -- I

20    don't know if it was Drew or Isaac, Sebastiaan

21    mentioned, for example, the log file might record

22    the incoming data feeds not -- that are
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1   influencing decision or the trader intervention

2   that influenced the decision. So that's the part

3   of the log file that I was asking about.

4   MR. KOELING: I think that there are

5   certain types of orders and market data coming in

6   is obviously, let's say, public information

7   because everyone gets the same market data. A

8   trader taking a decision for an order, so let's

9   say a manual order that gets sent would be logged

10 as well. That would not so much have that

11 proprietary information, but if there would be a

12 trigger in our system that we consider part of our

13 source code, part of our, let's say, secret sauce

14 and we have logged this was the trigger why we

15 sent the order, and then that would be something

16 again that we wouldn't want to just have out on

17 the street because that's essentially what our

18 firm is all about in that sense.

19   So it depends on the type of order. Not

20 every individual piece of log file I would

21 consider proprietary, but there are definitely

22 parts in there that essentially tell what we do.

1   MR. METZGER: I believe that there was

2   some mention of the audit trail or the files that

3   are provided to the exchanges potentially or

4   required to be maintained by some of the

5   exchanges. Does anybody have any perspective that

6   they can offer about whether the log files that

7   are kept by market participants have greater

8   details than the audit trail files required to be

9   maintained by the exchanges?

10   MR. KOELING: The log files that we keep

11   for, let's say, our debugging, for instance, they

12   are so huge we don't save those for a longer

13   period of time. Those are only there for a couple

14   of weeks. The ones we save for the exchange

15   purposes have less detail in them. They obviously

16   have what we need to provide for the exchange log

17   files, but they're a lot smaller and those we keep

18   a lot longer. We don't keep, let's say, the debug

19   files for months.

20   MR. MUELLER: Similarly, what's on the

21   exchange files is just what went back and forth to

22   that exchange. We don't have market data on

1   there, we don't have some of the other

2   information. It's particularly just the

3   information that that exchange cares about in

4   terms of who sent that order, who sent the cancel,

5   who sent the modify, who were the people behind

6   that trading decision.

7   MR. METZGER: Question number three,

8   we've probably touched on it a little bit, but

9   I'll read it and see if anybody has some

10   perspectives that they want to offer in addition

11   to what's already been discussed. But number

12   three is what components of your algorithmic

13   trading system should be subject to the

14   development testing and other standards in

15   proposed rule 1.81? And I think the idea being to

16   help us gain some clarity on if there is a

17   definition of course code, the scope of that

18   definition, and how best to do it.

19   MR. MUELLER: I think just as general

20   practice, you know, our firm, anything that we

21   think will hit a market center will definitely go

22   through development testing and look at that no

1   matter where it stands within the execution chain.

2   Whether it's FPGA, whether it's just a simple,

3   let's say, a logging component, everything that we

4   will -- as part of that system will have some type

5   of testing before it goes into the production

6   environment.

7   MR. SHIELDS: You know, TT is different

8   I think than some of the other firms on the panel

9   because we're an ISV. We also have a very large

10   business that's not dedicated to HFT and algos,

11   but is manual trade entry and that sort of thing.

12   So not only does anything that hits an API or

13   automated system get tested, but if we want to

14   move a number from one side of a window to the

15   other side that gets logged in a development

16   ticket, that ticket is traced to the line of

17   source code that is tied to that change, that

18   change goes through testing, it goes through

19   multiple non production environments before it

20   hits production. So for us we wouldn't draw a

21   distinction -- and I -- off the top of my head I'm

22   not remembering all the details of 1.81, so I

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 1    could be missing something very specific, but in

 2    general we treat everything from the user

 3    interface all the way through to the exchange

 4    gateways.  Because we're selling this software we

 5    have to ensure that there's a level of quality

 6    that meets our customers' needs and requirements

 7    across the board.  So we pay attention to

 8    everything, whether it be the placement of a

 9    number on a window or the behavior of exchange

10    gateway.  And it all goes through the same

11    process.  And like I said there's traceability

12    from requirements to source code to deployments.

13    And so we put that same level of priority on

14    essentially every component in the system.

15              MR. METZGER:  One of the panel members

16    mentioned FPGA, and I think that there is, in

17    terms of the evolution of how these trading

18    systems work, there is probably an evolution

19    towards some hardware devices.  Can any of the

20    panel members offer some perspective on -- if you

21    could turn to slide number four, if you use

22    hardware such as an FPGA or an ASIC, what files or
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1   records do you use to create the hardware design

2   to be placed on the FPGA or ASIC chip?

3   MR. MUELLER: Well, since I brought it

4   up I guess it should be me. The files that we

5   particularly use are very simple. You know,

6   similar to what Sebastiaan was talking about, from

7   a code perspective they are human readable. They

8   then go through a compiler that then just burns

9   them onto the hardware. You could think about

10   it's very similar to some products that Drew had

11   talked about with Trading Technologies, is many of

12   these software providers also have emulators or

13   simulation environment. So from our perspective

14   we have the code that would get burned onto a

15   chip, we run it through that simulation

16   environment that has the emulators of the FPGA, we

17   perform the tasks that we feel are appropriate for

18   that particular piece of code. If it passes those

19   tests then it gets part of the production build.

20   So in reality we treat it no differently than any

21   of the other code in practice.

22   MR. METZGER: Thanks for that. I'd like

1   to move quickly on to number five, and given the

2   time limitations, to get some more discussion.

3   And this has been touched on a little bit in terms

4   of what are the industry best practices for

5   tracking and maintaining records of changes to

6   source code.

7   If any of the panel members can speak to

8   that we'd appreciate it.

9   MR. CHANG: Maybe I will give these guys

10   a break. I would say certainly our experience is

11   that, in terms of best practices, all changes to

12   software are -- there's a system for basically

13   logging and recording all the changes and also

14   potentially be able to back them out if, you know,

15   a bug is found. And that's stored for a

16   significant period of time.

17   You know, I think the flip side -- I

18   think that is where we would say best practice --

19   we think best practices are -- I think from the

20   perspective of -- and from the perspective of MFA

21   as a whole, I'd say there is a cost to maintaining

22   this kind of system, and also a cost to

1   maintaining these records over a period of time

2   and the cost benefit has to be weighed. So, you

3   know, do you need to be able to reproduce what

4   happened five years, I don't know that -- I think

5   there -- here that you definitely on any given

6   change you want to be able to roll back, you want

7   to keep a few versions. How far back you go I

8   think is more subjective and historically very

9   much -- you know, there's a cost benefit. I mean

10   storage isn't free. And also there's some amount

11   of practicality which is the point that some of --

12   has already been brought up, which is you have a

13   version of software from three years ago but you

14   don't track the market data or inputs from three

15   years ago, then what use is it really anyway.

16   MR. KOELING: I don't think I have too

17   much to add to that. Think you can you see from

18   the source code repository what the history of

19   changes were, you can find the concurrent versions

20   so that means you could have repeatable builds.

21   You know from the source code you have in your

22   repository you'd build the exact same build again

1   if you were to build it.

2   And then one final thing that we can

3   also see is that you can actually have access

4   rights on the source code repository, which also

5   gives you some kind of mechanism to make sure that

6   the people that are allowed to be in there are in

7   there and the people that shouldn't be in there

8   can't get in there.

9   MR. SHIELDS: Yes, I'll just add that

10   having been at a few different places in the

11   industry over the last 10 years I've seen great

12   consistency across the different firms. Everyone

13   is using source control in some form, everyone

14   knows who changed what line of code on what date.

15   In general everyone can reproduce a build from

16   some amount of time prior. What we've done over

17   the last year, which I haven't seen everywhere but

18   I think is becoming more common is that link of

19   traceability that I talked about. So you could

20   actually start from a requirement and trace that

21   requirement all the way through, not just all the

22   code lines but even the actual environments and

1   know when it got deployed.

2   But I think that's pretty standard at

3   every firm I've seen or talked to in the industry.

4   MR. MUELLER: I would say the only point

5   I'd bring up on this is internally we keep very

6   strong controls when we -- so when we say anyone

7   can, it's not technically anyone within the firm.

8   We have ring fences around our organization, you

9   know, just as a firm, who can get inside. Then

10   there's another ring fence of who can see the

11   code. And then even within that there's only

12   certain people that can see certain types of code.

13   Let's say a logging object that would just write

14   out to a log file, that's not very sensitive,

15   anybody can see that. As soon as we start getting

16   down into here is -- like we talked about the

17   secret sauce -- here's the key to making these

18   trading decisions, that's a very small subset even

19   with our own firm that we monitor and track as

20   well.

21   MR. PUJOL: So we have about 15 minutes

22   left, and I want to focus on our last question,

 1   but also on I think the issue that is causing us

 2   to have this particular panel in the first place.

 3   We understand the sensitivity that -- the

 4   arguments that people have raised around their

 5   intellectual property and concerns over Commission

 6   access to it. I began this panel by saying we are

 7   interested in both way to ensure that the

 8   Commission has access, that the records are

 9   retained, and that the Commission has access when

10   required as well as respecting and being sensitive

11   to the concerns that have been raised. And so I

12   think we want to both sort of hear the fundamental

13   concern, but also discuss what are the options

14   that are available from your perspective that

15   would make it at least better than it is now so

16   that access can be provided to the Commission, but

17   you have some greater security or sense of safety

18   perhaps than you do under the proposed rules when

19   that access is needed.

20   MR. CHANG: So maybe I'll start. You

21   know, I think broadly we agree with what Chairman

22   Massad said in front of Congress in February when

1   he said that the CFTC wasn't asking firms to

2   provide their source code to regulators, only that

3   they preserve it. I think the quote that we read

4   was if there's a problem and we do need to get it,

5   using the proper procedures we can. And at least

6   the press account said that he reiterated their

7   willingness to ensure there were proper procedures

8   to protect confidentiality, including potentially

9   requiring the CFTC to issue a subpoena if it needs

10   to access a firm's source code. That's certainly

11   -- for us we think that seems to be a reasonable

12   standard.

13   I would say to say source code is simply

14   trading instructions, there certainly are trading

15   instructions enclosed in source code, but to the

16   point that maybe to underscore what John and

17   Sebastiaan have said, there is highly sensitive

18   intellectual property also within source code

19   that, you know, I think drives a lot of the actual

20   trade execution. And I would say it's akin to

21   asking Google for their search algorithm, asking,

22   you know, Coke for their secret formula. There

 1   are ways to be able to protect the consumer by

 2   looking at the output and the results without

 3   risking intellectual property.

 4   I mean to the point around asking banks

 5   about -- that the precedent that banks do provide

 6   lots of information to their regulators, I do

 7   think that -- I mean that's factually true, so I

 8   certainly wouldn't dispute that. I would say that

 9   banks particularly play a systemically important

10   role in the economy and that's been recognized and

11   I think that's why there's a higher standard for

12   bank regulation than there is for potentially

13   other institutions or other market participants.

14   And to apply a systemically -- you know, a

15   standard for systemically important institutions

16   to an entire marketplace or a large percent of

17   entire marketplace seems to me to be somewhat

18   unprecedented.

19   MR. PUJOL: Isaac, just to add one piece

20   of nuance and then I'll give you the microphone

21   back. So I think we would be interested not only

22   in what you view as appropriate legal protections,

 1   but also from a technology perspective. Are there

 2   methods of production to the CFTC that you believe

 3   would be safer than others?

 4   MR. CHANG: So at least from a high

 5   level let me describe perhaps what I've -- not in

 6   my current role, but what I understand to be the

 7   case from some of prior roles with other agencies.

 8   So there's two things. So one is I think, at

 9   least my understanding from speaking to our

10   lawyers is that a subpoena is not a particularly

11   high bar. And either of the gentlemen at the

12   table can issue a subpoena and in their absence if

13   they're not available our understanding is senior

14   market reg officials can issue a subpoena. So

15   it's not a matter of necessarily going to court.

16   And generally in practice, for example, just the

17   possibility of issuing a subpoena generally means

18   that market participants are highly incented to

19   cooperate. Because who wants to have that as part

20   of the official record.

21   The examples that I've seen of source

22   code being examined are folks from regulatory

1   agency coming on site and viewing the code.

2   People at the firm are present, able to explain

3   and try and help cooperate and to try and help

4   explain what the code is, because as we've

5   discussed before, looking at the code in

6   isolation, it's -- the chances of being able to

7   figure things out in a short period of time are

8   frankly quite daunting.

9   And then there's a record of who had

10   access to the source code, there's a record of

11   what parts of the code they had access to. And I

12   think that would be a necessary component of this

13   as well. But the source code, at least in the

14   examples I've seen, doesn't leave the premises of

15   the firm that owns it. I mean I acknowledge that

16   there are cases in which it might be appropriate

17   for a regulator to look at source code if

18   necessary, but we do believe there should be some

19   measure of due process and there should be some

20   burden of proof. And the method I described it

21   seems would best be able to protect the

22   intellectual property in question.

          1   MR. PUJOL: Do other people want to

          2   comment on this? Commissioner Giancarlo?

          3   COMMISSIONER GIANCARLO: Thank you,

          4   Sebastian. Mr. Shields, I understood from

          5   comments you made on the earlier panel that in the

          6   past you have responded to subpoenas, perhaps by

          7   the CFTC, and provided source code in response to

          8   the subpoena. Do I understand that correctly?

          9   MR. SHIELDS: We have not provided

         10   source code. It has never come to source code in

         11   all the interactions we've had with regulators,

         12   and I've been involved in none of them personally,

         13   so I can't speak to them in detail, but none of

         14   them have come to showing source code. They've

         15   involved a lot of demos, a lot of actually

         16   installing a very, very old version of the

         17   software for regulators to actually use and

         18   interact with and some training.

         19   COMMISSIONER GIANCARLO: So are you

         20   saying that what was requested in the subpoena you

         21   were able to comply with?

         22   MR. SHIELDS: I believe so.

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 1              COMMISSIONER GIANCARLO:  As you recall?
 2    As you're aware?
 3              MR. SHIELDS:  I believe so, yes.
 4              COMMISSIONER GIANCARLO:  Okay.  Was
 5    there any problem in responding as far as you
 6    know?  I understand you weren't the respondent,
 7    but --
 8              MR. SHIELDS:  I don't believe so, but I
 9    can't say for sure.
10              COMMISSIONER GIANCARLO:  Is there
11    anything that's changed currently that would make
12    it more difficult for you to respond?  Is there
13    anything different in the way software is
14    developed today or source code is produced that if
15    in the future you received a subpoena that would
16    prevent you?
17              MR. SHIELDS:  No, I don't believe so.
18              COMMISSIONER GIANCARLO:  Do you know of
19    any reason why the Commission would need to do
20    away with the subpoena and that it may be more
21    difficult to get something from you with a
22    subpoena that the Commission would be better off
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1   not needing to get a subpoena?

2   MR. SHIELDS: No. I am definitely not

3   the authority, but I would say we believe the

4   subpoena is effective, it has worked, and it would

5   continue to work.

6   COMMISSIONER GIANCARLO: Thank you.

7   MR. STANLEY: Thank you. Just in

8   response to one of the things that Isaac said

9   about the systemic significance of bank. I mean I

10   think one of the lessons of 2008 was that in sort

11   of the post Glass-Steagall environment where banks

12   are dealers on the markets, the functioning of the

13   markets themselves is of systemic significance.

14   There are a lot of assumptions made about market

15   liquidity being available to banks. So I see CFTC

16   regulated markets as of systemic significance.

17   And obviously not every AT Person is of systemic

18   significance, but the problem is that we've seen

19   these examples where AT algorithms have disrupted

20   markets significantly. And I was very impressed

21   by the research that you did. And Chairman Massad

22   made the speech at that event around the October

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 1      15 study where you were finding dozens of flash

 2      events per year I think in the markets that you

 3      regulate, with flash events being these sudden

 4      shifts in prices that seemed discontinuous.

 5             So the one thing about a subpoena that I

 6      wonder about, and I think this is something that

 7      you guys as regulators have to think about, is

 8      that to me a subpoena tends to be backward

 9      looking, it tends to be there's already been a

10      problem and therefore we are investigating the

11      problem and we get the subpoena.  And I think the

12      bar -- it's true, the bar for getting the subpoena

13      if there has been a problem is probably pretty

14      low, but to what degree do you as regulators want

15      to do surveillance of the market and sort of

16      understanding what the practices in the market are

17      such that you can be more forward looking.  And I

18      think, you know, to what degree do you have the

19      expertise to make source code or the understanding

20      of source code part of that process.  Can you get

21      that information through a process of explanation,

22      like the one that Drew described, where you're not
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1   actually hacking through hundreds of thousands, or

2   millions of lines of code which may be

3   impractical?

4   You know, I think that's the question,

5   but to me this backward looking versus forward

6   looking thing is a very important aspect of the

7   subpoena discussion.

8   MR. SHIELDS: I would say though that's

9   true of the whole source code discussion. I mean

10   you're not going to come for the source code six

11   months before something happens. That would be

12   problematic. So source code is going to be

13   inherently backwards looking as well, which is why

14   I think the ongoing focus needs to be on pre-trade

15   risk controls and protecting market integrity at

16   the DCM more than anything else regardless of any

17   decisions made around source code.

18   MR. PUJOL: Isaac had mentioned some

19   sort of practical suggestions around on site

20   inspection, a record of who was inspecting and

21   what parts of the source code were being

22   inspected. Do other folks have thoughts on sort

1   of better access methodologies from your

2   perspective?

3   MR. MUELLER: I can speak to -- I've

4   been with this particular for coming on just over

5   years and through numerous inquiries, questions, I

6   think we've gotten to the point where source

7   code review was required twice. So

8   again if you think about why you need to get to

9   the source code to get to the underlying issue or

10   problem, it's pretty rare. When it has happened,

11   and I certainly believe that if an incident does

12   happen, and following their proper protocols, and

13   I think why many of us prefer the subpoena type

14   method is to ensure that there is controls and

15   protections around the review of the code, not

16   necessarily to prevent the access to the code.

17   That review was done on site in a very

18   controlled manner. There was no copying of the

19   code. We did not put it on paper. People

20   reviewed it within our system. And as you

21   mentioned, who saw it, when they saw, was all

22   logged and tracked. You know, it was a very

1   controlled environment. We believe at the time

2   that the regulatory bodies were able to see what

3   they needed to see to further their investigation.

4   But again, it's been -- I think why there hasn't

5   been as many controls around this are, let's say,

6   like a Snapchat for code so to speak, is that it

7   just hasn't really been required as much.

8   MR. PUJOL: Any final thoughts before we

9   wrap up? The Chairman.

10   CHAIRMAN MASSAD: Yes, let me just add a

11   couple of thoughts to Isaac's point. I don't

12   believe I said at the hearing, you know, that I

13   was willing to make this subject to a subpoena, I

14   said I'd consider that. It's helpful to hear

15   though why you think, you know, a subpoena is a

16   good standard. I mean John's point is somehow

17   that ensures their controls and protections. I

18   guess people think that maybe without a subpoena

19   we're going to go around frivolously asking for

20   this. Certainly not my view of how to run the

21   Agency. You know, I think whether it's a subpoena

22   or not we take very seriously the fact that this

1   is proprietary, it is significant of value to

2   firms, and we certainly would not seek it lightly,

3   and would certainly, you know, do everything we

4   can to protect confidentiality. So I think it's

5   helpful to hear these thoughts. We'll certainly

6   think about what the proper way is of getting

7   access.

8   Let me just otherwise thank everyone for

9   the entire day. It was quite helpful, it gave us

10   a lot to think about. Obviously the comment

11   period is open. We'll review the other comments

12   that come in and then think about how to go

13   forward.

14   MR. PUJOL: Thank you, Mr. Chairman.

15   And let me just reiterate our thanks to all the

16   panelists, those of you who are here and those

17   that were here earlier. We know that this was

18   pulled together on short notice. We appreciate

19   everyone rearranging their work schedules and

20   their travel schedules to be here with us today.

21   I think from a staff perspective we have found it very

22   useful.

1   We look forward -- as the Chairman

2   mentioned, we have a two week comment period

3   starting today. It ends on June 24 and we

4   encourage you to comment on the items that we've

5   discussed and we can assure you that we will pay

6   careful attention to your comments. We know it's hard

7   work and we are thankful for it.

8   Thank you very much to the

9   Commissioners, to the panelists, and to my

10   colleagues here who helped pull this together.

11   Everyone have a great weekend.

12   (Whereupon, at 4:01 p.m., the

13   PROCEEDINGS were adjourned.)

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 1              CERTIFICATE OF NOTARY PUBLIC

 2                 DISTRICT OF COLUMBIA

 3          I, Stephen K. Garland, notary public in

 4    and for the District of Columbia, do hereby certify

 5    that the forgoing PROCEEDING was duly recorded and

 6    thereafter reduced to print under my direction;

 7    that the witnesses were sworn to tell the truth

 8    under penalty of perjury; that said transcript is a

 9    true record of the testimony given by witnesses;

10    that I am neither counsel for, related to, nor

11    employed by any of the parties to the action in

12    which this proceeding was called; and, furthermore,

13    that I am not a relative or employee of any

14    attorney or counsel employed by the parties hereto,

15    nor financially or otherwise interested in the

16    outcome of this action.

17

18

19    (Signature and Seal on File)

20    ---------------------------------

21    Notary Public, in and for the District of Columbia

22    My Commission Expires: May 31, 2018
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