UNITED STATES OF AMERICA

COMMODITY FUTURES TRADING COMMISSION

THIRD MEETING OF TECHNOLOGY ADVISORY COMMITTEE

Washington, D.C.

Tuesday, March 1, 2011

PARTICIPANTS:

Commission Members:

GARY GENSLER, Chairman

BART CHILTON, Commissioner

JILL SOMMERS, Commissioner

SCOTT D. O'MALIA, Commissioner

Panel 1: Discussion of the Pre-Trade Functionality Subcommittee Report on Direct Market Access Controls

HAROLD HILD
Division of Market Oversight

MICHAEL GORHAM
Industry Professor of Finance; Director, ITT Center for Financial Markets Illinois Institute of Technology

NICK GARROW
Global Head of Electronic Trading Newedge Group

Panel 2: Presentation and Discussion of Costs and Technology Challenges in Implementing the Trade Execution, Processing and Records Management Requirements under Dodd- Frank

SUPURNA VEDBRAT
Business Adviser, Fixed Income Trading and Market Structure Blackrock

LARRY TABB
Founder and CEO, Tabb Group

ROBERT GARRISON
Chief Development Officer

PARTICIPANTS (CONT'D):

MARISOL COLLAZO
Vice President Trade Information Warehouse
Depository Trust and Clearing Corporation

Attending:

BRENDA BOULTWOOD

JOHN BREYAULT

PETER CARR

MICHAEL COSGROVE

GARY A. DEWAAL

JILL HARLAN

DOUGLAS E. HARRIS

RICHARD B. GORELICK

SIMON GRENSTED

PETER G. JOHNSON

GARRY N. O'CONNOR

DEAN PAYTON

MATT SCHATZMANN

THOMAS SECUNDA

CHARLES A. VICE

CHARLES F. WHITMAN

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P R O C E E D I N G S

(1:00 p.m.)

CHAIRMAN O'MALIA: Thank you everybody for coming today. Welcome to our new hearing room. I think this is our third event here. I thought I'd try to go a little "Today" show style with open windows so that if we get any protestors or obscene gestures, we'll close them, but we'll let the light in for right now. This is a new transparency. I expect none of the panelists to make obscene gestures.

I'd like to welcome everybody to the Third CFTC Technology Advisory Committee. As you know, this meeting was originally scheduled for January 27. However, the morning of the 26th Washington was in the crosshairs of another winter storm, not like New York, but it's tough for us. I realize that while many of you could get here, the odds of getting out even just a few hours later would have been slim to none if received any accumulation whatsoever. So in the interest of everybody's schedules and your safety we postponed the meeting. This was a good thing because the storm arrived just government officials directed everyone to leave early. This paralyzed the city and commutes that normally take an hour took 10, 12 to 14 hours. The region appeared to be unprepared for the storm, but that was not the case. The problem was that the snow fell at an alarmingly fast rate, but by not coordinating the efforts, area employers created a rush hour during the height of the snowfall so that we were a victim of speed and failure to coordinate. Speed and coordination dominated our first two committee meetings and as we explore computerized trading and high-frequency trading and the results of the May 6, 2010 events. Today we're going to take our first shot at tying all of this together in the interests of preparing for the new regulatory world which is dominated by high speed and demands a coordinated approach.

To begin we'll have Harry Hild, our senior economist of the Commission's Market Surveillance Group who will provide some background on the current role of electronic trading and the use of Stop Logic functionalities on designated contract markets. On May 6 the deployment of one such functionality was critical to stopping the cascading of prices in the futures markets. As we explore our options we should never lose sight of what has already proven to work, but we should always be mindful of the potential for improvement. With our first panel there will be a discussion of the pretrade functionality subcommittee report on the recommendations of the pretrade practices and trading firms clearing and exchanges involved in direct market access. Dr. Gorham put this proposal together with the support of the subcommittee members. We thought we circulated it and I understand that many of you did not receive many of the handouts for today's hearing. I'm very sorry for that. They are all in your booklets here and obviously I would have preferred that you would have had the opportunity to review the subcommittee report beforehand, but we do have

Dr. Gorham here and he will present on that so we'll all be better informed for that.

The subcommittee drew on the existing work of the FIA and the CFTC-SEC Joint Advisory Committee regarding the events of May. The PFS can serve as the foundation for our future proposed rules concerning testing and supervision requirements related to algorithmic trading. The PFS members who contributed their experience and expertise in drafting the report including Chuck Whitman, Chuck Vice, Gary DeWaal and Bryan Durkin. By raising the standards and establishing best practices, we can ensure that all participants are treated equally and ensure that the markets are protected by untested algorithms that could undermine well-functioning market.

In addition to discussing the PFS report during the first panel, Nick Garrow, head of electronic trading at Newedge Group will lead a discussion on the technological applications needed to implement the PFS recommendations and I think you will be fascinated to learn about the opportunities and challenges facing the market.

Our second panel will focus on a different kind and coordination, the speed with which we can build and connect the technological infrastructures underlying the trade-execution, processing and record-management requirements under the Dodd-Frank Act. I know I say this often, but I continue to believe we must be realistic about the technological, budgetary and infrastructure challenges ahead and work to facilitate coordination of this infrastructure that sets reasonable timeframes to accomplish it. I'm interested to hear from the speakers and listen to the debate. This is our first attempt to tackle the technological-integration challenges and to get your input on this.

Presentations will include a discussion of interconnection and execution of swaps by Supurna VedBrat of Blackrock, a discussion of the estimated costs and required investments led by Tabb Group CEO and founder Larry Tabb, and a discussion of the feasibility and proposed universal identifiers and supporting data reporting requirements led by Marisol Collazo of DTTC.

Our third and final panel has been intentionally left open for discussion. This is your time to raise issues and provide comment. I think the second panel should provide us some interesting options and challenges and I'd really like to facilitate that with discussion of what you see in the market and your thoughts on that.

I would obviously like to thank my fellow Commissioners for their participation and would like to welcome our committee members and guest presenters. All of you have taken time out of your busy schedules to participate and contribute to the discussion today and we greatly appreciate that.

I'm going to turn to the Commissioners for some comments and then we'll go to the opening panel. Mister Chairman?

CHAIRMAN GENSLER: Thank you. Good afternoon and thank you, Commissioner O'Malia, for chairing not only today's meeting but the whole Advisory Committee in bringing forward this group with these recommendations. I also want to thank my fellow Commissioners and the dedicated staff of the CFTC for all their hard work on Dodd-Frank implementation. Lastly I want to thank the members of this committee for participating and specifically the recommendations, the report of the Pretrade Functionality Subcommittee, that's a mouthful, and the presentations we're going to have on the second panel as well on implementation issues that are so critical.

As Commissioner O'Malia mentioned, the Joint CFTC-SEC Advisory Committee which met I guess it was about 2 weeks ago on February 18 addressed some similar issues with regard to advanced technology and the advances and some of the lessons out of May 6 and as we have witnessed in the past, technology changes, whether it was in the 19th century when we first had the tickertape or in the early 20th century, I believe it was in 1929, when this newer invention called telephones was allowed on the floor of the New York Stock Exchange and there was a consolidated, instantaneous bid-and-offer price brought together by telephones in 1929. We now regulate a futures marketplace that is approximately 90 percent electronically traded and the Advisory Committee made recommendations in this context and those recommendations include cross-market circuit breakers, pretrade risk safeguards which I know that the subcommittee is also looking at and other ways of testing for risk-management controls and supervisory requirements and I join Commissioner O'Malia in that we have directed staff to come up with some recommendations hopefully based on your input today, based on the public's feedback and based on the Joint Advisory Committee on supervision and testing.

In terms of the report itself, I look forward to hearing your thoughts about how clearinghouses, trading firms and exchanges can address themselves to pretrade risk safeguards and I know that you've addressed quantity limits and price collars and throttles, intraday position limits and the like and all of that is going to be very helpful for us to learn from you.

Before I close I do want to say something briefly about our resource needs here at the CFTC. To fulfill our statutory responsibilities to continue to oversee the markets, the futures markets that we oversee as well as take on the new responsibility in the swaps marketplace, the CFTC does require adequate funding. I believe now is the time to invest in the oversight of the derivatives markets, both futures and swaps, for our key commodities whether that be agricultural, energy or metals, being the physicals, or the financial products that are so significant to our economy. Of course you know the statistics. We've been regulating a market that's about $40 trillion of notional size, in the swap markets about seven times that size or about $300 trillion, and our current funding at approximately $168 to $169 million, the agency is small compared to the industry we regulate by any measure.

Our resources are primarily staff and technology. We currently have about 676 staff. They're experienced, they're thoughtful, they're hard working, but they also need technology. We spend about 18 percent of our budget as of last year's numbers on technology and we need to make further investments in technology to efficiently oversee both the futures and swaps markets and I think it's only through that investment that we can adequately oversee a market that has this breadth and the size that we have. In fiscal 2011 you know we're faced with the challenge where we're currently under a continuing resolution. That means we're funded where we were last year and unfortunately we've had to make some hard choices ones that I don't believe are of great benefit to our mission going forward to make cuts. I might not be traveling to Boca as I was asked earlier, but the more serious cuts are how do we do technology and we have cut back on that and I don't think that's good for the long term, and we don't have any grant money and we don't have any money that goes outside.

We need both technology and we need people. We need the staff obviously to process registration applications and conduct surveillance, rule enforcement, investigate fraud and the like that computers alone can't do, but we do need the technology. The President's 2011 budget had an increase for both staff and technology, but on a percentage basis it was far more for technology. The 2012 budget includes a 45-percent increase in staff but over 100-percent increase in technology and both are critical. For the CFTC to be a cop on the beat to ensure that markets for commodities, futures and swaps are protected and are transparent, I think we need both.

Again I want to thank you. I want to thank Commissioner O'Malia for letting me say a little bit on resources as well.

CHAIRMAN O'MALIA: Commissioner Dunn?

COMMISSIONER DUNN: Thank you, Mister

Chairman. I want to thank you for holding this Technology Advisory Committee.

During my tenure on the Commission I've observed firsthand the migration of trading from the pit to electronic platforms, the introduction of high-frequency trading and the growing significance of collation. I have marveled at the industry's technological advances while despairing over the Commission's inability to keep pace. I am more convinced than ever that unless the CFTC has a firm grasp on the technology advances being made in the world of derivatives trading, we will be woefully unprepared to meet the agency's mission after implementing the Dodd-Frank Act.

In order to adequately meet our regulatory mandates, the Commission must have the technology and knowledge to understand what traders are doing and the resources to purchase and manage systems that will allow us to perform the necessary surveillance and oversight of the markets we regulate. I look forward to hearing the recommendations from the TAC and the sub-Task

Force on how the Commission fulfill its regulatory mandates in this rapidly changing technological environment. With the help of Chairman O'Malia and the TAC, I have no doubt that the Commission will know what we need to do to complete the mission before it. Unfortunately, due to the budget crisis facing the CFTC, I do not believe that we will have the necessary fiscal resources to meet the technological demands that face this agency.

Many of the Dodd-Frank mandates are technologically intense including data recordkeeping and reporting, real-time reporting, oversight of swap data repositories and swap execution facilities. Each of these areas will undoubtedly require greater understanding of and reliance on technology. However, without adequate funding for technology, the Commission will be forced to rely on the SROs and the industry in general to perform some of these functions.

To some this may sound like putting the proverbial fix in the henhouse. I believe that the recommendations of the TAC indicate that industry-wide consistency of uniform adherence to standards is necessary. Unfortunately, there will be those who will try to game the system. It is my opinion that the recruitment, retention and training of our workforce to monitor the industry's compliance is of paramount importance. I look forward to today's discussion and I'd like to thank our panelists for their presentations and extend a special thanks to all the members of the Technology Advisory Committee who will help the CFTC as we try to understand the impact that technology is having on our markets. Once again, Chairman O'Malia, I'd like to thank you and your staff for this meeting today.

CHAIRMAN O'MALIA: Commissioner Sommers?

COMMISSIONER SOMMERS: Thank you, Mister Chairman, and thank you all for being here today and for the time that you dedicate to these types of advisory committees for the Commission which are very helpful to all of us as we struggle with some of these important issues.

As many of you in the room know, I've worked on these issues for approximately 16 years and some of the issues that we deal with never change. They're the same issues that we have every year such as our resource issue seems to really never go away. We always struggle with having the adequate resources that we need here at this Commission. Some things do change as the futures industry has evolved more than I would have ever imagined when I started working in this industry.

The particular issues that we're dealing with today on direct market access and pretrade functionality have changed dramatically just in the almost 4 years that I've been here at the Commission so I think today it is very appropriate for us to be talking about the changes and the way the industry is dealing with many of these issues, and I want to thank you for bringing these issues to us today and for your leadership on the TAC Committee. And thank you to all of the presenters who are here today who are not part of the TAC

Committee, but thank you all for your time and dedication to these issues.

CHAIRMAN O'MALIA: Commissioner Chilton?

COMMISSIONER CHILTON: I'm here. Can you hear me, Commissioner O'Malia?

CHAIRMAN O'MALIA: We can. Fire away.

COMMISSIONER CHILTON: Thanks, and thanks for everybody's participation and thank you particularly to Commissioner O'Malia for his commitment and support for technology and everything we need to be doing at the CFTC.

I've been calling and I did last week so I hope my colleagues will bear with me, I know you weren't there, the members of the TAC, but I've been calling HFT traders, cheetah traders, and that's not cheetah with a Boston accent, it's cheetah as the fastest land mammal. My concern is that at such an incredible speed that we need to keep up. As my colleagues have said, I don't think there is any way we can keep up with the budget circumstance that we're enduring right now and that we will potentially faced with in the future. I think we can't keep up with the cheetahs full stop.

There are a couple of things that I've said I think we need to be looking at and potentially doing. One is some sort of basic testing regime before cheetah trading programs go live. I'm not saying that the CFTC should do this. We clearly don't have the expertise. But perhaps the exchanges in their testing environment, perhaps NFA. I'm not talking about some exhaustive testing regime that would learn the fundamentals of all the algo and HFT trades, but maybe some sort of basic maybe like a Jiffy Lube 10-point checklist to make sure that when these things start operating in the markets, they operate efficiently and effectively and they don't roil markets.

The second thing is I think we need some sort of fine-tune of exchange controls and the TAC subcommittee talked about this a little bit, a lot actually, the limit- up/limit-down, the circuit breakers and I very much appreciate that work.

The third thing which the subcommittee also talked about are those pretrade credentialed firm controls. I look forward to talk about these things specifically.

I've also read in the last couple of days and perhaps everybody else read this when it came out. There was a very interesting study that was out at the end of November by Cartilla and Penalva and it's something that shed light on different aspects of how the cheetah traders are doing things. It's not just that they're fast, it's what they do in the markets and they gave four different examples, three of which apply to our markets and one is a securities model, of what they're doing in the markets. It is more than just being quick to the trade, so to the extent that we have time, Commissioner O'Malia, I'll be asking some questions about that too. Thank you again and thank you for your staff, Commissioner O'Malia, for setting this up.

CHAIRMAN O'MALIA: Thank you. Let's go to Harry Hild. He is a senior economist at the

Division of Market Oversight here and advises on policy on both agriculture and financial futures. He is leading the DMO team in developing automated surveillance programs and has over 12 years of experience at both the CBOT and the CFTC. Harry, we welcome your participation to give us a good overview.

MR. HILD: Thank you very much. I'm glad to be here. The following slides that I've prepared present some electronic trading statistic in the United States. Following that I'd like to very briefly discuss some Stop Logic functionalities.

Very quickly or very briefly I should say, the first slide is titled "U.S. Futures and Options Trading." The data source for this is CME, CBOT, NYMEX and ICE Futures volume data which together represented 99 percent of total U.S. volume in 2010. The Y axis shows this volume in millions of contracts and as you can see the total U.S. Futures and options volume was over 3 billion contracts in 2010. Eight-three percent of that volume was attributed to electronic trading. The graph also shows that pit volume, the blue bars, has been between about 500 million to a billion contracts since 1998 and pit volume has been decreasing since 2006.

The next slide is electronic trading percentages for designated contract markets. The CME, CBOT and NYMEX are grouped in the CME group totals. This slides shows that seven exchanges have 100-percent electronic trading volume. These exchanges do not currently have physical space dedicated to trading pits. There are four major exchange groups that will have trading pits and at those exchanges electronic trading represented from 82 to 87 percent of total volume.

Next I'd like to briefly touch on the topic of stop loss cascading and show Stop Logic numbers from the CME for 2010. DMO, the Division of Market Oversight, is in the process of reviewing the different methodologies of Stop Logic cascading mitigation. That's a lot of words all put together, but cascading mitigation functionality is in place at the exchange level so that it's not really pretrade, it's at the exchange level. I'm not aware of any trading firms that have this in place but that's really the place for it to be because the exchange has the full vision of all the markets. CME, NICE, the New York Stock Exchange Liffe and ICE have slightly forms of Stop Logic cascading mitigation functionality. While the exact mechanics of each of these programs is different across the exchanges, they do share some basic similarities such as price bands, limits and reasonability ranges. In short, they are very similar yet they are very different. I will defer specific questions about Stop Logic to the exchanges. I understand that Dean Payton is here and I'm glad to see him because Dean provided me with some of the information regarding CME Stop Logic functionality.

The point I'm trying to make is that these functionalities are at the exchange level, that they're different and that we're looking in the market impact that these different functionalities have if any or is there is a place for us to either normalize or not, but we're like I said in the process of evaluating these options.

They all effectively serve to safeguard the market from cascading and we definitely saw this on May 6. The numbers on the chart, as you can see in the energy complex at CME there were 22 Stop Logic events in 2010, in the agricultural space there were 25, metals had six, equities eight, the FX market had 14 and interest rates had two. Cascading stop loss orders are triggered if the market moves up or down to the level preselected by the trader entering the stop orders. Generally the rules provide that when the market moves up or down to the trader's preselected stop level for such an order, the order becomes a limit order with a specified limit price. These orders are then executable only to a price within the range of reasonability permitted by the system instead of becoming a market order. The CME uses a methodology called Globex Stop

Logic functionality which pauses trading. This is called the Stop Logic reserve period. This occurs when the trading engine recognizes that it has a series of resting stop orders that would lead to a cascade. Trading is halted for 5 seconds. If it occurs between 9:30 a.m. And 4:15 p.m. in the E-Mini S&P for example, and for 10 seconds during the balance of trading. During the reserve period, Globex accepts market and limit orders that are priced within the reasonability range and will then execute the orders after the 5-second pause. The system will pause for another 5-second reserve period if the market and limit orders submitted during the previous pause are outside of the reasonability range. This would then cause the market to gap open after the two 5-second reserve periods. On May 6, 2010, this functionality was only triggered for one 5- second reserve period.

The next exchange that we looked at, ICE futures, call their program cascading stop mitigation which is very similar and it applies to "system-based ICE-managed orders." It does not apply to stop orders which rest in front of ISV or DIA systems which are not within the control of the ICE trading platform. This functionality is currently in place for the USDX and Russell Index markets but not for the sots (?) markets.

Those are the two programs that we've looked at so far. The New York Stock Exchange has one but we haven't dug into that one very much, but that's all I have. The point I'm trying to make here is that this is at the exchange level, it's not at the clearing firm of the trading firm and we're looking at in DMO some of the consistency that this provides to the market and whether or not these programs should involve stopping the market or just pausing it to let other market orders in. That's all I have. Are there any questions?

CHAIRMAN O'MALIA: Thank you. Dr. Gorham?

DR. GORHAM: I don't know, Harold, if this is for you or for Dean Payton, but when you look at these numbers up there you see quite a bit of difference. Is the driver there essentially liquidity and the greater the liquidity that exists in the market the less frequently this has to be triggered?

MR. HILD: I'll defer that to Dean.

MR. PAYTON: Dr. Gorham, I think that's largely correct and it also has to do with the parameters of the Stop Logic functionality. But if you look in our most liquid products, say the E-Mini product, the Stop Logic event that we had on May 6 was the only situation during 2010 where that Stop Logic was implemented and that was similarly true in 2009 as well. When you have contracts that are potentially more deferred contracts that have more liquidity gaps, that's what the Stop Logic functionality is there for. It's to mitigate those transitory liquidity gaps and allow other market participants to come in and replenish that liquidity. If you look at the statistics that Harry has up there, arguably those are 77 instances where potentially disruptive trading activity was mitigated by having this control at the exchange level.

CHAIRMAN O'MALIA: Go ahead.

DR. GORHAM: I want to comment that I think that this is a great innovation and I don't know if people remember this, but back in 2003-2004, we used to get what we then called liquidity vacuums in the E-Mini S&P and in the similar contract at the Board of Trade and you would have these situations often times right before a 3-day holiday or 3-day weekend in which there weren't many traders there and in these electronic markets you'd get the same kind of thing we had in the flash crash and this is a great example of the exchanges themselves coming in in both cases and creating a functionality that essentially erased that for quite a while.

CHAIRMAN GENSLER: I think that's correct that on May 6 it was very helpful. As it turned out it was the absolute bottom of the E-Mini. I have one question. The Joint Advisory Committee, the other advisory committee that the

CFTC-SEC raised is whether there are some circumstances where the stop loss functionality as it worked if it were to be triggered a second time whether there is need for a longer than 5-second gap so that I was curious whether you have a point of view or whether your subcommittee looked at that because the other committee raised it.

DR. GORHAM: I don't have a point of view on that but there are many smarter people on my subcommittee than me so I don't know if anybody does.

MR. PAYTON: Chairman Gensler, I think in terms of the manner in which the Stop Logic works, first of all, we do have situations where the Stop Logic isn't 5 seconds, it can be calibrated at 10 seconds, we have some that go out to 20 seconds so that there is a calibration period.

CHAIRMAN GENSLER: That's by product. Right?

DR. GORHAM: Yes, that's by product. Then additionally when a Stop Logic event occurs, if that liquidity doesn't come in the way the Stop Logic functionality works in that situation is we would expand the price range and the timeframe and that would go through iterations of extending the pause to allow liquidity to come in at different price levels. So I think that the Joint Advisory Committee in their dialogue around that functionality didn't appreciate the full scope of what it's capabilities are.

CHAIRMAN GENSLER: Dean just they've already taken care of it, but my question is given that the advisory committee raised this, maybe it would be good to know if you had a point of view. They were concerned with potential cascading of stop loss functionalities. I think Dean is saying you've taken that into consideration. And you may have. I'm just saying that the committee did give us something on that so it would be helpful if you had any view on it.

CHAIRMAN O'MALIA: We have included in your packets the May 6 report from the joint committee. I think it's in the back there so that you might take a look at that. Chuck, do you have an observation on ICE's similar Stop Logic tool?

MR. VICE: Yes. I would say we're still evolving that. We just exchange-traded stop limits probably about a year ago or maybe a year-and-a-half ago to the platform and prior to that I think probably still a majority of the stops that we get today are triggered on our front-end ISV and so what we see is a market order. We have market order protection limits that make sure that market order doesn't go through a price band. The Stop Logic that we have that Harold alluded to earlier is turned on in some of our markets. With an exchange-traded stop there are essentially only a few things that you can do when you have a cascade. You can implement some kind of pause or trading floor or ceiling depending on the direction of the move which is probably where we're going to evolve to. You can cancel any unfilled order which is what our current logic does. Some people like that and some people hate it. Or you can reprice the triggered stop at the floor. A lot of people view that as the worst option because if it is a momentary move or a spike and it's going to reverse quickly, you're likely going to get executed at the worst of the day. None of those are panaceas, and as Dean described a minute ago, I think that logic can get very complicated quickly, almost more complicated than the original problem.

I think we're also looking at continuing to evolve our Stop Logic functionality with a broader velocity-oriented speed bump or whatever you want to call in any of the markets where we can deploy if it does down X percent or X number of ticks in Y amount of time, then again don't stop trading but set a temporary price floor or price ceiling depending on the direction of the move with the same general idea, if there is anything erroneous going on, give the market time to put more logical prices back in and hopefully bounce off that floor. It's a move driven by market events then eventually you're going to remove the floor and the market is going trading in the same direction.

CHAIRMAN O'MALIA: Thank you. Are there any other questions for Harry or Alice? Dr. Gorham, if you'll present your report. Thank you, Harry. Dr. Michael Gorham is the head of our subcommittee which we created at Thanksgiving in order to begin to address these pretrade functionalities associated with direct market access. Many of our rulemakings are considering what options we have in implementing these pretrade controls as we develop new rules for the designated contract market and SEFs. We asked Dr. Gorham to reflect on the proposals in the industry today and any other observations we might add. He has put together the report before which is in your binders and he will present that. He is from the Illinois Institute of Technology and served for more than three decades as a research economist at the Federal Reserve Bank of San Francisco and served as the Vice President of Product Development and Commodity Marketing, Education and International Marketing spanning 18 years at the CME. He also has academic and research experience at IIT's Center for Law and Financial Markets, has been the editor of "The Journal of Global Financial Markets" and also served as the first Director of the Division Market Oversight for the CFTC. We appreciate his experience and he is the best candidate to conduct this subcommittee review, and we look forward to his presentation.

DR. GORHAM: Thank you. That actually makes me about 112 years old. I was counting up those numbers.

The first thing I want to say is that I'm doing this presentation, but the committee put this report together so that this is the intellectual product of these guys. One of the points that we make in the paper is that there are really three tiers in the electronic trading world. There is the trading firm, there is the clearing firm and there is the exchange. Commissioner O'Malia did a great job I think putting this subcommittee together because you've got all three. In fact, the exchanges are the most important in this sphere and you've got the two major exchanges in the U.S. on the committee and that's really good. Bryan Durkin can't be here today, but Dean Payton will be here to talk about anything that might be relevant there. You've got Gary DeWaal in person from the clearing firm and you've got Chuck Whitman from one of the premiere trading firms in Chicago. I just found out a few minutes before we started today that Richard Gorelick had put together a set of proposals I think even 3 years before the FIA came out with their initials ones so that there is a lot of other very thoughtful consideration in the room that I think we'll be able to tap into. What I'll do is walk you quickly through what the paper says and then I hope that my committee members will be able to respond to all the questions and even add things if there aren't questions.

In terms of focus, first of all, we focused on direct market access. The idea here is that we are recommending pretrade measures that would preserve market integrity in the case of direct market access. I want to put this one thought in your heads before we proceed. Being at the CFTC is sort of like being a New York cop to some extent. What you see are all the problems that you have to solve and all the stuff that you fix, and you do. That's why you guys are all here. But I want to remind you and all of us here at the table that there are a lot wonderful things that have come out of electronic trading. Many of us in this room have seen trading evolve all the way through. There is much greater transparency, there is much longer cost, there is greater liquidity, there is much broader participation in the markets than ever before and there is much faster access to these markets. One of the things that we were trying to do in the things that we came up with is not to mess those things up, but to preserve those.

The principles that were guiding us as we made our choices were first of all this is an incredibly dynamic industry. You can jump back 2 years or 2 years before that and you probably wouldn't have imagined seeing all the things that you've seen that have come out. We want to keep that dynamism. One of the things that may be a little controversial here is this concept of bringing all hands on deck. In other words, we talked about all three tiers in the industry and what we're doing is we are putting this responsibility into the laps of all three of those tiers. Some have argued which is partially correct that the exchanges are key. They are the most important. There are fewer exchanges. They are the ones that ensures that everybody who comes to the exchange would have to do what was required once you got to the matching engine so that that's really the most important. This may seem redundant, but we put obligations on the trading firms and on the clearing firms as well and you'll see why in just a second. The third thing here is to make sure that we recognize that each of these tiers has incentives. The trading firms obviously are trying to be faster than all the other trading firms and do whatever they can to minimize latency and that's where direct market access came from, the fact that you can save a certain number of milliseconds from doing that. The brokers obviously want to have that business and an increasingly significant amount of business putting and the burden solely on the brokers as was done with the SEC is something that really doesn't make sense, but the clearing firms have to be involved and the exchanges are obviously are competing with one another so that they have their own incentives in terms of minimizing latency for that purpose, but certainly anybody coming in to a single exchange would have to abide by any standards that the exchange sets.

There are two fairness issues. The first one relates to what I just said which is we don't want to have a situation where there is any kind of a race to the bottom where a clearing firm or a trading firm that acts less responsibly is put at some kind of an advantage so the standards that we put in try to do that. The other part of the fairness issue is to make sure that the new swaps execution facilities are treated the same as the designated contract markets and of course any foreign board of trade that's relevant in the U.S. market should have the same obligations. Finally, in terms of these guiding principles there is this issue of coordinating with the SEC. You have a joint commission on that. The idea here is that those firms that are both FCMs and broker dealers would certainly benefit from having similarity across the two regulatory worlds.

We looked at the other reports, not just the FIA reports but certainly the April and November FIA reports and some of you in this room have participated in that. What we've attempted to do is to distill from those reports the things that we felt were essential to get done. One of the issues I think that can be discussed is did we leave anything out or does this do an adequate job of doing that.

I'll quickly go through the three

levels. Starting with the trading firms, the trading firms must establish pretrade quantity limits for each order. In fact, these first two things, the quantity limits and the price collars, are restrictions that the firms would put on themselves that would even prevent the order from leaving the firm and going to the exchange. The pretrade price collars obviously are meant to prevent orders from being submitted that have prices that are far off the current market. The next two things, the execution throttles and the message throttles, are cases where you would stop shipping trades if in fact two many executions or too many messages were resulting from these algorithms and there would have to be human intervention before that could start up again.

Finally, every trading firm would have to have a kill button in order to stop orders from being executed that had been already sent and to stop any further orders from going in. This would be hopefully something that would almost never happen, but it would be a fair-safe backup.

In moving to the clearing firms, the major job of the clearing firms is to ensure that their client trading firms behave. The idea would be that they would have to ensure that the trading firms do establish the functionalities that we just listed, that they would utilize these functionalities for all trading done by the trading firm, that the parameters in these, that is to say the price limits, the quality limits, would have to be parameters that had been agreed to by the clearing firm and that the clearing firm would obtain written certification of all of those things that I just mentioned as well as written certification from the independent software vendor if in fact the trading firm's trading was done from the ISV's server as opposed to the trading firm's server itself. The clearing firm would have to have access to the trading firm's kill button.

Finally, the exchange. As I said before, the exchange is really the key anchor in controlling risk. Whatever it would set up, it would have to require that all firms use these controls. The firms wouldn't have a choice or not. They would all have to do that. The exchanges would have pretrade quantity limits on individual orders, they would have intraday position limits that would be set by the clearing firms, they would have pretrade price collars that we spoke of before and also have message throttles. In addition to that, the exchanges would allow clearing and trading firms to set automatic cancellation of orders if there were a case where the trading firm was disconnected from the exchange and would also allow the trading firms and clearing firms to view both working and filled orders and to cancel working orders if necessary. The final thing for the exchange is ensure that they have clear error trade policies. I should say that the exchanges have a lot of these things that we're talking here already but have clear error trade policies that favor trade price adjustment as opposed to simply busting trades.

The idea here is that if all three of these tiers work together on this problem, we think this would go a long way to prevent any sort of errant algorithm sneaking in and taking the system down. Maybe I would first ask if any of my fellow committee members want to add anything to what I've just said.

MR. VICE: I had a couple of points. I thought Mike did a good summarizing our report.

I can think of three additional points. One, all of the things that we were suggesting the exchanges should do we feel strongly should apply to swaps execution facilities equally as well particularly any that are going to offer direct market access. My second point is I think we tried to keep in mind, I don't know that we explicitly said it in the report, the original request of the Commission and that is to give some guidance on how prescriptive can you be or not be in potential rulemaking to require these three different tiers to do these things. I think you'll see in the report that we had general agreement on the bulleted items. On the exchange there you see the pretrade quantity limits, intraday position limits, pretrade price collars and message throttles and so forth that I think we feel that's the level of prescription that maybe the Commission should target, not specify how message throttles should be done, leave that up to the exchanges to innovate there and to come up with policies that fit individual markets depending on how liquid they are, how widely traded they are, what time of day they trade and those types of things, but at least to give you some specificity that you could put into some rulemaking.

I think the third point in response to what I believe Commissioner Chilton raised in his remarks concerning putting close ties between HFT traders and someone else in terms of a second set of eyes looking at what they're doing -- the Commission or the exchange for that matter could go in and sit on their side of the table and know what's going on with their algorithm, but I think both Bryan both felt from the exchange side that we already have fairly rigorous conformance tests that the direct market access traders have to go through. It's largely technology oriented making sure that the orders that they're sending us and that we're receiving are indeed the ones they intended to send and that they are interpreting our market data feeds in the proper way and so forth. I think we can add some additional checks there that would largely be documentation provided by the HFTs and representations by the HFTs because most of the tests you'll notice are negative tests, don't send us something, don't send me too messages to that there is no way for us on an exchange side to see a sign of whether that happened or not but it's a natural extension of our relationships with these high-frequency traders to bolt on some additional verification of the conformance process and they're signing that they indeed have incorporated this pretrade functionality.

CHAIRMAN O'MALIA: Gary?

MR. DEWAAL: Thank you. I agree that I think our chairman of our subcommittee did an excellent job in summarizing where we came out.

I would say that when I read the SEC-CFTC Advisory Committee on Emerging Regulatory Issues and their special report, what did strike me was the fact that the discussion only related to the exchanges and the brokers. I was surprised at other than trying to induce liquidity through maybe some kind of congestion pricing, there wasn't a lot of discussion about the trading firms except to bemoan the fact that market makers are sort of disappearing and high-frequency traders are somehow there. I do think that when we look at this issue that you've got to consider the responsibility of all players. I think that's what the FIA best practices study did last year and I think that it's something important to consider.

The other thing that I was struck with is when I was asked personally, What kind of regulatory proposals do you think we need to do something and make things better? I was also a little surprised by that because as a clearing firm I thought I had responsibilities already in this area. I thought I had responsibilities to have prudent risk- management practices and I thought I had the duty of supervision over my accounts so I was wondering whether or not I was now being given a by somehow and I had just been more conservative all these years than I should have been.

CHAIRMAN GENSLER: Just know.

MR. DEWAAL: Rats. I thought I'd try.

COMMISSIONER DUNN: Know all pass few, Gary.

MR. DEWAAL: I think there's an element of practicality here that we've got to look at. I know Nick Garrow, I don't want to keep him. He's my colleague from London and he's going to speak in a few minutes about some of the logical issues and some of the practical issues that we've had trying to implement solutions and it's late there so I'm definitely going to shut up quickly.

This all begins as a matter of practicality. One thing that strikes me again is that, yes, trading firms are customers and to the extent that trading firms do stupid things like sometimes they do now and they commit market offenses, the CFTC has never lacked authority to go after people who commit manipulation or commit other types of market offense under 4(c). So as a result because trading firms have an interest in not violating the rules as they exist and they also have an interest in their own financial solvency, the responsible ones act responsibly and they do a lot of the stuff that we're already talking about they should do.

From the brokerage firm and this is where I've always been a little confused, and I'll speak a little story because I think it's useful, we have an obligation right off the bat. We don't have as in the securities industry the technical know-your-customer types of obligations and suitability although we obviously have them in the AML area. But obviously we select our customers.

We also are concerned about our capital and our preservation and we want to do business with customers who aren't going to put us out of business ourselves so that there is a certain amount of due diligence that we want to conduct right off the beginning and that's important. It's important that we select customers particularly in the high-frequency area who we think are responsible and when the trading firms themselves came out again last year with some recommendations that they themselves should be held to, we said that's good because that's the kind of stuff we can now hold them to in our due diligence process.

But there's another real practical issue. When this whole debate rose up last year and we changed CEOs in our organization globally, he asked a very question. He asked, How much do these firms make for us? He asked you've got to look at a reward-risk analysis and not only is there a suitable assessment in the first place, but since you are taking the risk that one of these firms could do something wrong, blow up or whatever, you better make sure that you're making a fair amount of money so that there is the right ratio of return risk. I think at the beginning brokers not only have an initial obligation to assess their clients to make sure that they're doing the right things, that they're reputable people, and in the high-frequency world again we now have these new standards to test, but ongoing to keep on making sure that they're abiding by the rules they agreed to and probably even though it's not a regulatory issue making sure that they make money.

Then obviously we think that it's very, very important that there be risk filters at not just the exchange level because as Charles said I think that would prejudice the exchange. Any regulated type market whether it's the regulated exchanges or the ATSes in the securities world, whether it's the SEFs, the DCMs in our world, if you're putting out a public exchange and you're allowing people to come in in a direct access way, then there should be some kind of filters there. We believe they should be at the exchange level and I think even our clients believe they should be at the exchange levels because if not you have a situation like you have now in the securities world where you are going to have a race to minimum compliance to whatever the rules are going to be at the broker level. Because at the end of the day we're all competing with each other, the trading firms are all competing with each other, the name of the game as we discussed early on is low latency and we want to have a high bar and not a low bar and the markets themselves are best able because they know what the parameters of their markets are, they know the liquidity issues, they know that there might be a difference between how you should allow access to agricultural markets versus equities markets versus fixed- income markets. They know and have a better feel of what kind of risk controls should be there and they can make the bar equal for all entrants. We think that's very, very important not just in the futures markets where traditionally it's been easier to have controls at that level, but in all markets, securities as well as futures, and going forward when the SEFs are out there also.

Finally, again from the broker perspective, one of the issues, and I know it's a debate that goes on, is what kind of electronic prefiltering should occur. Obviously it's not in our interest as a broker to allow our clients to do dumb things, but technologically it's not as easy as it seems to be to prevent dumb things. One of the great struggles we've had as an organization globally, and not so much in the United States but certainly outside the United States, is even getting timely feeds after the fact of exchange data that we can run through our computers to do analytics that we want to do to make sure our clients are behaving. The problem with running those analytics in advance of trading and acting on it is that on behalf of clients we may not be seeing the entire trade, we may be only seeing a part of a trade and for us to stop a trade because we think something in a nanosecond may be wrong could be devastating to that client because it's part of another trade that we're not seeing and we could be wrong and the liability issues would be dramatic on us after the fact. At least under the current legal framework this is not something that we hope we have to get into because it's a mess. But posttrade, absolutely. We should be given as a brokerage company data as quickly, in a uniform layout as possible again because we're responsible and we want to do analytics on our clients as quickly as possible.

Again to reinforce what's been said, it's a shared process. People who are responsible in this business who are already acting practically and as the technology gets better we can even act better, and as far as I was aware, I've already got this kind of obligation. So whether there needs to be a little tweaking here or there, I'll let others decide other than me, but to me the obligation to be responsible is already out there.

CHAIRMAN O'MALIA: Brenda?

MS. BLOUTWOOD: I would like to thank the subcommittee for the balanced view across the trade process of risk-management responsibilities. I think it's important. But I have a question of the subcommittee and that is your thoughts about the role of the regulator. After the rulemaking occurs, what type of governance process perhaps or postexecution penalties? What did you discuss as the ongoing role of a regulator?

DR. GORHAM: I'll start. We really didn't get into the area of penalties at all and depending on the funding of the Commission, it's going to be difficult to say what could be done from the point of view of enforcement. We were kind of coming from an ideal world, but you're raising a great question and let me punt it to anybody else on the committee who has some thoughts on this.

MR. DEWAAL: As I just said a few seconds ago, I've liked under the assumption that I have a duty, an obligation to supervise my accounts, my personnel, and having just been fined by the Commission a couple ago or my firm, I know it's serious that if you don't act responsibly you're probably going to get penalized. I think there's a debate that goes on forever. In fact, I was having this debate with a foreign regulator last night. I remember 15 years ago when London regulators went to principles-based regulation and everybody said that's going to be a great scenario because there are going to be broad principles and strict enforcement and the industry wanted that. Then in about 3 years when there was a lot of enforcement action, of course the industry said, no, we don't want such broad principles. We want things that are much more narrow so that we have a careful map to know what we're going to do. So I know there's always tension.

But it seems to me again that the reality of life is whether I want it or I don't want it, if I act irresponsibly and if there is going to be a problem out there, market participants are going to get dinged. That's just the way it works in a regulated environment. Obviously the regulators need the tools to be able to monitor markets. I am very sympathetic when I hear the pleas of the Commissioners for funding. I know what it costs my organization and again Nick Garrow will speak in a few seconds. I know what it costs my organization just for the bid of the trades that we look at. I just have to assume it's multiples of that for what the Commission is looking at and they desperately need the technology and they desperately need the cooperation of the exchanges probably not just in the United States because through the memorandums of understanding just like we need to understand that the client is placing his trade on the CME versus trades against the Hong Kong exchange and the TAIFEX, the regulators at the CFTC need that too to truly understand what's going on out there. The technology demands are tremendous so that I think they have the obligation or responsibility to do the proper kind of surveillance to understand the full scope of what's going on and they need to work with their international colleagues. Then as far as industry participants, I'm probably going out on a limb here and I'm sure I'm going to get yelled at all my colleagues at my competitors, but the name of the game is if you act irresponsibly you're going to get dinged.

COMMISSIONER DUNN: If I can drill down on what Brenda has started here, as I look at this and it appears, Michael, that the sub committee is basing it upon the FIA's PTG white paper and that's what everybody has come together on a consensus that that's where we are and I'm wondering where that is vis-à-vis the regulations that we're currently working on. The second thing that strikes me is that because you're asking both the exchanges and the clearing firms to supervise the trading firms and you're saying that they should take reasonable measures. I'd like to know what does reasonable measures mean because that's something that we're wrestling with right now. Then, Gary, if I understand your answer, you think the regulator come in at the end when someone steps over the boundary and slaps their hands or gives them a fine. When I made my opening statement about people thinking that we're putting the fox in the henhouse, we're asking the industry to do this overall regulation and we don't have a role until the end of the day when we see that something has happened. Is there a role for the regulator before we get to that point?

DR. GORHAM: Chuck I think started to say something. Can you weave that in?

MR. WHITMAN: I think there are a couple of points that are worth noting on this. I thought, Gary, you explained the role of the clearing firm very well and I think one of the things that's important is for us as a trading firm, there are a series of things that as Gary talked about, if you look in the -- trading community or if you look in the principle trading community, most of us trade our own money. As such it's our own capital that's at risk on a day-in and day-out basis. We don't have clients. We don't have customers. A big thing for us is reward to risk. We want to make sure that tomorrow we can come back and trade. I can tell you from my own experience that we've had strategies that we've gone through and looked at where we made choices at the expense of latency to make the strategy more safe and stable. One of the things that I wanted to clarify that Michael talked about is we control the pretrade quantity limits and the pretrade rice collars, but we also control the message throttles and the message throttles are a key component that use in managing orders going in and out the door. Quantity limits keep orders that are too big from going out, price collars keep mispriced orders from going out and throttles keep too many orders from going out.

The one thing that I think we all have learned is that you do everything you can to eliminate errors. We have a code base that's several-million lines of code for our company and when you have several-million lines of code, no matter how hard you try you are going to have some errors. Then what do you do to minimize the impact of errors? You do everything you can to eliminate them and then if you do have them, how do you minimize them? These are things that we've put in place to be able to minimize the impact of an error.

In addition, one of the things that I will back up that Gary said is all of our clearing relationships both when we came in from an introductory standpoint and then in an ongoing standpoint, we are going trough a thorough interview and they come through and there are a lot of things they want to see. Do you have a quality assurance department? Are you stress testing your releases? Are you stress testing your software? What are your oversight policies? -- these sorts of things that we are being held accountable for to be able to have the relationship in the first place.

One of the things that we did last year is we started a risk working group within our firm where people from compliance, people from technology, engineers, they meet twice a month and they talk about what can we do to make the way that we trade in our firm more stable and more safe, and we have given access to that to some of the clearing firms at various points in time so they can come in and have even more comfort with how we do things.

One of the things I also want to add is that Michael alluded to this race to the bottom. I believe that standardization for firms like ours is a benefit to somebody like me because standardization makes a level playing field and I don't have to worry about somebody else cutting a corner that then not only hurts the industry but also potentially hurts us and one of our strategies. I want to make sure that I represent that from the firms side that firms like ours spend a lot of money and put in a lot of time in to make sure that we stay safe. It's our business that's at stake.

The next thing is going to your question, Commissioner or your statement, when we put this plan together one of the things we talked about as a committee was how could we put this together in a way that was enforceable and that could be looked after. One of the things that we believed is that you needed to have multiple layers of redundancy at the firm level, at the clearing firm level and at the exchange level. And from a regulator's standpoint, the easiest places for the regulator to check in is at the exchange. At the firm level there are so many firms and there are so many strategies that it's very hard to get into the specifics of any one thing, but if you have principles and you have checklists of things that you have to have in place, like you have a quality assurance team and you have to stress test releases before you put releases out, things of that nature are things that are good for firms like ours and they're good for the industry. And I think as we put that together, that was why we put together the proposal the way that we did in that we put it in a way that we thought was practical to be enforced.

MR. VICE: I was going to add that the nature of the remit that the subcommittee was what kind of technology can you and should you implement at these three levels to prevent bad things from happening. In most of the world you can only prevent so many things. Policing is typically an after-the-fact function. The crime has already occurred. This was an opportunity and a scope of discussion based on the FIA report to at those three tiers what can we do to prevent excessive messaging or to prevent fat-finger errors that result in error trades. We're not going to consider it an enforcement issue if someone sends us an excessive amount of messages that it goes past our throttle, we're not going to accept it as an exchange, we're going to look at the firm that sent that to us. They may have a different parameter set than we did. We didn't vouch for their parameter. It's up to them to set their parameter at a proper level and it's up to us to protect the exchange and the rest of the participants from excessive messaging. The parameters may be different, we're probably going to have a discussion there, but we're not going to view that as a type of issue that some enforcement action needs to take place.

I think there are other things we do that are beyond the scope of the subcommittee which was in the pretrade area but the exchanges certainly do and I'm sure the clearing firms do as well. We tend to be the enforcement entity, the SRO. We have things like volume messaging policies to discourage excessive messaging, to do more than discourage it, actually find them and charge a fee on it. I think maybe as an interesting point I would mention that I would say over the last year in our exchanges, we've moved toward viewing those types of things as a primary purpose in protecting the exchange, in other words, the integrity of our markets, the capacity of our systems. The point is we may have thresholds and penalties at levels that are far below a level that would cause any problems, but based on the market in question and the type of messaging we're getting, are they bids and offers that are far away from the market that tend to be noise, are they result in very few fills, to look at it more as a structural issue for our participants and not quote stuffing which has been thrown about which is a way of saying a lot of not productive messaging and orders that everyone has to consume and process, to minimize and reduce that. So there's a little change in focus there from internally looking at what we can handle versus what's reasonable to expect a typical customer to be able to handle.

COMMISSIONER SOMMERS: I have a couple of different questions I think with regard to the scope. As I alluded to in my opening statement, we've been discussing these issues for a number of years and I think the discussion continually evolves, and I appreciate what you've given us here with the different levels in the supply chain having different best practices or guidance for every level along the way. But the concern I think that we've always had is how consistent are these principles or guidance applied across the market? Do you have sort of sense to tell us? I know that people around the table say we do this. Trading firms, clearing firms, exchanges, we do this. But is it broadly consistent that everyone in the market has or abides by these principles? As a follow-up to that following on to Brenda's question, if the Commission looks at this, then do we adopt these as hard-and-fast rules, that these are rules that every step along the supply chain has to abide by and if everyone doesn't consistently apply them then you're violating the Act?

DR. GORHAM: Even though he's not on the committee, could I ask Rich Gorelick to respond to that because he said something directly along those lines earlier today?

MR. GORELICK: Thank you, Michael. I have a couple of things on that. I think that there is probably a regulatory role for some broad-level enforcement or some broad-level rule setting about what types of checks should be in place at the various levels. That said, I would caution having a very static prescriptive list because I think that would both give us a false sense of security as markets change, as strategies change and as best practices change. And it would also limit us in ways that where we wouldn't necessarily be pushing toward the best risk management that we could possibly have. In that regard I think this subcommittee is very helpful and very useful. I feel that putting the responsibility at all three levels is particularly helpful, and as you point out there is probably a fourth level which is where the regulator should touch in with the process. My guidance would be to have it at a broad level rather than at a highly detailed level.

That said, going through this list I came up with another list which are additional checks that we think are helpful and that we do, and I wouldn't want to have anything that would discourage that type of continual evolution of thinking. Whenever we read about some kind of problem in the industry, some kind of unexpected trading, we try and get together and do an in-house post mortem and ask do we have checks that would have prevented us from doing that particular thing and to continually be learning from the process. A couple of things that I would want to throw out to the group for discussion, one thing that's not on the trading firm list here for example is position size limits. They've got a trade-by-trade quantity limit but not a limit on an overall position size and I think we all intend to limit how big our positions are in different. You can view that on a product-by-product basis, you can view that on a strategy-by-strategy or on a portfolio-wide basis taking into account both the capital at the firm that's intended to be exposed as well as different risk metrics. I think it's important to be thinking about those.

CHAIRMAN O'MALIA: Rich, may I ask you a question? There's an intraday limit on here. Is that different than the overall position and if so how?

MR. GORELICK: The intraday limit that you are looking at, that is at the exchange level and what I'm urging is that those position limits, they may intraday, they may be cross-day depending on the strategy, should be considered not just at the exchange level by at the clearing firm level and at the trading firm level.

MR. WHITMAN: He is exactly right. For example, at our firm we're an options market-making firm so that we have position limits not in contract space but in vega space, gamma space, unit space, calendar spread space and literally the system will shut down if somebody violations a position parameter that we have in place. They won't be able to trade anymore. That's an example of what Richard is talking about. We might have a group and we might set and it's tied to capital. For example, a group may not be able to be long or short more than $50,000 of weighted vega which is a measurement of volatility and if they get longer more than $50,000 they can't trade anymore and they get shut down and we have to turn it back on for them so that it comes to us and that is an example of what he's talking about.

MR. GORELICK: Exactly. And that's also a good example where you need to take into account not only pretrade risk but posttrade risk because a lot of those options Greeks evolve based on what's going on in the market rather than just what's going on so you can't necessarily feel that if you prevent an order from going out at a particular time that you've solved that particular problem.

Another limit that we measure for are lost limits again on a strategy-by-strategy basis or on a firm-wide basis. A good sign that something is not going as intended is if you're losing more money than you would expect to have in a normal risk setting. That's an important limit that needs to be set at the trading firm level and possibly at the clearing firm level although as Gary pointed out, it may be very difficult to do that at the exchange level because so many strategies are cross-market.

We've seen different problems at various exchanges in multiple markets that we -- one of them is a number of open orders problem. In a different market outside of the CFTC's purview there was a situation where someone sent a million orders at different levels in a price book. We sat down and asked do we have a check that would prevent us from doing that? We had checks that would prevent other things that would be related to that but not that specific thing that we built into the system. I'm always cautious to brag about risk management. It's not something you want to do. We all make mistakes. It's all possible. I want this to be taken in the spirit of we need to continue to learn and need to continue to calibrate as we go forward.

I have a number of other things that I don't take everyone's time with today, but a couple of other things I think are worth considering as a responsibility of both the trading firm, the clearing firm and the exchange, the near- time posttrade risk management that needs to be considered, particularly the ability to get efficient drop copies from exchanges and clearing firms and to circulate those so that we can do a real-time or near-time reconciliation to make sure that our views and positions across exchanges, across clearing firms and across trading firms are accurate and consistent. I think that's something that is evolving in the industry that we try and do wherever we're able to get the appropriate feeds from the exchanges and the clearing firms, but it is an important thing to keep in mind that particular types of problems would not be caught merely pretrade and I'll leave it at that. Thank you.

COMMISSIONER SOMMERS: On my first question, if you or if anybody around the table has a sense on how consistently these recommendations are being abided by.

MR. PAYTON: Commissioner Sommers, I think there are two things and I'll answer your question more directly in a second. But I do think that it's important for this group, the Commission and all of the industry to recognize the tremendous work that's been done. I don't think in our industry that it has been a race to the bottom and notwithstanding the fact that we haven't had prescriptive regulations, all of these good things have developed over the last 5 or so years. If you look at our industry, on May 6 we didn't bust any trades. On the securities side there were more than 20,000 trades that were busted. We did have Pause Logic in effect. We do have circuit breakers in effect. We have protection points. So that there are a lot of good things that have been developed. And the things that Rich and Chuck talked about in terms of the things that firms have put into place to protect themselves and their clearing firms, those are all very good things that continue to evolve. People are interested in protecting against problems in the marketplace and as both Gary and Chuck said, protecting their own capital that's at risk. I think it's important first of all to celebrate all the good things that have been done in the industry over the course of the last 5 years and I think it's a testament to the fact that people are focused on these things.

To your point, I do think that broadly speaking virtually all of the proprietary trading firms that are out there do employ these types of checks on their systems some better than others. In most of the situations where we have seen things gone array it's not because they didn't have any checks in place, it's because certain of the checks that they had in place didn't work as well as they had anticipated they would under those particular market circumstances. It is a constant learning issue and I do think that some of the things that Commissioner Dunn and Commissioner Chilton talked about earlier in terms of doing more work up front to certify that there are processes and procedures and testing in place are all very constructive things to do. But in a world at our exchange where we're trading 3 billion contracts a year and you have tens of thousands of market participants and all this technology coming together, there are going to be errors, there are going to be mistakes and I think what we try and do on an exchange level and what industry participants try to do is put in place certain types of checks whether they're risk-mitigation checks or volatility-mitigation checks to really try and keep those types of issues from occurring. Just think of all the times at the exchange level the fact that you have protection points in place prevents something bad from happening or all the times that you have Stop Logic kicking in that prevents something bad from happening.

CHAIRMAN O'MALIA: We're going to move to the Chairman's questions now. If everybody can keep their questions or responses tight, it's going to be one of those meetings if we don't.

CHAIRMAN GENSLER: Yes. I don't want more than one person to answer any one of my questions. I think this is an excellent report and very helpful. What I get confused about is when people say don't be prescriptive. That reminds me of where they say you think that everybody should have a speed limit but each person on the highway cab pick their own speed limit.

I'm going to focus on the exchanges with just a yes or no. Should we as a regulator include in our rules something proscriptive with regard to any one of these four things, pretrade quantity limits? I do recognize if we say have pretrade quantity limits that the exchanges could compete and have a race to the bottom. Yes or no, should we be proscriptive or not? I'm not asking what the limit should be.

MR. PAYTON: I think the exchange is in a better position to determine what those parameters are.

CHAIRMAN GENSLER: That's a no and that's from the exchanges. Dr. Gorham? You helped write this report.

DR. GORHAM: It wouldn't matter. I'm reluctant. I've got a gut reaction that there should not be a proscriptive limit.

CHAIRMAN GENSLER: I'm only one Commissioner, but my reaction is it's like saying there should be speed limits but don't set them because there is competition between exchanges and as Chuck point out, there will be SEFs and I don't know how many there will be. So what if there is what you might consider to be a less-responsible platform than you have proposed? I know where you are, Dean. I got it.

My second question is even if we don't set them, would the exchanges have something specific that all trading firms have to have these policies and procedures there in the first phase? Is that what the recommendation is?

DR. GORHAM: I'm sorry. Would you ask that again?

CHAIRMAN GENSLER: Is it your recommendation that the exchanges have policies and procedures where everyone one of the trading firms must have the five categories, but that all trading firms have to have the five?

DR. GORHAM: The recommendation is that as with the last side on the exchange is that the exchange would have those things itself and the clearing firms would ensure that the trading firms had those five.

CHAIRMAN GENSLER: So that the clearing firms would have to have to have a rule to make sure that the trading firms have these five thing?

DR. GORHAM: Correct.

CHAIRMAN GENSLER: But again there could different quantity limits, different price collars, different throttles or different kill buttons?

DR. GORHAM: Correct, and even could be different by trader, by firm and by product. Exactly.

CHAIRMAN GENSLER: How do you avoid the race to the bottom then?

DR. GORHAM: I'm going to let Chuck Whitman respond to that.

CHAIRMAN GENSLER: Is that because you don't you could avoid it?

DR. GORHAM: It's a potential problem.

CHAIRMAN GENSLER: I've finished my questions on that. My only other question is how many of the firms by a show of hands spend less than $31 million a year on technology? The CFTC is the only one. We're not a firm. That's the challenge we have right now, a great challenge we have. None of the firms around the table spend less than $31 million. We're a regulator that's to ensure that the American public has a marketplace that's transparent, open, competitive and free of fraud and manipulation and spends 1 year on technology less than any of the firms on the Technology Advisory Committee. That's the challenge we have so that we can only write rules because we really can't do much and rely on the exchanges where I'm worried there will be a race to the bottom, and rely on the clearing firms. We didn't let you off the hook.

COMMISSIONER DUNN: Let me be the devil's advocate to the Chairman. I do see a role and frankly I'm buoyed when I hear Chuck and

Richard talking about every time something happens out there that the risk committees get together and they assess it and they say it didn't happen to us but could it happen to us? But how widespread is that and is it uniform throughout the industry? The only way we're going to be able to have that holistic look that you're talking about of who's on the other side of the trade or what else is in that trade is by having the technological capabilities to see that. Also then we're responsible or the SROs are responsible. We're going to go out and do a regulatory review to see how well you are complying with whatever we come up with which is getting out of that prescriptive mode that we've got and into what we've had in the past which is a principle-based regulatory regime here. But I don't think we have the resources to be able to do that.

CHAIRMAN GENSLER: I'm agreeing with you, Commissioner Dunn, that we don't have the resources. I think that the exchanges might go from two to many -- swaps execution facilities and so I think it would be very helpful to know maybe not today, not this side but earlier slide that had the four or five things that we might have for trading firm. I'm sorry, the exchanges. On the exchanges' pretrade quantity limits, how do we ensure that there is some consistency to use Commissioner Sommers's point that the exchanges aren't competing with each other even if we rely on the exchanges maybe in collaboration to set a number that there's not some competition on the four very thoughtful points at the exchanges? That's what I'm concerned about that there could be -- competition is good but not necessarily in all places like you wouldn't want one exchange to have lower risk and one exchange to have higher risk because of these four points.

MR. VICE: I think like the trading firms and the clearing firms that have their money at risk, the exchanges do as well, that even though there is intense competition going on, with all of these things there hasn't been a race to the bottom, there has been a multiplication of additional checks and more pretrade functionality. So I think it's in our business' best interest to have people not have a bad experience, that regulators not see bad experiences for things going on in our exchange. I would give a counterview I think on your question earlier. I think from ICE's point of view I'm not necessarily putting these items in rulemaking, but I will say that ICE is not necessarily opposed to it either if that's what you feel like you need to do. The exchanges already do these things, the trading firms do these things, most of them anyway certainly so that we're already there. However, I think we would very much draw the line from going any further than those words right there on those bullets.

And to the other point you were making of how do we know that CME sets the limit at X and ICE sets it at Y? First of all from a latency standpoint, some type of check is a check is a check. Whether you're checking if it's higher than X or higher than Y, the effect on latency is effectively the same so I think there is not a material difference in terms of parameters that we would set. We may innovate and come up with, they may or we may, faster ways to handle a price collar just as effectively that may not be consistent with a prescriptive rule that was written 2 years before that. So I think in our view we don't have a problem with that level of specificity if you feel you need to do it. We don't think it's necessary, but if you feel like it's needed we would be comfortable with that but we would certainly advocate that you not go any more detailed than that.

CHAIRMAN O'MALIA: Peter, you had your hand up.

MR. JOHNSON: Thank you. I was going to make the comment I think to Commissioner Sommers's earlier question around how strictly do the three constituencies currently apply or deploy these risk tools. I think the greatest variance is possibly going to be seen in the FCM space. I was going to ask the question earlier if the suggestions or these recommendations were that FCMs apply the pretrade risk tools separate from what the exchange gives us access to because I think that in the U.S. the exchanges are very good. They make available, actually it's mandatory that you have to go through them both ICE and CME. There are some other exchanges, BMNF is another example outside of the U.S., but you have to go through their risk packages to access the exchange so that it makes latency irrelevant at least at that level.

To Gary's point earlier most of which I agree with, we as FCM employees both view our responsibility first and foremost as protecting the house, protecting the firm so that we are going to do our due diligence to make sure that clients are deploying the right risk tools and have the right risk approach culture, et cetera, before we're going to sign them up. But there is at the FCM space a lot of our competitors have a big commercial incentive to keep latency as low as possible and when you're adding risk layers to the process that increases latency which hurts our chances of winning business from some of the bigger high-frequency trading firms. I think that's where you see the biggest variance. And to Chairman Gensler's point about the race to the bottom, I think that's where to some extent you've already seen a race to the bottom in the brokerage space with brokers who are competing on latency only and in Asia a lot of exchanges have no exchange-hosted risk controls. They don't even acknowledge the practice of DMA or sponsored access. So it's really the wild, wild west. We tried to touch on that in the FIA market access risk recommendations paper a year ago and that was the point, to put pressure on those exchanges to act more responsibly like CME and ICE to provide exchange-hosted risk controls because it's the right thing to do.

For the most part I definitely feel that risk- control or risk-management be shared across those three constituencies and I think the industry does a pretty good job generally, but the one space to probably look at is in the brokerage space because the risk cultures vary so I think wildly depending on who you're talking about.

CHAIRMAN O'MALIA: I think in order to keep on schedule we do have a Q and A at the very end of this in which I expect that are going to deal with this issue and other issues associated with that. So write your questions down and let's think about them. We'll leave them to a final panel when we have about an hour to go over this. I'm going to try to get back a little more on schedule.

COMMISSIONER DUNN: I don't want to wait on this because what I'm hearing you say is trust us. We're the industry and we're not going to do anything to ruin the industry, and that's exactly the same thing we heard on credit default swaps, that we're all responsible adults here and we're going to care of it. That is the reason why Dodd-Frank was passed because they've asked us as a regulator to come up with ways to ensure that we can trust you on it and I'd like to see it be as much of a regulatory regime that uses principle-based regulations rather than being prescriptive, but I'm not hearing you come back and say here is how we're going to be able to do that without being prescriptive. I trust you and we didn't have it in the futures industry, but you're giving us the same argument that we heard for the credit defaults.

MR. DEWAAL: Maybe I'm hearing things slightly differently and maybe there could be some refinement. Certainly at the broker level I thought, and don't ask me for the rule number right now, I was obligated to maintain risk-management procedures.

MR. PAYTON: (inaudible)

MR. DEWAAL: There you go. Thank you. I also wanted to address something that Jill had said a few seconds ago. If as part of the guidance, obviously that rule was released a long time ago, but if there were an amendment to that guidance and it said, by the way, as part of those risk-management procedures you should be addressing different types of customers with their specific types of risk among which are the high-frequency traders, that I wouldn't have an issue with that because I think we already do that. In fact, one of the concerns, I was smiling when Commissioner Sommers asked do all your traders apply the same standards? I also just came back as Peter did from a trip to Asia and when the Chinese exchanges very recently put restrictions on the amount of cancellations and they put some other restrictions out there to limit high-frequency traders, it had a big impact on retail volumes and that's the problem. The problem is when you start targeting one particular group, you concentrate on that and you forget that other groups may share characteristics of that group, and that's one of the things that we as brokers do all the time. We look at the risks of all of our different types of clients. We don't care what they're called. We try to understand what they're doing and we try to deal with the specific issues addressed by those types of trading strategies, et cetera.

If there needed to be refinement certainly at the broker level in the guidance as to what are the areas that we should cover in the risk-management procedures, I think that would be fine. I don't want to speak for the exchanges, but obviously the Commission designates them as contract markets, we'll see what happens with the SEF rules if there will be an equivalent process, but it seems to me that that would be the appropriate place to talk about a condition of designation. I don't think it's just an issue of saying trust us. You have some authority to mandate that we deal with this. What we're saying is leave it to us to figure out what might be the most appropriate way.

And to follow-up on the Chairman's point, it's no different than saying, yes, it's not trust us on speed limits. It's just that an 80-mile-per-hour speed limit might work perfectly in Nevada on the big open highways but probably not too well in New York City.

CHAIRMAN O'MALIA: Commissioner Chilton, do you have a question? I'm going to save mine for the last, but if you have time constraints, go ahead.

COMMISSIONER CHILTON: Just maybe one, Commissioner, and a follow-up on what Commissioner Dunn was saying. A lot of the discussion that we have on this and other things is trying to figure out what the right balance is. So even when I talk about I think these are things we should be looking at, definitely we want to be careful with dreaded untended consequences. We don't want to have that. But there is a little bit I think I have some sympathy for what Commissioner Dunn was saying. I agree we don't want to have static regulations particularly with regard to HFTs and algos, it's going to change too fast so that we want flexibility. I don't know that we'd go all the way to a principles-based approach, but we need some flexibility. But what I think we're trying to get at and I hope this is the case for everybody is that if something bad does occur that we will be in a very reactive mode and then we will probably overreach so that now is the time to try to really get at the nub of what we need to do. When I look at some of the recommendations I start thinking those are generic recommendations for everything and there is not really anything specific here for HFTs. There are a few actually, but overall it's like we have to do this anyway and nothing needs to be done specifically.

I have just one question because I think there are some specific things that we need to look at. You were talking earlier when folks were talking about limits. Say we have our position limits. For the sake of theoretical conversation say we have a 10-percent limit of open interest in a market. If you were talking to a commercial trader, I guess there is the theoretical possibility that they would sell or buy 10 percent of the open interest in a day. But an HFT could theoretically buy and then sell within 15 to 20 seconds. Does that help the markets if they're buying and selling and should that be something that's just okay to buy and sell many times whatever the position limit is? I'll just leave it to that one question, Commissioner O'Malia.

CHAIRMAN O'MALIA: Does anybody want to respond to that?

MR. WHITMAN: Just to be very honest about it, I think that's virtually impossible. To by 10 percent of the open interest in a 15- to 20-second window, if you look at the size that we trade you're talking about a fraction of the open interest, nothing near that size. Liquidity constraints would not allow you to buy 10 percent of the open interest in a market. It just doesn't exist. In firms like ours if you go through and you look at the open interest that we carry, typically the open interest we carry is hedged and depending on the open interest measurement, if there open interest has any size to it, our percentage of open interest is usually very, very small. If there are 200 contracts open, yes, we could be 200 contracts.

COMMISSIONER CHILTON: So you wouldn't

have any problem saying that you couldn't do it since there is no way you would do it. Right?

MR. WHITMAN: Yeah, you can't do it.

COMMISSIONER CHILTON: I have an amendment, Mister Chairman. I'm good. Thank you very much.

CHAIRMAN O'MALIA: We're going to go to the phone. Nick Garrow is Global Head of Electronic Trading for Newedge. Nick has 17-plus years of electronic-trading trading experience in the derivatives and equity markets. As Global Head of Electronic Trading, he oversees a team of 100 and supports more than 4,000 end users on more than 80 markets across all assets globally. To understand the challenges that these pretrade controls are going to do and with the challenges of latency, I think Mr. Garrow can help us understand what it's going to take from a technology standpoint to implement these goals and objectives that we've laid out here and what seem to be articulated by some of the Commissioners to go further. So we're going to hear from Nick and see what the art of the possible might be. Nick, are you there?

MR. GARROW: Yes, I am indeed. Can everybody hear me?

CHAIRMAN O'MALIA: Yes.

MR. GARROW: Scott, do you have a copy of the slides?

CHAIRMAN O'MALIA: We have you on an enormous screen and everybody can see it.

MR. DEWAAL: And your photo you should be aware.

MR. GARROW: Thank you. First of all Mr. Chairman and Commissioners, ladies and gentlemen, thank you for the opportunity. What I'm going to try and do is I'm going to try and keep this relatively brief in the interests of time. What I'm going to try and do is outline the current practices that we have at Newedge and also some of the challenges that we have with regard to CMA pretrade risk controls. I know the focus of this particular meeting is on DMA, but I also wanted to talk briefly on SDMA.

CHAIRMAN O'MALIA: Nick, can you hold on a second? We can't hear you very well. If you could maybe slow down and speak up. If you could pick up your handset might be the recommendation.

MR. GARROW: Can you hear me now?

CHAIRMAN O'MALIA: Perfect. My apologies for that. We're on slide 2, Scott, in terms of the presentation overview. I wanted to start off by giving a picture of the current electronic trading landscape as we see it at Newedge. We have a very large client base. I know the focus of this meeting is on DMA, but I also want to touch briefly upon SDMA -- direct market access and some of the challenges there on the pretrade risk-control side of things. I also then want to go on to talk about what our approach is at Newedge currently and moving forward in terms of how we're going to better manage pretrade risk controls both on the DMA and the SDMA segment. Then finally also share with some of the investment requirements we have in terms of dollars spent and also some of the implementation challenges we have as well.

I think or I hope that the presentation will draw together many of the things we've been talking about here. I'm certainly not going to talk from a technology perspective, I'm going to talk from a practical and practitioner's perspective.

If we could change or move on to slide 3. Can you see that?

MR. GARROW: Broadly, we see our customer base split into two bodies. We have what we describe as SDMA clients. These are customers that we are sponsoring on two exchanges. Then we have DMA customers and these are customers who are trading through our -- trading infrastructure. What I wanted to do was briefly touch upon the differences between these two client bases, also some of the challenges we have with both of them and what our current policies, procedures and practices are with regard to pretrade risk-control management and also where we're going in the future.

I'd like to start off if I could with the DMA customers, in fact a comparison between the two. What's the difference in our world between an SDMA client and a DMA client? A DMA client is defined as one which is trading through a Newedge trading infrastructure over which we have direct, exclusive and full control. For DMA customers we currently run a number of different systems and platforms some of which you're probably familiar with, TT Trading Technologies and CQG. We have clients trading through FIX (?). We have clients trading over PAT (?) systems so that we support a wide range of different technology platforms. The key thing is that for each one of those systems and platforms we have full and exclusive control over the pretrade risk limits and the limits that we can include many of the limits we were discussing or you were discussing earlier on which you recommended need to be set both at the clearing firm level and indeed also to a certain extent that trading firm level as well.

This focus here is on pretrade quantity limits and fat-finger limits. It's also looking at daily position limits as well on contracts by contract and by maturity as well. On the DMA side therefore we have full access, we have exclusive access, we have full control. The types of pretrade limits vary according to the existing system or platform we're using, but broadly speaking the requirement is to be able to set quantity limits and position limits as well.

On the SDMA side of things, obviously we are sponsoring clients onto an exchange. They're trading using the Newedge NPID or session ID. And the pretrade risk- management control with these guys is much more of a challenge. What we do and I think we've adopted to a certain extent some of the recommendations that have been laid out already is we conduct due diligence on the trading firm itself with quite an exhaustive questionnaire. I'm not familiar with the names of the people who were speaking earlier on, but some of the questions that they were asked by their clearing broker or the FCM are typical of the questions we would want answered as well. So we conduct some due diligence on the trading firm. We are looking or seeking to achieve clarity and clarification around how or whether they have pretrade risk controls in place and how they work. We're also seeking clarity around from an architectural perspective where the customer's technology is going to be located, how obviously it's going to access the exchange, et cetera, so that for the SDMA customers and clients we're conducting a piece of due diligence.

We also have a minimum requirement within Newedge that regardless of the answers to all of the above questions, we have to have the capability to do four things. Number one, we need to be able to see the client's orders. That can either be through some kind of drop copy directly from the client or from the exchange. We need to be able to stop the client from trading so that that is the sort of kill button that's been mentioned I think in the previous presentations.

We need to be able to view access and have access to the client's limits and also to change them as well. So our requirements are relatively stringent. The technological challenges in doing all of that are immense. We have currently a large number of SDMA clients trading obviously not just U.S. markets but global markets and across multiple asset classes as well. My challenge or our challenge at Newedge goes beyond just the world of futures or exchange-traded derivatives. It extends obviously into the equities world, the fixed-income world as well and FX. Often clients will be running multiple connections into multiple exchanges and multiple markets so that the challenge there is getting an holistic view in as close to real time as possible in terms of what the customer is doing across multiple destinations and I'm going to on to talk about this a little later on. So those are some of the challenges in terms of managing, view and getting control of risk management on the SDMA clients. On a posttrade basis we're taking executions and execution reports into our posttrade risk-management systems. For the DMA customers it's a big more straightforward in the sense that because we've already got the pretrade risk limits in place, the DMA platforms we use, typically RSV sorts of systems and platforms all fixed, provide us to a large extent with the visibility over the customer's orders, they give us the capability to change limits and, frankly, they give us the capability as well to switch a client off and to stop them or block them from trading.

For SDMA clients as I said before, all of the customers and clients are scored by the operational risk department and we conduct a piece of due diligence on the customer's trading applications and their pretrade risk- management controls. For DMA clients because we have the pretrade risk in place and greater visibility and control, then obviously we have to go through -- agreements and pretrade limit approval and setup.

The challenges frankly on both sides of these customer bases are quite enormous. On the

DMA side as many FCMS are, we're running multiple systems and platforms. Each one of them can be slightly different. In terms of manpower and support running these systems and platforms, it's quite a large burden. To a great extent as well, much of the limit inputting and processing is manual and it's not automated. It's a very difficult process to automate so that there is obviously the possibility for human error. But broadly speaking, that's a quick overview in terms of the environment currently as we see it.

What comes out for me from this environment currently are three things. Given the range of customers we have and given the range of destinations they're trading and the range of asset classes, it's a huge challenge to get proper pretrade real-time visibility over every single customer so one big thing for us that would help our lives and those of our clients we believe as well is a better and more uniform consistency of pretrade risk controls at the exchange level. I use the words uniform and consistency quite importantly because many exchanges have pretrade risk-management controls in place, but the way that they are implemented is different so that when we're dealing with a customer trading across three different regions or geographies, the challenge of maintaining real-time risk visibility over the customer is quite large. The second one which I believe has been touched upon already on numerous discussion groups is the posttrade drop copy data. It's really important both for us and indeed for our customers as well to go to the bible source of executions and working orders and we believe that is at the exchange level. What we're looking to do is to take in in real time both working orders and execution reports from all of our customers particularly those who are going onto exchanges through the SDMA route, but there is again a lack of consistency particularly outside of the U.S. I have to say in Europe and certainly in Asia with regard to the quality of the drop copy data that's provided.

Finally my third point on this is the

behavior that we would like to see more consistent across exchanges on customer and client disconnect. There is a large amount of focus quite rightly on the pretrade risk-management side of things. There is also a large area of operational risk and systemic risk when a high-frequency trading firm disconnects for whatever reason from the market. As I think we've noted, these customers and clients can be working a large number of orders. If they disconnect from the market, the behavior we like to see is we have for cancels on disconnect which are supported by the exchange at the exchange level so that to the greatest extent possible we understand or believe that the client's orders will be cancelled. What is dangerous and risky is having multiples of hundreds or sometimes thousands of orders working on an exchange when for whatever reason the client has become disconnected.

Those are the three things broadly speaking if I looked at some of the current challenges and issues that I would pick up on is better and more consistent pretrade risk management at the exchange level, better and more consistent quality of drop copy data and better or more consistent behavior on client disconnects.

If we move on to slide 4, slide 4 is an overview framework in terms of where we're going with our risk- management and our risk-management approach at Newedge. Broadly speaking what we've done is we've split risk management down into three buckets if you will. All of these buckets are within Newedge and I'm talking about controls within Newedge and I'm not expanding this out into either the exchange-based controls or the trading-firm controls. Broadly speaking we're splitting risk into three pieces. We have the pretrade risk management. This is obviously geared toward preventing erroneous trades getting to an exchange and stopping a trade executing or getting to the venue if it shouldn't. On the DMA side of things, the pretrade risk management is provided predominantly by the different ISV vendors. We're looking at simplistic things here really but nevertheless measures that prevent erroneous trades or a high frequency number of orders getting to the market so it's quite simply quantities per order, it's position limits on a daily basis and it is where possible also the number of message or message throttles as well.

For the SDMA, for the sponsor direct-market access clients, pretrade risk management is a big challenge. Obviously I'm working quite hard at the moment on the SEC ruling in the U.S. which effectively bans naked access trading as far as I can see on equities, equity options and a range of other instruments as well. There is a huge challenge in the U.S. at the moment which is to find a pretrade risk-management solution that will suit both the requirements of our clients in terms of speed but also the requirements of the regulators in terms of control, exclusivity of control and access as well. If you take that challenge outside of the U.S. onto some of the other markets as well in Europe and APAC, it's very difficult to find solutions or vendors that can come up with a very low latency pretrade risk-management solution that covers all markets and all products.

Finally on the pretrade risk-management side of things, I think the other place as I've touched upon earlier on where we will be looking for some more conformity is the exchange-level controls. We look quite closely at the degree and types of pretrade risk controls which are available on different exchanges and we rank the exchanges as well internally according to the levels of protection they provide to us the FCM. There is a great degree of inconsistency between the controls, where we as the FCM as the clearing member have to fill often the vacuum or the void between the customer and the exchange. Getting this consistency of control, and as I say this not just a U.S. problem, this is a much bigger issue and problem in Asia, is a big issue for us.

The piece we're really focusing on as well now is what I describe as the at-trade risk management. The pretrade risk checks should stop an erroneous order getting to the market. The piece we're looking at now with the at- trade risk management is about trying to get as close as possible real-time visibility over all of our clients' working orders and executions. It's an additional set of controls that we've put in place which says for whatever reason if the client manages to get a trade through on a pretrade basis which they shouldn't have done, the at-trade pick it up provided we can get visibility over the client's working orders and executions and it will set additional alarms and alerts. We're building out an at-trade risk solution at Newedge globally currently which is focusing on equities and exchange-traded derivatives. The initial focus is going to be certainly for the SEC ruling in the U.S. but also more importantly across all of our SDMA clients. What we're doing there is we're feeding in or we're getting access to all of the drop copies where possible from every single exchange and we're putting them into a centralized risk tool at Newedge and the risk tool will provide us with real-time visibility of orders working at an exchange and real-time visibility over executions so that it gives us an additional alerting mechanism should there be an issue or problem with the client. The important piece with the at-risk risk-management tool that we're implementing can deploy what I call pretrade agents into the field and the pretrade agents consist of either full-blown pretrade risk-management controls on a low- latency basis or cutoff switches and devices which would stop a client from trading on an exchange and if we detect it on the at-trade basis they are in breach. So it's trying to build a consistent global at-trade risk view. To do that we require very good quality and very fast real- time fixed drop copies. It's a large project. It's a complex project. The volumes of data are enormous. But we feel what we need to do is to bring this at-trade visibility into the sort of 1- to 10-second timeframe so that we're looking for a gap between the client entering an order and us being able to detect it and pick it up in the at-trade system at somewhere between 1 and 10 seconds globally.

The posttrade risk-management piece is as the name suggests a different thing altogether. The posttrade risk at Newedge is looking at taking the clearing feeds in from the exchanges or from the clearinghouses and running more complex risk calculations over customer and client positions so that we may be looking at stress testing a position or a portfolio and the time delays in doing so are obviously longer. This strategy here of pretrade, at-trade and posttrade is the sort of framework around which we are building our risk-management controls processes. It gets changed by the regulatory environment. It can change by the micromarket environments as well. But broadly speaking that's what we're looking to build out.

CHAIRMAN O'MALIA: Nick?

MR. GARROW: Yes?

CHAIRMAN O'MALIA: My apologies. Can we

have to move to the challenges or a conclusion because we're running out of time? Thank you.

MR. GARROW: We'll skip slide 5 and go on to slide 6. I think I've touched on most of these points already to be honest with you. The main challenges or some of the challenges involved in implementing this are around data consistency and what I call data transportation. There are a lot of moving parts and a lot of data to move around between the different risk systems and between the exchanges and Newedge. There is also the challenge around implementing these low-latency pretrade risk controls. We're seeing in the U.S. with regard to the equities markets a rush toward single -- single-digit microsecond pretrade management. This is becoming a key commercial consideration. And also obviously we have to keep track of and keep fully mindful of the regulatory environment and how that's changing as well.

I was also asked to give some indication in terms of the sort of costs involved to implement these technology solutions and that's the final piece of the presentation. We're looking at around $4 or $5 million to set these controls up, then between $4 and $6 million to run which includes the hardware, the software, the market data reporting and everything else. Then also more importantly it's not just a question of building out the technology and the tools, but also having the right people in place to interpret what the tool is saying and also take the appropriate action around it. We are investing quite heavily in people to support these tools and these applications as well.

I won't go into the appendix. The appendix is a framework around how we're classifying clients and what controls we need to put in place on a pretrade, at-trade and posttrade basis but I think in the interests of time, Commissioner, I'll probably stop there and take any questions.

CHAIRMAN O'MALIA: Thank you very much and thank you for complying with our time constraints. Does anybody have any questions about this? This is obviously a complicated challenge and I think as Gary DeWaal pointed out, this is something they've taken on on their own initiative to serve their clients and probably meet the regulatory challenges that they have. Gary, do you want to comment on why Newedge has taken this step?

MR. DEWAAL: I think the challenge, and I'm still struck by Commissioner Sommers's question, is our clients often trade multi assets internationally simultaneously. And when I do hear the discussion about possibly restricting trading in advance I shudder because of that. The problem that we have as a global broker again is not just obviously complying with the U.S. requirements, but complying with the requirements all around the world and obviously of sister agencies here. I think the challenge to our customers is also very, very similar because obviously from their perspective to the extent that they're granted direct-market access or as

Nick calls it sponsored direct-market access, the lack of consistency internationally is very, very challenging. It's very, very challenging. Obviously your mandate is the U.S. futures markets. Our issue and our clients' issues are the global markets. The problem of being prescriptive in place is that it could do a lot of damage internationally. Yes, I'm very sensitive to the debate about rushing to the bottom. I was sharing with Commissioner Sommers already about how as a global broker we already see the majority of our business being booked in the U.K., not just the majority, a substantial majority almost to the exclusion of our other zones just because of the environment and some of the things you can do in London that you can't do here in the United States. We would be very, very concerned about the CFTC coming up with very prescriptive requirements for the markets here because we think it would be very anticompetitive. Obviously we don't want the U.S. to go to the standards of Asia which in many cases are still being developed from scratch. But the problem with these markets is they're not in isolation anymore, that's the biggest issue and that's the challenge we have. Nick is trying to create an infrastructure that deals with the four asset classes that he discussed and the 30-plus markets that we provide access to so that it is an amazing challenge.

CHAIRMAN O'MALIA: Thank you. We're going to go to the break. Come back in 20 minutes at 25 after and then I'll obviously impose on our next panelists to keep their presentations very tight so that we can continue to have this discussion. I'll see you in about 10 minutes.

(Recess)

CHAIRMAN O'MALIA: If we can get started again, we'll go to our second panel. We have Supurna VedBrat who is a strategic market structure business adviser to the head of fixed-income trading within Blackrock's Portfolio Group. Supurna has spent over 18 works working in the sell wide in the fix-income market spanning most asset classes in both cash and derivatives working in the U.S. and Europe and for the last 18 months has been focusing on market structure strategy and has been leading initiatives for fix-income trading and buy-side investments focusing on anticipated changes and emerging alternatives based on the Dodd-Frank Act. Supurna, thank you for coming and look forward to your presentation.

MS. VEDBRAT: I'd like to thank the Commission for giving us this opportunity to present on interconnectivity.

Interconnectivity is a consistent business process with integrated technology support. Trade interconnectivity within the context of a buy-side investment process involves many independent entities. Within the cleared OTC derivative space it will involve CCPs, multiple SEFs, affirmation platforms, client investment platforms, executing broker platforms and FCMs, among others. Some of these entities are known to us today and some will emerge as a result of the new market structure. Efficient interoperability among these entities is the thread that will hold the process flow together. This interoperability is dependent on providing an open architecture solution and having a standardized open- messaging protocol that will flow the transaction data information in a consistent manner as it progresses through the trade process flow.

Today we will evaluate the challenges and concerns related with interoperability using three dimensions. The first is implementation and sequencing. The second is one-time implementation costs and the potential future running costs and tools. And the third is structural impediments from the standpoint that they impair the deepened liquid markets that the current OTC markets offer us.

This diagram represents a high-level flow and the interconnectivity of the various entities that will be involved in a typical real-money asset-management investment flow for cleared products. In the chart below there are many interconnectivity points mentioned and I could spend many hours discussing them. However, in the interests of time we will focus on a few key areas of concern. First, all entities within this flow must support open architecture solutions so that market participants can connect to them using their existing technologies or preferred technologies. The efficient interoperability of these entities is highly dependent on standardization of messaging protocols so that no one vendor or entity has too much control on how data is exchanged or interchanged. Otherwise it will become a barrier to entry and put new market players at a competitive disadvantage. It will also be too expensive for market participants to make changes as the market continues to evolve. In some ways it may slow down the overall implementation for clearing. Standardization also helps make technologies spent more manageable. Other benefits of standardization are it helps to reduce time and cost barriers for new entities to emerge as viable competition and for new market participants to enter.

The second area of concern is the development of gateways to the CCPs such as the affirmation platforms. In the diagram it's toward the center right. Care must be taken the interconnectivity of these gateways do not impede new affirmation platforms to connect. From a client perspective it is important that an affirmation platform connects to multiple CCPs and supports affirmation for multiple asset classes. For example, an affirmation platform should support both IRS and CDS so that a client does not have to link and pay tolls to different affirmation platforms for different products. This will allow operational efficiencies and consistent workflow reducing operational risk and trade breaks in the overall system.

The third area of concern is the posttrade allocation that occurs within the investment management process. This is in the center of the diagram above. I cannot emphasize how important this is not only as an integral part of the buy-side investment process but one that requires more education and much more awareness as market structure workflows are defined. This continues to be an underinvested and underappreciated area as we write the rules and design the workflows for the new market structure. It is important to note that an asset manager may manage many different money vehicles such as pension funds, insurance companies, separate accounts, collective trusts and many more for many different client types such as institutions and corporations among others. It is just as important to understand that the complexity in this step comes from the fact that each client account or fund has within their investment management agreement constraints and targets that may include their choice of custodian, the counterparties with whom to execute, the potential clearing members that they choose and other investment services. Let us look at the next slide to see some more detail on this.

An asset manager may have multiple investment strategies that are linked to many different client accounts and services. Take for example in fix-income at Blackrock we may have 150 strategies that span across 3,000 client accounts. When a strategy generates an investment idea, this idea is applied and distributed among many accounts. More often than not it is applied across multiple accounts. It is also worth noting that a key metric for asset manager performance is the consistency of fund out performance relative to the benchmarks and the stated investment objectives. It is very important as we design the implementation and sequencing of interconnectivity that the allocation of a block trade to client funds and accounts that legally own the risk is taken into account and that ownership connection is followed through to the appropriate CCPs and the multiple FCMs chosen by the various clients themselves.

Up until now we have talked about technology interconnectivity. Client funds are brought into the structure via various legal agreements that authorize money managers and various service providers and vendors such as SEFs clearing members to act on their behalf. This diagram is meant to represent the anticipated documentation that is needed to on board client. As you can see, there are many touch points that need client documentation so that if we want smooth client adoption, these documents need to be standardized, simply and keeping the overall process in mind kept to a minimum where possible. The sooner we start the process of creating these documents the sooner we will be able to on board clients. These documents can be created alongside rule writing and implementation rather than wait until the very end. We strongly discourage client documentation to be used as an excuse to delay or sequence onboarding of clients behind other market participants.

Before concluding I would like to spend a moment on sequencing and timeline. We look at this through three lenses. The first lens is infrastructure. We believe we start with clearing. This is where we believe the market has experience, confidence and endorsement for adoption by most market participants. Over time we introduce executing facilities and allow for markets to gain confidence with the phased implementation into each of the respective areas. Once confidence is established, liquidity should follow.

The second lens is market participants. Dodd- Frank promotes an all-to-all market structure. The only way to achieve an all to all with all market participants is to have them move in lockstep together. Anything other than that is a perpetuation of the status quo and where we saw no client adoption. To design market structure for clients without clients is a flawed approach. A standard onboarding of market participants will overall be more expensive and more likely the higher costs will be borne by the market participants that are brought on later.

The third lens is product. We need market structure to develop simultaneously for multiple products. Otherwise we will end up with vertical silos that are not designed to efficiently be used across more than one product. We collectively here are working toward a market structure that is durable and sustainable over a long period of time. Therefore it is more important to have the right market structure that has confidence in it from all market participants than one that is put in place too quickly or too fast.

In conclusion to design and implement interconnectivity properly there needs to be an understanding of the operating processes and respective workflows for all constituents involved and there needs to be a consensus and coordination among the constituents on standards. This will reduce operational risk, barriers to entry and will make the overall trade process more conducive to adaptability and adoption as the market changes. On this last slide we leave some overarching questions as takeaways for everyone. Again I'd like to thank the Commission for giving us this opportunity to present our views on interconnectivity.

CHAIRMAN O'MALIA: Thank you very much, Supurna. Next is Larry Tabb who is the founder and CEO of the Tabb Group, a financial markets research and consulting firm focused on helping financial service firms, vendors and technology integrators better understand and create their technology vision. Prior to founding the Tabb Group Larry was a vice president of Tower Group Securities in investment practices where he managed research across capital markets. Larry's career included various operations in North American investment at Citibank. Larry, thank you very much for participating.

MR. TABB: You're welcome. Thank you very much. I want to thank the Commission for allowing me this time to talk. Commissioner O'Malia asked me to talk about the technology implications of Dodd-Frank on financial markets and what I focused more on is the derivatives aspects of that business.

We'll start pretty quickly with

high-level workflows and then look across various entities, how they exist now and then what's proposed along the SEF level, clearing dealers and prime brokers. Then we'll look at some estimates on what we think the major dealers are going to be spending, a little bit about dealer progress and then some conclusions and we'll try and go through a lot of the workflows pretty quickly.

We did a lot of this work in late summer or early fall. We interviewed and talked with a lot of the interdealer brokers, we talked with probably 10 of the largest 15 swaps dealers to try and get a good understanding of what technology is involved, what they're going to be spending and what are the challenges and some of this comes out of that.

If we look at the existing market, the existing market is built as almost a phone market way of taking end user risk, hard inventory, minerals, agricultural, currency, interest rate risk and energy risk and then transferring it into the financial markets to absorb it. To a certain extent this part of the business we don't think is going to change significantly as a lot of the users are carved out of Dodd-Frank. The issue developing a whole new market for the standardized agreements that are done mostly between financial institutions to a certain extent and we think that is going to become more of a traditional exchange-type market or a SEF or DCM market and that's on the right side of this that's going to change. To a certain extent we're going to wind up with an SEF and a clearing mechanism interposed in between the two halves of this market, the existing market between the end users who are still trying to manage inventory risk or financial risk and the right side of this which are the financial institutions trying to manage risk on their own but take risk in the marketplace and the SEFs meeting the two. We believe that the large dealers are still going to wind up being interposed with the end users trying to help them carve out specific end user swap agreements and then taking gap risk and then leveraging that through the SEF into the financial institutions.

The financial institutions we believe will be broken out into a couple of different groups or working with a couple of different intermediaries, the large dealers or the dealers, clearing firms representing smaller dealers and prime brokers managing hedge funds and prop shops interflow into that market and all will be revolve into the trade repository and the clearinghouse process.

The SEFs generally are going to wind up having a number of different types of infrastructures. Certainly on the upper left there may be colo depending on how high frequency this business gets. Certainly there is going to be a connectivity part with managing information flow between all the different members and participants. There will be a credit-management process of pretrade risk. Certainly there is going to be a market-data distribution process, a surveillance process and at the core a matching engine with drop copies that I think was talked about earlier going back to all the different participants and then linkages in with the clearinghouse. The clearinghouse is going to be a repository for offsetting a lot of this risk. They are going to need a very significant risk-management infrastructure which is in the upper right-hand side of this, certainly a cash-management process to figure out where all the cash is coming from, a way of being able to compare all of the transactions, to take all the information in, aggregate it and compare it to make sure there are no breaks, make sure that all the netting and novation works right, aggregating positions which then go on to risk management, there is going to be a whole margin process and a way of collecting all that margin that needs to be managed and that information is going to wind up going into multiple trade repositories that may be located around the world, and then there is going to be a whole issue of identifier management issue that is going to be fairly problematic since a lot of these products don't really exist now and I think the next topic is going to talk about that.

The dealer infrastructure which is going to be we think to a certain extent the largest portion of the spend in this market is going to come from building out a lot of the internal infrastructure because they're not only going to need to manage the existing process today, but build out a lot of the primes live in the dealer infrastructure. They're going to need to build out an electronic trading process. They're going to need out connectivity to all of their clients and their clients are going to be multiple types of client from asset managers, hedge funds, insurance companies, prop shops, smaller dealers and I'm sure some end users as well are going to want to partake in a lot of these transactions as well. They're going to need a risk- management infrastructure both on the pretrade side and the posttrade side. They're going to need a way of being able to interact with all the different regulators, the clearinghouses, the clearing banks, the repositories, multiple SEFs plus they're got a P&L process and a margin process that winds up having to go across again multiple entities around the world and this is across different geographies as well as a market data infrastructure that's going to need to be managed. The primes will probably be more focused at the prop shops and the hedge funds that will be a kind of subsegment. It will be more around margin and interactivity and being able to aggregate smaller clients or hedge funds and get them into the right place and manage credit.

We think that we're looking at probably around a billion-eight from the larger dealers that is going to be invested in building a lot of this infrastructure. This is going to take place generally from last year into 2010 and we think that it's going to be broken out into five or six different categories: the e-commerce side which we're looking at as the trading infrastructure, the ability to take positions within the organization and be able to trade within the organization and market make; the low-touch distribution channel which is the distribution side of the business which is building out all the infrastructure that goes out to their clients, all the messaging, all of the pretrade risk, all of the messaging standards, all of the drop copies, all of the analytics, all of the platforms that are going to go out to all of their clients; the CCP infrastructure working with all the different CCPs around the world trying to get them to link and be able to get all their transactions to the CCPs, get the output from the CCPs and being able to manage all the margins associated with that. We think the next part is the risk side of the business which also includes a lot of the reporting, the data management, the analytics, looking at positions and managing the internal risk of these firms and their clients. Then the collateral management side. Again a lot of that is also margin and risk as well and being able to manage all of the collateral that's on deposit and with the CCPs.

We think the bulk of this is going to be picked up by the top four or five firms or three or four firms. It's going to be a fairly extensive load mostly because these firms are global, they're going to be trying to do this both in the U.S. as well as in Europe and they're doing it across multiple asset classes.

CHAIRMAN GENSLER: Larry, may I ask a question on this chart?

MR. TABB: Yes.

CHAIRMAN GENSLER: These top three or four firms, if you have an estimate what do they spend annually on technology?

MR. TABB: The top firms on the investment banking side are spending in the U.S. $4 or $5 billion a pop on technology.

CHAIRMAN GENSLER: $4 or $5 billion per firm?

MR. TABB: Per firm.

CHAIRMAN GENSLER: That's in the U.S. Internationally?

MR. TABB: Two-and-a-half times that.

CHAIRMAN GENSLER: Two-and-a-half times

4 is 10 and two-and-a-half times 5 is 12-1/2, so $10 to $12/2 billion?

MR. TABB: Yes.

CHAIRMAN GENSLER: So that annually they spend $10 to $12/2 billion.

MR. TABB: This is over 3 years.

CHAIRMAN GENSLER: This is over 3 years?

MR. TABB: So we're looking at about $50 million a year or something like that for the top firms, $50 to $60 million a year spread out over 3 years.

CHAIRMAN GENSLER: $60 million a year, and I know it's an estimate compared to their $10 to $12 billion technology budget.

MR. TABB: Right.

CHAIRMAN GENSLER: It's significant money, but as a percentage it's somewhere less than 5 percent or around 5 percent.

MR. TABB: Yeah, um-hum.

COMMISSIONER DUNN: To follow-up on that, then is this amount something they would be doing under their ordinary course of business or is this strictly as a result of Dodd-Frank?

MR. TABB: We think that this is a result of Dodd-Frank because a lot of these products and services wouldn't necessarily be needed because the market would exist the way it is today. When we look at what U.S. Broker dealers are spending in the U.S. market, it's somewhere around $20 to $22 billion overall. Globally it's probably about 2 to 1/2 times this.

CHAIRMAN GENSLER: I should note now I see that our $31 million a year --

MR. TABB: You have to add the billion that the SEC gets too.

CHAIRMAN GENSLER: They don't have a billion on technology?

MR. TABB: No, not on technology. Overall. It's a drop in the bucket.

CHAIRMAN GENSLER: I might end up quoting you.

MR. TABB: In terms of growth rates, the growth rate of technology has been challenged over the last couple of years because of the recession.

We see it's coming back, but still it's not coming back at the growth rates that we saw especially in the early part of the 2000 timeframe, but it is coming back.

How firms are prioritizing their OTC derivatives initiatives is client demand and regulatory compliance are the two big issues that they're really trying to focus on as well as competitive differentiation and value-added services. The bigger guys are out there trying to figure out what their clients want and trying to build it.

Where are they with readiness? Out of five, most folks that we talked to again late in the summer, or early fall, felt that they were pretty good on the way to clearing and execution, a little less on reporting and compliance and least on reference data and reference data becomes a big issue in risk management. When I mean reference data, the OFR stuff, all the issues about unique identifiers for securities, unique identifiers for customers and trying to get all of their data aligned within their organizations especially for products that don't necessarily exist right now.

Where are they in terms of their product priorities? What are they focused on? They focused mostly on the credit and the rate side and much less on the commodities, equity and FX side so that the big issue is credit rates which tend to be their bigger businesses.

Conclusions. Dealers are absolutely scrambling to build out their capabilities. We think the top 15 guys are going to be spending about a billion-eight over a 3- year period to comply with Dodd-Frank. While dealers have invested heavily over the decades, products, clearing, trading, businesses, distribution models all are changing because there's a whole new way of looking at the swaps business. While regulation is significant, client demand is driving development as well so that clearing and execution are the key investment areas and as I said they're focused mostly on credit rates more so than commodities, equities and FX.

CHAIRMAN O'MALIA: Larry, thank you very much. Those were some great slides. Bob Garrison is Chief Development Officer at DTTC's Information Technology Division and is responsible for all IT applications and development efforts at DTTC and he is also experienced in investment banking as well.

MR. GARRISON: Good afternoon to the Commissioners and members of the Technology Advisory Committee. I am here with Marisol Collazo who is Vice President in charge of DTTC's Trade Information Warehouse. We are here today to discuss some of the challenges and opportunities in helping the Commission achieve its objective around market transparency. Marisol will run through the presentation and we're happy to take questions on our experience and observations in working with the industry on derivatives transparency and data reporting.

MS. COLLAZO: As well good afternoon and thank you for the opportunity to speak today.

First a bit of background. The Trade Information Warehouse is a subsidiary of DTTC and it operates as an industry utility governed by its users. The warehouse provides a centralized global repository for OTC credit derivatives today which includes both legal recordkeeping and centralized lifecycle processing. The warehouse has been in operation since 2006. Today over 95 percent of the trades held in the warehouse are electronically confirmed. The remaining population, the paper confirmations, are reported unilaterally by the submitting party with the current open inventory and certain key economic details.

The warehouse database currently represents 2.3 million contracts with a gross notional of 29 trillion. It is based on these types of existing automated processes that I will discuss today how we think the Commission can achieve one of its key goals on market transparency by leveraging those processes that are presently capable of producing high-quality, robust and accurate data in a timely manner. Based on such a model, the Commission would benefit as it is assured to receive the best quality of data currently available.

To achieve this there are four key points that underpin this premise. First, coordinated technology implementation must take place across the entire industry. Second, mitigation of delivery risks where possible by utilizing existing robust, accurate and auditable reporting processes. Third, the Commission should be indifferent as to the data-collection process for the data elements required so long as the data is complete and provided on a timely and accurate basis. Fourth, standardization is necessary and useful but by itself is insufficient to allow for appropriate and timely aggregation of data.

I'm going to stay on this slide and hone in on each of these four points and provide some background. With respect to point one, to ensure successful implementation of an SDR there must be a coordinated effort with the industry in defining the framework for submitting these records. This includes defining the business requirements, reviewing the message choreography, connectivity points, identifying reconciliation tools where necessary, drafting functional specs, training, user testing. Also some similar things that I heard earlier today about ensuring that the firms can connect and that the testing is there. It's important to note that the industry, the buy side and the sell side, are taking these reporting requirements very seriously and have been actively engaged at the warehouse as an industry utility provider in discussions as to how they can meet their reporting obligations. We do not believe it can be successful without industry coordination which builds confidence and momentum to solutions and overcomes uncertainty and ambiguity which may lead to extensive delays. In this regard, the Trade Information Warehouse has kicked off several work streams to review data attributes and validations needed and message choreography and lifecycle events. The response thus far is that most of what has been prescribed with respect to the data elements can be provided particularly where automated processes are already in place. The key challenges that the industry faces is in reviewing who needs to report what by when, and I'll talk more about that in point three.

This is particularly impactful where data needs to be reported in advance of existing automated processes, in effect decoupling the reporting requirements from the automated process and resulting in potentially lesser- quality data being reported. Another key challenge is reporting of paper confirmed trades as there are no automated processes in place due to the customized nature of these transactions.

Apparently the sense of working group that has been formed is to ask this Commission to consider reporting of these trades to be satisfied through real-time record submission with an image copy of the confirmation representing the fuller legal and economic terms -- the Commission -- support an increase in electronic confirmation processes over time, an approach similar to the effort that the OTC Derivatives Supervisor's Group has enforced with major dealers in the past.

These challenges lead into the next key point which is mitigating delivery risk where possible by utilizing existing processes. The Commission would be best served by leveraging the existing automated process. For example, the key difference between the primary economic terms data and the confirmation data is the timing. The challenge to sending primary economic terms and confirmation data are not significantly different so that it is not necessarily safe to assume that an accurate reporting process can occur that much faster than the current confirmation process. However, the degree of accuracy and the quality achieved through a matched confirmation are much higher than a unilateral reporting of primary economic terms. A confirmation record that is matched and agreed to by both parties through an automated process ensure that the Commission receives data that is complete and accurate and systemically verified by both parties. With respect to timeliness for credit rates and equities, most trades are confirmed intraday. For interest rates, 80 percent are electronically confirmed within approximately 30 minutes, for credit these trades are mostly confirmed within a range of 30 minutes to several hours following execution and equities tend to be more within intraday for standard contracts.

I would say here too this has been an evolutionary process where the industry has worked with its respective supervisors to improve the confirm timeliness by refining the existing operational process and standardizing where possible.

CHAIRMAN GENSLER: May ask for rates how long did you say?

MS. COLLAZO: For rates it's approximately 30 minutes. The Commission should consider monitoring these industry commitments as a measure toward improving the existing automated processes to improve confirm timeliness further bridging the gap between the primary economic terms and the confirmation data. It is also important to note that the regulatory reporting has also evolved in this space. Based on the Data Access Guidelines provided by the OTC Derivatives Regulator's Forum which is comprised of 40 regulators including the SEC and the CFTC, DTTC has launched the Regulatory Portal. The portal enables regulators coincident with their authority to view trade- level data as well as counterparty and reference-entity exposure reports for the entities or jurisdictions over which they have authority. For central banks, they are able to view data for the largest financial institutions trading in that respective currency as a proxy for those institutions that are systemically important. For market regulators and prudential supervisors, discrete trade-level data is available and that is updated on a daily basis. The feedback we've received from the ODRF has been largely positive from a credit perspective and it's viewed to be fairly compliant. More work needs to take place with respect to rates and equities to achieve that same high level quality of data and that continues to progress in that space.

Turning to point three, as long as reported data contains all the data elements and is reported on a completely, timely and accurate basis, the Commission should be indifferent to the data-collection process. In Part 45 of the CFTC's proposed rules there are two different for how an SDR can review data, either snapshot or lifecycle depending on the asset class. DTTC proposes that the Commission consider flexibility in allowing the industry to define how data is collected in the SDR. For example, for electronic confirmations where automated processes are in place, it is much more likely that the industry would favor a lifecycle approach where trades are updated in the SDR based on centralized lifecycle updates to those records. Whereas for paper confirmations, the industry is likely to favor a snapshot approach as there is little to no automation for these customized records. As to who reports, the Commission should allow for industry participants to identify the authoritative reporting source based on who has the best available information. For example, SEFs may not have all the information necessary to report the data elements prescribed in the proposed regulations. Also foreign dealers may want to provide U.S. End user reporting parties with the ability to report these trades to the SDR on behalf of the end user. It is simpler to make the reporting parties responsible and this clearly establishes a single point for control of data into the SDR. Swaps primarily different from other products because of their lifecycle events and these do not necessarily occur in the same service as creation data so that coordination across multiple submitters is complex. DTTC thinks the majority of reporting should be done by dealers and DCOs but it is not necessary to prescribe that a DCO reports lifecycle events and a dealer intrinsic events where the same process can likely report both.

Turning to the last point, DTTC is supportive of universal identifiers for counterparty swap and product. Such standard identifiers will enable consistent standards for aggregation of data. However, in and of itself it does not fully address the aggregation question. Timeliness of aggregation of data is key particularly during times of crisis. In the wake of the Lehman financial crisis, it was not well understood what the counterparty exposure was to Lehman as an underlying entity. The warehouse was able to provide such transparency by reporting the net notional and the potential amount of funds transferred between all the counterparties based on the sum of their bilateral exposures. There is a great risk that with too many SDRs this information would be fragmented and it would be too difficult for regulators to collect the data in a timely and accurate manner. Additionally, the process would be further frustrated as the sum of the net notionals on open positions provided by each SDR would not equal the whole. Today the warehouse holds both cleared and uncleared contracts with up-to-date information ensuring that in times of crisis the regulators can view the aggregate counterparty exposures for their entire portfolio and inventory. There are also additional benefits that the public, industry and central clearinghouses derive from aggregation as it easily provides transparency as to the liquidity and the depth of each asset class. There has been support from regulator forums toward a centralized aggregation model as well. Both the ODRF and the Financial Stability Board in its recommendations on trade repositories urge that central aggregation of data is key and adopting uniform standards to allow regulators to access such data. Today the warehouse already meets this through our current regulatory reporting and we believe the Commission should look to preserve these existing processes where possible. Standardization is necessary but not sufficient for risk reporting. Data needs to be aggregated on a timely basis and this requires an understanding of the data, of the aggregation process and the consolidation of service for it to be efficient and evolving over time.

In closing I'd like to leave you with these final thoughts when considering these four key points. First, regulators can rely on existing processes to implement reporting procedures. There is no reason to reinvent the wheel. There are existing processes in certain asset classes. Second, the market can evolve over time. The timeliness of reporting and confirmation will increase as market participants adjust to a new regime. Finally, regulatory transparency is also available with DTTC's Electronic Portal following ODRF guidelines. These capabilities can exist and provide regulators with valuable data now. Thank you for your time.

CHAIRMAN O'MALIA: Thank you very much. As I indicated earlier, we're going to open this up for any questions from the first panel or this panel, but I do have a question. Marisol, you mentioned on the swap dealer and MSP reporting versus the SEF and you said there is greater fidelity of data with the swap dealer. Can you explain what the shortcomings of SEF data may be?

MS. COLLAZO: There are certain data attributes within the SEF that the SEF may not hold itself, for example, trader I.D.'s or desk I.D.'s. It's certainly a question of is that something that the SEF builds or is it better to have the reporting party directly submit it because it has all that relevant if you will static data information that it can provide directly to the SDR. The other point that I was making there is that we also have foreign swap dealers or dealers that also are facing off to U.S. parties and in that instance the U.S. party would be responsible for reporting and where that U.S. party is an end user, that end user or rather that foreign dealer may want to be able to submit that record on behalf of the end user.

CHAIRMAN O'MALIA: Can you speak to the

universal identifiers and the challenges that it will take to integrate this and to have everybody here have an I.D., have a counterparty I.D., have a product I.D. report that and understand that? We've heard from staff level and other meetings that this is an extraordinarily big challenge for the industry to implement. Can you go over some of the challenges you see?

MS. COLLAZO: Certainly we think that standard identifiers is good. It is a challenge and it depends on which one we're talking about. One, as far as the unique swap identifiers are concerned, we already have a process within the warehouse where we identify unique I.D. so that we think that to the extent there can be a common language about how unique swap identifiers are provided that we can include that in the existing workflow. Certainly the choreography around that unique swap identifier and where it gets created, how the reporting party gets that identifier back into their system, how do they ensure that these trades continue as there is a lifecycle process to them, how do they ensure that they keep that identifier, there are certain challenges in what we call the many to one process where you have a trade that initially executed then subsequently compressed or fully allocated and how do you keep that unique identifier unique and following the record through compression.

CHAIRMAN O'MALIA: Can you talk to the timeframes that DTTC thinks that it might take to implement this universal I.D., and then maybe Larry or Supurna if you have some things about what you've seen in the market related to this issue or the challenges you may have in the case of Blackrock?

MS. COLLAZO: It's hard to talk to the timeframes particularly because essentially in looking at our model to build the SDR we're putting it in as a placeholder. We know that there needs to be industry discussion on this point to identify a common method in which to submit the USI. We're putting a placeholder for it and in a worst- case scenario we think that we have a way in which we can prefix those records so that we can use our existing identifier and provide a prefix for it and that's been our working assumption.

MS. VEDBRAT: When we look at this universal swap identifier I think one of the areas when a block trade is broken into the allocated components, in that area we would expect that unique identifier to be replicated so that the block identifier follows the different allocations. The challenge comes when we look at what do we do when we compress our portfolios. How do we deal with the identifier in that case because we have to come up with a mechanism where the compressed trade and that swap identifier of the old package trades somehow reaches the SDR and let's the SDR know that those trades have been replaced by the new compressed trades so that it is the second piece of it that is more challenging than the first.

MS. COLLAZO: That's a many-to-many problem. That's where you compress many trades.

You take 100 trades, you compress it to 10 trades, what identifier goes with what. The next day you compress those 10 trades into another eight trades so that it's a difficult audit trail problem as to how you follow that USI across compression.

MS. VEDBRAT: The compression is a very important piece of how we keep our books clean and how we manage risk.

MR. TABB: That's with the transaction I.D., but even in terms of the security I.D., we have a hard enough time getting globally unique identifiers for equities and then when you look for something that's even issued and you can be traded around the globe in different organizations and the industry coming with what is the swap and number it is a really challenging issue mostly because if we create our own unique I.D., then Germany decides they need to have their I.D. and they create another one that's different from ours, it will have a different numbers of places and fields and then you wind up with having to create a table to say, no, this I.D. is equal to that I.D. and it becomes a big pain in the butt. Excuse my language.

MS. COLLAZO: To answer, there is another identifier that's been quite challenging, the counterparty identifier, and here there were two things in the rules. One was about identifying the legal entity, the UCI, for the counterparty to the contract. There was also a reference regarding hierarchies and affiliate relationships. One of the things that the warehouse has been based on is identifying who that legal entity is to the contract. We think from that perspective of looking at a way in which to uniquely identify the UCI for the contract is the right process and it's part of what should be included in the submission to the SDR. A bigger challenge is we think when you start to look at the affiliations and the hierarchies and gathering that information because again we're looking at this from a global repository perspective as these markets are traded globally and how do you get that information, how do you validate that information? Is there self-certification along with independent validation? How do you ensure that the information is kept up to date? All of this is much more difficult to do when you look at it from an affiliation perspective. But we do think that from a legal entity of the contract itself that that's something that certainly should be part of what the SDR provides.

CHAIRMAN GENSLER: Before I ask a question I wanted to mention that as excellent as this meeting is and as many people in the public are tying in, these documents will be on our website. I don't know if they are yet, but they will be on our website all that you've done which is terrific. We ask for the public to comment on the advice of Dr. Gorham's subcommittee as we did also with the Joint Advisory Committee so that you're not alone that we've asked the public to comment on reports that are given to us. All of this is also in a public record. I can't think of how many proposed rules have been discussed here, but to make sure that we're complying with the

Administrative Procedure Act I'm going to ask that this entire transcript be put in the public comment record and be put in the right comment file. Certainly speaking only as only one Commissioner, I am considering those things you've said today in moving forward and it's very helpful to hear from the public so that I'm saying that for the record and I know my fellow Commissioners are listening closely.

I did have a question. The swap data reporting that we proposed in a rule said that if it was bilateral that it was reported by the dealers and I think that's consistent with what you're saying. But if it were on a swap execution facility or designated contract market and I know it's not just you too. It might be others. Tom, you might form a SEF. We proposed I think in some sense a thought that it would be less burdensome. It's interesting to me that you would be suggesting maybe -- I don't know how many dealers there would be, but there are probably more dealers than there are SEFs so that we did propose that it would be the DCMs or the SEFs that would report the traded, cleared swaps.

MS. COLLAZO: It's that SEFs really have all the information. I believe if the language were such that the SEFs would report and have the reporting obligation, to the extent there was any information that was missing, the reporting party would provide that subsequent information and I think that was in reference to the UCIs perhaps. There's concern that as the reporting they want to ensure that what's in the SDR is accurate so that there is a reconciliation question there as to, one, has the SEF reported everything and if there is a gap then how do I report that and it's looking at the existing process of where do I build that in and certainly the thinking is if the SEF is going to report then the SEF has some work to do if there is a gap in fields. Second, I am going to have to ensure reconciliation.

CHAIRMAN GENSLER: My other question is to the extent that there may be multiple data repositories that the law allows -- I know you're smiling because that means competition, the law allows that clearinghouses themselves could register as data repositories and certainly there are a number that have told us privately that they're considering it. We don't know what they'll do, but they're considering it. Have you had any dialogue or do you have any advice for this Commission that might have to aggregate data across multiple data repositories for our surveillance, compliance and other functions that we do?

MS. COLLAZO: That goes to the last point that standardization is good. The challenge that you have there is that in order to do that aggregation you need the granularity of the transactions. A specific example that I think is in our PowerPoint speaks to if you took the open positions, an aggregate number by a clearinghouse and you took the aggregate number of bilateral and you looked at what the net notional is for each and you summed that up, that's too high. I have to have the underlying detail in order to do appropriate aggregation. I think the biggest challenge for the Commission is in having multiple SDRs you then need to have that transaction-level detail in order to be able to perform that type of aggregation. Our history of having developed the warehouse has been that most of our spend on technology, about half of our technology over the evolution of where we started from confirmation services through posttrade lifecycle services has been on that posttrade up-to-date record and aggregation and that's been half of our technology budget.

CHAIRMAN GENSLER: Maybe I'll leave my question there on any thoughts you have because the statute does not provide for unique swap data repositories. It allows for what might end up being either multiple within an asset class or it might be geographically, there may be one in Europe and one here. Larry, if you could follow-up because it would be helpful in our consideration as to cost-benefit analyses and all that we do here before we go to final rules. This was enormously helpful. I don't have any specific questions, but if you have anything further regarding details on the cost. I was particularly intrigued when you said that these large dealers spend $20 to $25 billion in aggregate here in the U.S. or individually $4 to $5 billion, and then you said maybe they spend $10 to $12 worldwide. I think as we continue to move forward we do recognize there are costs in relation to the benefits. That's how we have to do our work. But you could help us identify cost in relation to their aggregate spending and so forth.

MR. TABB: We would love to help you, Commissioner.

COMMISSIONER DUNN: Let me thank all of the panelists. This was absolutely fantastic and I especially liked the diagram because it tells me what's going on there. It is extremely helpful for me.

My question is on the universal identifiers, is this something that if the Commission with the SEC tasks the industry to do that you can come to some agreement on this or are we going to have to dictate something?

MS. COLLAZO: I'll start. As I mentioned earlier, the industry is taking this very seriously and there have already been discussions about how to broach both the unique swap identifier and the unique counterparty I.D. Certainly from a DTTC perspective we are engaged with other providers to look at where we can provide such offering through our Avox subsidiary so that it something that we're looking at and the industry is looking at and they're mobilizing around it. I wouldn't anticipate that it would be something that the CFTC would have to prescribe but you have to let the process go through and see where they get to.

MR. TABB: This is typically a pretty difficult challenge but I think that because of Dodd-Frank and the OFR, I know Mike Atkins behind me has been working with the Treasury Department to try and tackle these issues so that I think if it's going to happen, it's going to happen now.

It's been very challenging to now to get the industry to come together on any type of universal identifier. Hopefully it will happen now, but historically the odds have not been great.

MS. VEDBRAT: I think that as far as what we plan to achieve by having the universal identifier, maybe some guidance on that would be helpful, but how it's defined and how it's implemented, the industry should be able to work that out among themselves.

COMMISSIONER DUNN: Larry, you had made the point earlier that this is not just the U.S. but it's worldwide. Is this something that we should look for the G-20 or the FSB to take the lead on, to push for so that we don't have something that is worldwide?

MR. TABB: I can't answer whether we should push at the G-20. I'm not familiar with how that process works, but it's certainly something that needs to be addressed globally and if there is a way of doing that through the G-

It might be worth bringing up. It is

definitely a global challenge because the products are global and the counterparties are global.

CHAIRMAN O'MALIA: Is this something that we can move forward with, reporting trades without having a universal I.D., or if we don't go down this path of having a universal I.D. first we'll screw everything up?

MR. TABB: I think if we wind up with multiple universal I.D.s what will wind up happening is that there will need to be a way of reconciling them so that it will either have to be done at the regulator level, certainly at the dealer or the bank level, and then God forbid there is some sort of fiasco where we're going to need to do it on a supernational level.

CHAIRMAN GENSLER: It strikes me that what Commissioner O'Malia question is is could we phase implementation? Could we in essence have requirements for swap data repositories, SEFs and clearinghouses and they might come into being in whatever period of time, I don't want to yet predict, where it's phased in and they are there and that that unique identifier may take another 6, 12 or 18 months or whatever? Particularly I say this because Congress didn't say in the statute that there must be unique identifiers but they did say that there has to be a swap data repository. What I'm asking is there a way possibly to phase it where we comply with Congress' mandate that there are swap data repositories, there is reporting and then if it takes the industry a while to do that which Commissioner Dunn was talking about that it's phased in?

MR. TABB: I think you would have to phase it in. I'm sure it's going to be hard to get a global agreement. But on the other hand, there are commercial benefits to owning the swap I.D. number. We've seen this with Red Coats and we've seen this with any type of CUSIP numbers or ISIN (?) numbers where there are benefits to owning the number so that if I own the number then somebody else is going to create another number because there are benefits to owning that number.

MS. COLLAZO: Also I think that that is true and there is also the sensitivity to the per-asset class, that it's an asset class question as well so that to the extent that in the warehouse we have for OTC credit derivatives a unique identifier that's not as fully prescribed as the USI, there are some challenges as we mentioned earlier with the audit trail and compression for example, but there are some existing processes that you can look to with an asset class perhaps as a phase in implementation as the identifiers start to form.

MS. VEDBRAT: I think in a phased approach one thing that we need to be careful of is that we don't end up with a situation where we need to do back entry of the identifier because that's going to be very, very hard and close to impossible.

CHAIRMAN O'MALIA: I'd be interested to get any impressions from end users or clearinghouses at the table here about some of these presentations about integrating all of this technology and what you're looking for, what you're thinking about and have you ever thought about some of these things that obviously the dealers and the exchanges and new SEFs we're going to have to move into. Before I do that I want to check and see if there's anybody on the phone. I understand there are more people than just Commissioner Chilton on the phone and see if they want to speak or have a question on any of this or Commissioner Chilton of course.

COMMISSIONER CHILTON: Commissioner O'Malia, I want to pick up on what Chairman Gensler was saying about phasing in. The law is pretty clear on certain things about when we are to implement things, but on a lot of it we also have some flexibility where it says not less than 60 days after we promulgate a final rule. I'm a little concerned about how we go about implementing some of these regs, in particular some of the stuff we're talking about now. I don't want it to be a competitiveness problem for the U.S. if the timing is too short. As the

Chairman said, we'll look for comments, and this is very helpful today, but we certainly need to be cautious as we go forward. I don't have a question, Commissioner O'Malia.

CHAIRMAN O'MALIA: Thank you. Is there anybody else on the phone? Are there any thoughts from end users or clearinghouses about integrating technology?

MS. BLOUTWOOD: For a generic company and I'll use an energy company unnamed as an example, we presented a case study and an earlier white paper where we discussed our internal project before Dodd-Frank came along trying to get to standard exchange product definitions excluding OTC transactions, but mapping our own internal systems to the different exchange product definitions because all of the exchanges have different product definitions as well. This was a fairly large team. It took us 9 months to map the first 60 percent of our transactions, a year and a half to get to the next 30 percent and 6 months additional to get to the last 10 percent and it only applied to standard cleared products so that this was into a 3-year project simply to map our own internal systems and we had multiple over the years to exchange product definitions. Then you have the issue that across exchanges you can have the same product but all the data field's name definitions are different so that you're spending a great deal of time for the same product ensuring that you have consistency across the different exchanges. We're now in the process of mapping OTC products but we're looking again at a multiyear project. I'd say here we've been talking about global issues and to bring it back home to one particular company, I don't think we can underestimate what it takes in terms of it's systems work but it's process and standardization of the definitions internal to a company.

CHAIRMAN O'MALIA: I think that's a great point. One of the reasons we had this discussion, some of the first slides we've seen in detail about how all of these boxes will be interconnected, and I think it's fascinating and I think I can speak for all of the Commissioners here that putting this all together I think the staff has been challenged to understand how all the parts will link together. I'm grateful for your presentations today that help us map that out. This is the first high-level we've had on this but I think to your point to take it to the next step and further on will be a great challenge and it would be informative to us to understand all of these pieces will come together and I think that's where the industry is trying to put all of our rulemakings together to figure out how all of these parts come together. I think this will not be the last discussion we have of this and I think it's a fascinating kind of look at where we have to go and the time that we have to get there.

CHAIRMAN GENSLER: I sense when we put this on the website and ask for comment we will be benefited and grateful for all the charts that are going to come in now that Blackrock, DTTC and Larry's group put together these charts. I think we'll benefit and we welcome the other public who put their various charts and comments in on the mosaic.

CHAIRMAN O'MALIA: I did want to go back at the risk of opening up a can of worms to the first discussion and the issue that we had at the May 6 event 2 weeks ago, the issue of order cancellation or excessive cancellation and some of this quote stuffing. It was equated to disruptive trade practices and there were several of the Joint Advisory Committee members who spoke to that end in saying that excessive quoting or excessive cancellation to disruptive trade practices. I thought it would be helpful if we had a better understanding of what's in place today to prevent that. I think Chuck you briefly spoke about it earlier and if you could make a brief comment and maybe Dean briefly talk about some of the controls that you have on order traffic and what standards you have to defeat that disruptive trade practice.

MR. VICE: We have message throttles which is a pretrade functionality we've talked about a lot today, but on the issue of excessive quoting, that's more of a compliance issue and there is a policy around that that is I think called volume-weighted ratio or something and it was a simpler policy that we've recently made a little more sophisticated because we wanted to do two things. One, we want to discourage excessive messaging, but we also wanted to encourage tighter bid offer spreads. An order is not an order is not an order. An order that comes in that is let's say -- a bid comes in at or better than the best bid and it gets a particular weighting. A bid that comes in that may be 5 ticks away from the best resting bid is going to get a much heavier weighting, a much heavier penalty than otherwise against that volume ratio and we have different thresholds for each market depending on the nature of the market and then there are penalties if you go over those thresholds. If you hit a certain threshold, it's $1,000 a day. You get 7 days in a month -- on the eighth day and after you would get hit with $1,000. If you exceed an even more egregious threshold, it's

$2,000 a day with no waiver of any days. We find the HFT traders not only want to avoid paying the penalties but also being perceived as violating exchange thresholds and we find it be an effective policy. I think as I said earlier, we in the last year have been evolving that policy from one that was focused on our own system capacities to a more holistic view of even though there may be an amount of messaging that we can handle, is some of it going to be deemed excessive in terms of ratio of fills to orders with this weighting in mind and therefore we may want to set thresholds so that some of that gets dialed back which is what we've been doing.

CHAIRMAN O'MALIA: Dean, do you have any thoughts?

MR. PAYTON: At CME Group we follow similar types of procedures, but I think one of the things to keep in mind is one of the things that we've talked about in the context of May 6 was people's concerns about there not being liquidity and as that market was moving very rapidly that deeper in the book we didn't have liquidity so that you want to be real careful about now discouraging messaging that's coming in to the marketplace even though it may be later cancelled. We do two things. We have message throttles that test for message per second and if we exceed some threshold we don't accept additional orders from that connection into Globex, and then we have a messaging policy that is the messages versus volume so that it's really about the quality of the messaging and similar to how ICE works. We work with our market participants. If they don't correct their messaging behavior within the benchmarks that we set on a per-product basis, then we issue surcharges to those firms.

CHAIRMAN O'MALIA: Are there any other thoughts or questions? I greatly everybody's attendance today and I greatly appreciate the work of the subcommittee to respond in very short order to survey the market and prepare a report for us to consider here today. You're not relieved of your duties. The subcommittee is not going away because I think it's going to have an important role in our rulemaking process in identifying the best practices which I would note came from the industry in the first place and it was the industry standards that we worked off of. We're obviously interested to see all other standards and we want comment on this report and input from the public and some additional thoughts to see what other standards we might follow-up with. I do have some further questions about integrating all of the FIA proposals and what result from this study so I'll follow-up with that myself. But I greatly appreciate that and will follow-up with you going forward and I'm sure staff and our rulemaking teams will have some questions for you as well so I greatly appreciate your help. Let me open it up to the other Commissioners here to make any final comments, but let me thank everyone again for their outstanding presentations and participation here today. Thank you.

CHAIRMAN GENSLER: Let me start by

thanking Commissioner O'Malia for having put this all together and Chris, Laura and Adrian who probably don't get a lot of attention. I do not know who has undertaken all of the efforts.

CHAIRMAN O'MALIA: And Shanise upstairs for organizing all of this.

CHAIRMAN GENSLER: Shanise upstairs, yes, with three able counsel, all of you. The pretrade risk functionality I think will be very helpful for us. I know that I'm going to direct that it go into the various comment files on designated contract markets and swap execution facilities because we have asked questions about pretrade risk safeguards and your thoughts have been very helpful and the other three reports have been enormously helpful. They'll probably go into a lot of comment files, but even beyond that in terms of implementation phasing and the overall mosaic of our rule writing and the mosaic related to cost are enormously helpful and to the extent the public wishes to comment on your comments, we look forward to that as well. Thank you all and thank you, Commissioner O'Malia, again.

CHAIRMAN O'MALIA: Commissioner Dunn?

COMMISSIONER DUNN: Let me echo the Chairman's remarks. I want to thank you Scott and your staff for putting this together, but for the subcommittee and the committee as a whole, this has been very, very valuable for me and I would ask the public to comment on the report that was given but also on this meeting in general because here again this is influencing us as we go through our decision-making process, I was most taken, Larry, with the $1.8 billion amount that is going to be spent on the technology and the Chairman's $31 million that we have on technology. This is something that this committee and the public has got to help this Commission on how do we make sure that that $31 million's tail isn't wagging the $1.8 billion dog.

CHAIRMAN GENSLER: It's actually greater because the U.S. industry spends $20 to $25 billion per year according to Larry, not that we need to do that. This year unfortunately we're down to less than one-tenth of 1 percent of that because we've had to cut back on the $31 million.

CHAIRMAN O'MALIA: It's even greater than that because a lot of this is for telephones, tax machines and toner cartridges.

CHAIRMAN GENSLER: That is true as for our number, but I didn't know what their number was. You are absolutely right, Commissioner O'Malia, that we spend all too little to fulfill our mission where in the futures industry there are about 11 or 12 million contracts a day, the swaps market that we're about to take on doesn't have that many transactions a day, but obviously it's volume in terms of risk and complexity is greater.

COMMISSIONER DUNN: I didn't mean to start a debate.

CHAIRMAN O'MALIA: I thought we were agreeing. Commissioner Sommers?

COMMISSIONER SOMMERS: I want to echo my colleagues in thanking all of you and want to say that as we continue following these very important issues on direct market access and pretrade risk functionality that I find it is really impressive how the industry has within itself kept raising the bar on complying with best practices and where we are compared to where we were 3 or 4 years ago with these issues I think is very impressive. Thank you all for being here.

CHAIRMAN O'MALIA: Commissioner Chilton?

COMMISSIONER CHILTON: Real quick and I don't want to open anything back up, but my takeaway and perhaps Dean and Chuck will want to email me a nastygram on this, but it seems to me more is needed. If we have all this messaging going out and if you all are already penalizing folks, it seems to me that maybe the fines aren't working or need to be greater. I do want to commend to everybody, I don't get a chance to talk about it too much, about this study from November that I highlighted in my opening remarks. It's entitled "Where is the Value in HFTs" and it's by a couple of fellows in Spain, Cartilla and Penalva. I'd recommend it to people. It's interesting reading and I'm hopeful we can look into this a little bit more in the future, Commissioner O'Malia. I do notice that as that we were in our meeting now that Congress looks like they're going to pass their CR and we'll have funding for another couple of weeks, but I echo what all of my colleagues have said earlier about we can't regulate the swaps market and the OTC market without an increase and if we end up being cut, we can't regulate the markets that we have jurisdiction over now. Thank you very much for all of you being here and thank you again, Commissioner O'Malia and your staff, for your excellent work on this. Thank you.

CHAIRMAN O'MALIA: Commissioner, if you would send us an email of that report we'll put it on the Technology Advisory Committee's webpage.

COMMISSIONER CHILTON: Will do. Thank you.

CHAIRMAN O'MALIA: Thank you very much for everybody's participation here today.

(Whereupon, at 4:50 p.m. the

PROCEEDINGS were adjourned.)

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CERTIFICATE OF NOTARY PUBLIC

DISTRICT OF COLUMBIA

I, Stephen K. Garland, notary public in and for the District of Columbia, do hereby certify that the forgoing PROCEEDING was duly recorded and thereafter reduced to print under my direction; that the witnesses were sworn to tell the truth under penalty of perjury; that said transcript is a true record of the testimony given by witnesses; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this proceeding was called; and, furthermore, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Notary Public, in and for the District of Columbia

My Commission Expires: May 31, 2014