

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
19 proposed
20 definition.

21 Finally, staff is interested in
22 suggestions from panelists as to potential
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 Palaparathi. 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 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

place, 1 potentially already had the financial risk layer in
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 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

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 access, 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

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

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
12 is
13 a senior officer at the European Securities and
14 Markets Authority. He will begin our panel
15 with an overview of certain quantitative metrics
16 developed in Europe as an outgrowth of MiFID II.

17 My colleagues Mike Penick and Richard
18 Haynes will then take up the discussion. Before
19 turning it over to Alberto, I am going to ask
20 again that panelists please introduce yourselves
21 or your position in your organization and then
22 after that, we'll begin with Alberto, thank you.
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 trading
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 buy 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

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

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

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

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

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 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 algo 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

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

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 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

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

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

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

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

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

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

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 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

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

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's not
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

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

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

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.

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

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

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

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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