COMMODITY FUTURES TRADING COMMISSION

SECURITIES AND EXCHANGE COMMISSION

JOINT ADVISORY COMMITTEE MEETING

ON EMERGING REGULATORY ISSUES

Washington, D.C.

Friday, November 5, 2010

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Other Participants:
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SCOTT O'MALIA
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P R O C E E D I N G S

(9:05 a.m.)

CHAIRMAN GENSLER: I want to welcome everybody. Good morning. And call this, the 4th Meeting of the Joint Advisory Committee on Emerging Regulatory Issues, to order. The date is November 5, 2010. This meeting is held in accordance with the Government in Sunshine Act. We're joined by the distinguished members of the Advisory Committee. I think here with us today, Susan Phillips, David Ruder, Maureen O'Hara, Jack Brennan, Brooksley Born, and Rich Ketchum. What I don't know is, do we have some committee members on the phone?

MR. STIGLITZ: Yes, this is Joe Stiglitz.

COMMISSIONER CHILTON: Mr. Chairman, Bart Chilton, too.

CHAIRMAN GENSLER: All right, I know that we have some commissioners on the phone as well, Bart Chilton, but do we have any committee members on the phone? Robert Engel was maybe going to be joining us as well.

MR. STIGLITZ: Joe Stiglitz.

CHAIRMAN GENSLER: Oh, Joe Stiglitz is on the phone. Thank you. Good to hear you, Joe. And -- oh, I see, actually Rob Engel is out of the country and unfortunately unable to join us. And as we've done at our prior meetings of this committee, my co-chair, Chairman Shapiro, and I will share the presiding officer duties today.

First I'd like to offer Chairman Shapiro the opportunity to make some opening remarks. Chairman Shapiro.

CHAIRMAN SHAPIRO: Thanks, Gary. Let me offer my thanks to all the committee members as well for being with us today and express our really tremendous appreciation for all you're doing to help us on these issues.

When we last met, the staffs provided you with a briefing and an update on their investigation into the events of May 6th, and then last month, as you all well know, the staff completed their final report and presented it to the two subcommittees for which it was prepared. As you know, the report was not intended to provide policy recommendations. Rather we asked that the staffs provide a detailed account of the events of May 6th, both to identify what happened that day and to really inform ongoing policy discussions. That report has been widely recognized as providing the authoritative analysis, and as I hope the committee will discuss today, a lot of additional food for thought as we move forward.

Now that you all have had time to review the staff findings, I very much look forward to hearing your views and what areas of focus you think deserve the most attention from all of us.

I want to be sure that we're doing everything we can to reduce the likelihood of another May 6th. Already this past summer the SEC approved a pilot program by the National Exchanges and FINRA to pause trading in a security when its price moves more than 10 percent in 5 minutes. Initially limited to stocks in the S&P 500, these circuit breakers were expanded to include Russell 1000 stocks and several hundred exchange traded funds in September.

The SEC also approved market making rules providing clarity when erroneous -- clearly erroneous trades will be broken, and the staff will be shortly approving rules regarding the use of stub quotes as well as considering revising the parameters for market wide circuit breakers. And the staff continues active discussion with the exchanges about modifying the single stock circuit breakers to incorporate a limit up/limit down banding mechanism.

All of these rules are interconnected, both within the equities markets and across equities and futures markets. This interconnectedness lies at the foundation of many of our other market structure initiatives at the SEC as well and so I'm particularly interested in your thoughts on these important topics.

Thank you, and I'll turn it back to Chairman Gensler.

CHAIRMAN GENSLER: Thank you, Chairman Shapiro for those remarks. I'll make a few remarks myself and then turn it over to the presenters and the committee.

I'm pleased to join Chairman Shapiro in welcoming the members of the Joint Committee. I would also like to thank Chairman Shapiro and her fellow commissioners and all of the staff of the SEC on their ongoing work with regard to May 6th, but not only that, but also on the strong collaboration that we have with regard to Dodd-Frank and all that our two sets of commissioners and staffs are doing together.

I'd also like to thank the staff at the CFTC for all their hard work and planning this meeting and furthermore I'd like to thank and introduce -- I know that Commissioner O'Malia is here. I think either Commissioner Summers and Commissioner Dunn will be joining us and I know that Commissioner Chilton is on the phone because we heard that earlier. Is that right still?

COMMISSIONER CHILTON: Yeah, I'm here,

Mr. Chairman.

CHAIRMAN GENSLER: Terrific. And I know this is a busy week for all of us, so it's possible that Jill and Mike are unable to join us just given all our rule writing and the FIA expo still going on in Chicago.

Since the Joint Advisory Committee last met, the CFTC and SEC staff did release this supplementary report, I think it was October 1st, and as outlined in the joint report there were at least three chapters to the event, first, the very fragile market environment that came into that day, mostly out of Europe and the news events. Secondly, the liquidity crisis in the E-Mini futures contract and related index securities. And then thirdly, the liquidity crisis in the individual securities, sort of the breakage after that.

Today's meeting is primarily for the committee to hear of the work of its two subcommittees and have an opportunity, as a full group, to have an open discussion about May 6th and their thoughts on what changes should be made to ensure the markets work best for the investing and hedging public.

Before we hear from the subcommittees we will receive a brief update from the staff, not only on the supplementary report, but also on some of the recent rule proposals of each of our commissions.

Some of the ideas that I look forward to hearing from this expert panel is, foremost, I'm interested in what the committee's views are on how we protect the market integrity, both in light of May 6th, but also in light of the changing technology of the marketplace.

Secondly, and maybe more specifically, what, if any, additional risk protection should we consider with regard to the use of algorithmic and high-frequency trading. And I do say, what, if any, but I would like to have your thoughts.

Third, should we require exchanges in executing brokers to update risk mechanisms? They have many risk mechanisms in place now, but should we ask them to update them and rules particularly for market pauses? We have market pauses, of course, in the futures marketplace, but should they be updated in any way in the pilot program that the SEC has?

And then lastly, what are the committee's views on just the variety of actions that we've taken recently whether it's the Advanced Notice of Proposed Rulemaking that we've put out on disruptive trading practices, or of course your views on the pilot program, or any of the actions that we've taken recently.

Today's discussion will be open and candid. I know the committee has not formed its final recommendations. This is part of a deliberation process but I would hope that your deliberations continue abreast and promptly and we could get your thoughts soon.

So, with that, again, I want to thank Chairman Shapiro and the SEC, my fellow CFTC commissioners and staff, and so forth. I think I turn it back?

CHAIRMAN SHAPIRO: Yes, thank you. Thanks, Gary. Today we are pleased also to be joined by SEC Commissioner Elise Walter, who I will add is a former general counsel of the CFTC and so back on familiar territory, and of course by the staff of the CFTC and the SEC who worked tirelessly on the report issued back in May, but also the one issued most recently on October 1st, and did, I think, a really outstanding job, and you have all of our tremendous appreciation for that effort.

In addition to a brief discussion of the response to the report, they're going to provide us with information concerning the most recent actions by the two agencies regarding the matters raised in the report, and then in addition, we'll also hear reports from both the subcommittees, as Gary said, on cross-market linkages and on pre-trade risk management and then the full committee will have the opportunity to discuss potential recommendations and how we might move forward.

So, with that, let me introduce Gregg Berman of SEC and Andre Kirilenko of the SFTC to walk us through current initiatives.

MR. KIRILENKO: Thank you, Chairman Shapiro, Chairman Gensler, members of the Joint Advisory Committee, and commissioners of the CFTC and the SEC. Thank you very much for the opportunity to be here.

The purpose of my presentation today is not to describe for the public -- already had a good chance to absorb about the report, but to touch on some of the broad themes and clarify some of the issues that might be useful for the subsequent discussions of the Joint Advisory Committee.

As Chairman Gensler said, and as the report has laid out, the events of May 6th can be grouped into three broad themes, one is the overall market uncertainty, the second is a large cell program event in E-Mini, and the third is the propagation of volatility to other markets and securities.

I will specifically focus on the liquidity event in the E-Mini. As a reminder, the joint staff report stated that a large fundamental trader chose to execute a cell program of 75,000 E-Mini contracts via an automated execution algorithm, that was programmed to feed orders into the E-Mini market to target an execution rate of 9 percent of the trading volume calculated over a period of time but without regard to price for a time.

This statement is based both on the analysis of audit trail data and on several detailed conversations with the executor and broker of the large-scale program. As background I'd like to remind you that the extraordinary detailed information that -- about business transactions and positions of market participants that was included in the report, was included to the request of Congress. Congress explicitly requested the staffs of the two agencies to include in their report sufficient information and detail to the extent and only to the extent that such information is necessary to provide an accurate and complete description of the May 6th events and their causes.

For clarification purposes, however, it might be appropriate to say that the statement without regard to price or time should not be interpreted as a (inaudible) to saying that the automated execution algorithm did not use information about transaction prices or times when it submitted or modified sequences of orders. The automated execution algorithm is designed to feed limit orders, a limit order must specify price. The algorithm is also designed to calculate and recalculate limit order prices and quantities over specified periods of time. With the statement "without regard to price or time" means is that the trader did not use an effective overall price or time limit for the execution of the sell program.

While automated execution algorithms may permit traders to use such features, this trader elected not to use a price limit and also did not establish a minimum time period for the execution of the order.

This automated execution algorithm executed orders against other market participants. The staffs have collected significant quantitative and qualitative information about the activity of market participants who were active on May 6th, including high-frequency traders, market makers, fundamental traders, and cross-market arbitrages. The staffs participated in a number of conversations with high-frequency traders and other market participants and has the data and analytics to exactly describe who and how provided and took liquidity in the E-Mini market.

The larger trader and other market participants traded on the CME's Globex, an electronic limit order market. The staffs had a number of conversations with the CME and other exchanges regarding the details of the risk management functionality designed to deal with extreme price movements. Examples of such functionality include trading pauses and price quantity bans on the orders that are allowed to be submitted.

As a result, the staffs have a very good understanding how the price impact of a large sell of them cascaded to other markets and individual securities and the large role liquidity providers and liquidity takers played in that process.

I will now turn the floor to my colleague, Gregg Berman, from the SEC.

COMMISSIONER BERMAN: Thank you, Andre. For the equity side of the markets I'd like to spend a few minutes highlighting some of the larger themes that came out of our report and relating those themes to some of the actions, either recently taken by the SEC or that are currently underway.

The first big theme comes of course from the linkages between the futures and the equity markets. As we know both from data and from interviews, as the E-Mini declined on May 6th -- on the afternoon of May 6th, market participants were buying E-Mini and selling equivalent exposure, either through ETFs or through individual baskets, of stocks.

Those linkages kept the two markets in sync and as one declined, so did the other. Market pauses or market wide circuit breakers were not triggered on that day and one would imagine that under times of severe stress that's exactly when we would need such triggers. So, one of the first actions that we've been taking is working both with market participants throughout the staff of the SEC and the staff of the CFTC on revisiting market wide circuit breakers.

Some of the ideas that we are considering include changing the levels at which the circuit breakers are triggered, changing the time parameters that caused the circuit breakers to trigger, and even considering possible changes to the index that triggered the circuit breaker themselves. I know that the Joint Advisory Committee has also spent a lot of time thinking about this and we very much look forward to their thoughts on this matter.

The second big theme that came out of the report was that liquidity providers and market makers, internalizers in the equity markets, all pulled back. Some of the reasons that were given for their pull back were quite varied, included the fact that there were rapid price moves that caused automated stops in systems. The ability to trade securities under very volatile circumstances was a concern, so market makers pulled back because of that. The ability to trade ETFs and tie the price of an ETF to the price of the underlying stocks was also a concern during times of volatile movements. Becoming too long as market prices fell and in certain securities as market prices rose, becoming too short, was also a concern. We use the phrase catching the proverbial knife or standing in front of a moving train caused market makers to pull back. Rapidly changing PNLs, intra-day PNLs caused them to pause. Concerns about broken trades caused them to pause, and a number of market participants said that they had feared some unknown cataclysm that was causing prices to move so fast and just chose to basically sit out the rest of the afternoon.

All of those different themes might lead to different policy in order to address those, but the one thing that we do know is that when trading occurs under circumstances where the market makers pull back, you get very disorderly prices. So one of the first things that we've done at the SEC is put in individual market circuit breakers, individual stock circuit breakers. As the chairman has mentioned, those circuit breakers have been rolled out to not just the S&P 500 stocks, but to the stocks in the Russell 1000 as well as to a bunch of underlying ETFs.

Clearly erroneous trades were also a factor on that day, both the trades that were broken and the concerns about market participants that trades would be broken, and uncertainty in what those levels would be, would the trades be broken, would the trades not be broken. Market participants do not like to trade if there is a potential that the trade itself will be broken because they're trading both sides of the market at the same time.

So, from those themes come both the rules on clearly erroneous trades and rules on circuit breakers.

The third theme that came out was that trades were certainly executed -- some trades, at least -- at very absurd prices of a penny or a tenth of a penny or even one- one hundredth of a penny. The big issue there is the use of stub quotes which are automated quotes that are provided by either the exchanges or the market makers when they pull back.

We have forthcoming rules from the exchanges and FINRA to address just this -- just this case of stub quotes. The rules basically describe parameters by which stub quotes, or which quoting bans can be used in order to prevent prices from falling as rapidly as they did, and those rules, I think, we will see in the upcoming weeks.

The fourth large theme has to do with

high- frequency traders. The report that we provided was not a discourse on high-frequency trading or on mechanisms of market structure, but we did highlight, at least on May 6th, some of the behavior of high-frequency traders. High frequency trading has been a highlight, certainly, in the press and in fact there was a piece on high-frequency trading on 60 Minutes a few weeks ago.

There are lots of different views about high- frequency trading in the market but what we have found, at least on May 6th, is that the situation is perhaps a little more complex and nuanced than we might have thought. During the afternoon of May 6th, high-frequency traders were both providing significant amounts of liquidity, but also taking significant amounts of liquidity and on a volume basis, approximately half of their orders take liquidity and half of their orders provide liquidity.

We do not have evidence that suggests that they had triggered or they had caused or created a wave of selling, but we also do not have evidence that they have prevented the wave of selling from continuing or stabilized prices. They basically traded. They traded on the way down, they traded on the way up, and they traded along with the rest of the market. They traded with a high frequency, hence the term high-frequency traders.

After the market declined and on the way back up, some of the high-frequency traders sat the rest of the afternoon out or withdrew some of their liquidity, others actually increased the amount of trading that they did. So, again, it's a very nuanced circumstance and I don't think we can classify all HFTs as either being in one bucket or a second bucket.

We spent a lot of time rebuilding the order books. It took many months to rebuild the order books in the equities markets. That meant going through each exchange as well as the fees from FINRA looking at all the buy orders, the sell orders, and putting together a comprehensive view of what the market looked like. Overall we did not see a liquidity crisis in the stock market that somehow proceeded or started that morning. It was really -- the liquidity crisis was a result of market participants who were pulling back that afternoon.

The most important thing, I think, that we actually learned from rebuilding the order books was just how hard it is to rebuild order books in the equity markets and why it actually took so long in order to do that. To try to address some of those issues in the future and to allow us to have a much quicker response and a better handle, perhaps even in real time, there are a number of forthcoming rules, such as the consolidated order trail and large trader reporting that will allow the SEC to gather information in or at near real time in order to make these types of tasks a lot easier.

In addition, we have recently gone to the market with an RFI or request for information, for venders who provide tools that allow the aggregation of order books, in real time, to come into the SEC, make some presentations so that we can get a sense of what tools are available with the possibility of procuring such tools in the future.

We also spent a significant amount of time in the report -- both in the preliminary report and the final report -- on some of the disparate nature of trading at different venues. In particular we spent time on understanding exactly how the New York Stock Exchange use of liquidity replenishment points work, so-called LRPs. LRPs are bans that are designed to pause trading in individual stocks if the price moves beyond certain pre- specified limits.

In general, I think we had mixed reactions from different participants. Most of the participants that we spoke to said they had no problems with routing around New York Stock Exchange as the stocks themselves and the quotes went slow. However, the fact that there were so many LRPs triggering that afternoon certainly contributed to the fact that people really got a sense of -- the market participants got a sense of just how volatile their circumstances were.

For the majority of stocks that have broken trades, LRPs were not an issue because those are not traded on the New York Stock Exchange, not listed on the New York Stock Exchange. But for those trades -- for those securities that had broken trades, we had found that most of the securities did not have sufficient liquidity on the New York Stock Exchange to have absorbed the trading that ultimately lead to stub quotes. But some did, so it's not 100 percent that there was no effect. There was most likely a small effect for at least some of the stocks.

Perhaps more importantly in thinking about LRPs was not what happened on May 6th, but how do we generalize LRPs, perhaps to things that we might do in the future? Specifically, we have learned a lot about how circuit breakers work and operate during the pilot program that we've had over the summer by carefully examining every one of the circuit breakers, the circumstances that lead up to any of the circuit breakers that have triggered. I believe about a dozen circuit breakers have been triggered since the pilot program went into effect.

If we couple the information that we learned from that with what we learned about different trading practices at markets about banding and about LRPs leads us to formulate some next generation circuit breakers that are focused more on limit up/limit down, how do we prevent a stock from going into a circuit breaker mode before the price moves instead of after the price moves. So, limit up and limit down is something that we've been considering both at the SEC as well as with a number of industry participants and as a bonus, limit up/limit down also should directly address things like stub quotes and clearly erroneous trades.

The last large theme, I think, that comes out of the report is the use and the high bars that people have around data. What we have -- what we did observe was that there were delays on the public feeds, the consolidate quotes and the consolidated tape feeds, on May 6th and while that may have affected users directly of those feeds, we also found that many of the market participants who are providing liquidity choose to use the direct feeds from the exchanges themselves, the so-called proprietary feeds. Nevertheless, folks who use, and market participants who use the CQS and CTS have to know that those feeds themselves are extremely reliable and that there are no delays.

We worked very carefully with the exchanges on trying to understand the source of the delays that occurred on that day and we do not have any data or evidence at this point to suggest that one or more parties purposely flooded the market with quotes for the express purpose of trying to delay. We believe that the delays were caused by servers that were not yet upgraded and general very high volumes of traffic as people were trying to trade during very, very disruptive market conditions.

Nevertheless, over the summer and continuing, we have worked with the exchanges in trying to not only revisit May 6th, but also look at other days of very high quote traffic to try to ensure that the exchanges and the SROs have the capacity, to make sure that they can handle any of the quote traffic that comes out there, as well as looking at any potential quoting practices that might be manipulative.

In order to address some of those issues, we have thought about not only the RFI that we have so that we can see the data in real time in things like consolidated audit trail and large trade reporting that will help us examine what parties are doing what, but as recent as yesterday, I think, or two days ago, the SEC passed rules regarding sponsor access by which algorithmic trading can occur through a broker in a form that is no longer completely naked, where the trades go in directly but that the broker would actually have some responsibilities and oversight about ensuring certain risk management and other procedures to have some oversight about those algorithms themselves.

Thank you.

CHAIRMAN GENSLER: Steve?

MR. SHERROD: Thanks, Greg. I'm going to briefly summarize two actions taken by the CFTC last week. In the first action the CFTC approved a proposed rule that would expand the prohibition of market manipulation of swaps. Generally the proposed rule makes it unlawful for any person to defraud another in connection with any swap. Further, the proposed rule makes it unlawful for any person to manipulate or attempt to manipulate the price of any swap.

In the second action, the CFTC approved an advanced notice of proposed rulemaking on disruptive trading practices. Congress amended the Commodity Exchange Act to expressly prohibit certain trading practices that Congress determined were disruptive of fair and equitable trading.

The amendments make it unlawful for any person to engage in any trading practice or conduct on or subject to the rules of a registered entity that, one, violates bids or offers; two, demonstrates intentional or reckless disregard for the orderly execution of transactions during the closing period; or three, is of the character of, or is commonly known in the trade as spoofing, that is, bidding or offering with the intent to cancel the bid or offer before execution.

Congress also granted the Commission authority to promulgate such rules and regulations as, in the judgment of the Commission, are reasonably necessary to prohibit any other trading practice that is disruptive of fair and equitable trading. The notice encourages the commoners to address a number of specific questions, I'll provide you two: Should the Commission specify an additional disruptive trading practice concerning the disorderly execution of particularly large orders during periods other than the closing period? And second, should the Commission promulgate additional rules specifically applicable to the use of algorithmic trading methodologies and programs that are reasonably necessary to prevent the algorithmic trading systems from disrupting fair and equitable trading?

That concludes my summary.

CHAIRMAN GENSLER: And I think that concludes the panel. And so I want to thank Gregg and Andre and Steve and it was really -- as an opportunity, I just wanted to give our committee members an opportunity to ask questions and have a discussion with our staff and then after that we'll go to the subcommittees.

Susan?

MS. PHILLIPS: I didn't quite follow the point you were making about the fees. What was it you were -- the point you were trying to make with the fees?

COMMISSIONER BERMAN: Sure, so this refers to the pricing feeds for trades and for quotes that are accessible by the public directly, the so-called consolidated tape. The consolidated tape, trades on that tape were delayed for certain symbols on the New York Stock Exchange on May 6th.

CHAIRMAN SHAPIRO: Gregg, I think -- Susan, I think Greg said feeds, F-E-E-D-S, not fees.

COMMISSIONER BERMAN: Oh, I'm sorry. Oh, feeds as opposed to fees.

CHAIRMAN SHAPIRO: I think that's the source of the confusion.

MS. PHILLIPS: I could not get the connection.

CHAIRMAN SHAPIRO: I can see why.

CHAIRMAN GENSLER: Maureen?

MS. O'HARA: Andre, I just wanted to follow up on the role that the large trade played in precipitating the crash. As I read your report, it seemed as if the report was saying that perhaps this is the straw that broke the camel's back, that there were already liquidity issues in the markets that day and this large trade came along and obviously we can't replay history and said, if that trade never happened, we would -- may have not had a crash, but is it the case that that interpretation is correct or is it the case that your view is that that trade is in fact the cause of the crash or just more correlating with the beginning of the crash?

MR. KIRILENKO: Thank you, Maureen. There were 15,000 trading accounts trading on that day in the E-Mini. One trading account, as we say in the report, conducted the largest change in that position of the year up to that point in a matter of 20 minutes, which happened to coincide with the onset of the extreme move in volatility. We did examine the execution profiles of pretty much all trading accounts -- all of them -- all thousands of them -- and we grouped them into categories, because some of them behaved very similarly and, therefore, it was justified to put them into categories, and then we looked at how they interacted.

The way that, as you know, these markets work, and the way that this particular trade was done, as the report states, was done through an automated execution program. An automated execution program is designed, they're generally designed not to be disruptive. However, under some circumstances -- or generally this automated execution programs are also designed to take the market as given so they assume that the market is moving where it's moving and by doing what they're doing, they're going to have an impact, but not necessarily move the market.

However, in some cases it might be that what the -- an automated execution program is doing is actually causing the movement in the market to which it then starts to react. And this is what we were trying to uncover and we found some evidence that this is what might have happened.

CHAIRMAN GENSLER: But can I just ask, Andre, to stretch the analogy a little bit, but this camel, was it thirsty and parched before the weight of one trade was put on it? I think that's Maureen's question because the report does say that the order book and the E-Mini was about -- I can't recall the exact numbers -- about half or so was already dissipated. The volatility index is measured either in the VIX index or elsewhere. It was quite high. You had currency movements and other movements in other markets that were pretty significant before 2:30. So, how parched was the camel before the extra weight was put on the back?

MS. O'HARA: I like that.

MR. KIRILENKO: The camel was pretty parched. The camel was -- the camel may not have been necessarily dying of thirst, but it was pretty thirsty.

MS. O'HARA: It's a came problem, clearly.

MR. KETCHUM: Gregg and Robert, perhaps a follow up question. Starting with the compliments with respect to both staffs and both commissions because I think each of the actions, as you'll see from the various buckets we see of issues, I think, go directly to a variety of the realities and frailties of our existing electronic market and I think both commissions have raised and gone to precisely the right type of issues, but you mentioned briefly your view that it may well be appropriate to go beyond the initial triage of market pauses with the clear benefits they provide but some of the limitations from the standpoint of slowing trading in times when it turns out there really isn't serious imbalances and also not controlling an error trade occurring substantially away from the market. Since the error trade only triggers the pause, it is not stopped in itself, and you talked about variety of modernized limit approaches that, if I understood, would be in some way or another time-based and time-based, volatility-based in a short timeframe.

I think the Commission has been right to focus on pauses first, which is both technologically easier to put in place, and from a term-wise, far easier to both understand from a market standpoint and to implement. Some of the challenges -- I also agree that the Commission is right to be pushing towards a more flexible and more complete approach for the reasons I mentioned, but the challenges of limits are both being able to properly identify reference prices, identifying how the market restarts in situations where there are serious imbalances as opposed to where it balances, and how to avoid simply a cascading of limit on limit on limit and creating in a slightly longer, but still very short time, the similar volatility that we experienced on May 6th.

I can't pretend not to know -- I know you've had conversations with the exchanges and FINRA about some of those issues. Are you in a position to elaborate anymore of your thoughts about how those type of issues can be addressed with respect to limits? Or is that still a matter of, sort of, consideration and you're not to the point of being able to discuss it?

MR. COOK: Well, Rick, I think you've teed up a lot of the issues that we're working through in connection with this discussion. There are a number of complicating factors that you just identified -- how do you measure the reference price, when do you decide to trigger the limit, and when do you decide that it's actually -- the limit is no longer really the right way to go, you have to pause the market to reopen because the trading interest has moved so far outside whatever band you set for the limit, that there really needs to be a reopening procedure. And, importantly, how do you do this in a way that is going to work as a practical matter and that people will understand? Because you can get very complicated here very quickly and we have a market with all different types of participants, and we'd like to have something that people will understand how it works, can plan for how it will work.

But to go to your specific question, I think it's a little premature now to try to frame out some of the possible approaches here that we're considering. We're in active dialogue, though, and I think -- you know, I think one thing that would be good to emphasize is that there's strong support and consensus, I think, among all the exchanges and all the relevant market participants we've been talking to to do this, so we're very optimistic that we'll find the right approach. What we need to do and what we're spending the time doing is to make sure that whatever specific parameters we choose are the right ones and can be implemented without too much disruption. So, we're hoping to be bringing something forward with the participation of the exchanges in the relatively near future for people to react to.

MR. KETCHUM: Thank you.

CHAIRMAN GENSLER: David?

MR. RUDER: Gregg, you talked about market data and the proprietary feeds as opposed to CQS. I heard from your discussion somehow or other that you thought that there was some way to bring these two feeds together, that there was some way that CQS could catch up with the proprietary feeds so that all the information came to the market in the same place?

It's my understanding that that -- that

given collocation proprietary feeds, that's not a very likely result. Could you comment on that?

CHAIRMAN GENSLER: And Gregg, and just as you -- could you explain what CQS, for the public -- listening public, just if you could give a -- thank you to former Chairman Ruder, but the public might not know.

COMMISSIONER BERMAN: Sure. So, the exchanges have systems that are producing quotes and trades and those are internal, they come out of their matching engine when quotes are compared and trades are produced. In addition to the internal systems, the exchanges have feeds. Some of those feeds only have exchange information. So, on the New York Stock Exchange, on NASDAQ, they have the quotes and the trades that are only on that exchange. Those are what we would call the proprietary feeds.

In addition, every exchange in the SROs are required to send trades that are occurring on their exchange as well as quotes, but not all the quotes, just the best quote, the best bid, and the best offer, to a central system that aggregates the quotes and the trades from all of the exchanges and FINRA at the same time. Those two feeds are called the CQS and the CTS, for consolidated quote system and consolidated trade system, actually two separate feeds that are going out to the market.

As a market participant, you can subscribe to the proprietary feeds from every one of the exchanges and you can see the depth of books, you can see all the quotes, or you can gain access to the CQS and the CTS, which contains the same data except across all markets at the same time, but in limited scope, you don't see the depth of the market itself.

Regulation NMS basically provides requirements that says every exchange, every SRO, must make available data to the SIP, the plans that support the CQS and CTS feeds at the same time that they make data available to other market participants.

So, there should be no delay between the information that goes out from an exchange on the proprietary feeds and those that that can be obtained from the CQS and CTS.

Now, there are some technology delays that are on the order of milliseconds, but what we saw on May 6th was that the delays were on the order of seconds and sometimes many seconds, and that -- those are technology issues that can be resolved.

MR. RUDER: That's not quite my question. As I understand it the CQS has to bring together all of the proprietary feeds in order to get a common quote that -- NBBO quote that it could put out to the market and that takes sometimes up to two seconds, as I understand it, whereas the proprietary feeds can take place in milliseconds, and what I'm asking is whether you're suggesting that there was some way to bridge that gap, technologically or in other ways. It seems to me that as I look at it, that that's probably a fact of life that has to be accepted, that there will be a difference in the speed of those and we need to deal with that as a problem rather than assuming that these can somewhat be brought together.

COMMISSIONER BERMAN: That's exactly right. There will always be a delay because what happens on the CQS and the CTS is an aggregation. That takes time. However, the timing on that is on the order of milliseconds, so the delays are measured in fives and sixes and tens of milliseconds, not seconds, so at a minimum we want to make sure that the delay is at the level that is technologically possible today, so there should be no excuse for a two second or a three second delay, but nevertheless, there will always be some delay, but again that delay will be measured in milliseconds.

CHAIRMAN SHAPIRO: Could I actually follow up on that? So, even if you had -- could somehow guaranty dissemination to the public, because it's the receipt of the information, I think, is sort of the operative issue here, not when the information gets to the SIP or gets disseminated, but it's when it's received by either subscribers or market participants. Can you -- is there anything you would do to ensure that everybody received the information at the same time and then could act on it and respond to it quickly? Or because of things like collocation, even if you had a rule that said that information can't be disseminated until exactly the same moment, whether it's from a proprietary feed or a consolidated feed, collocation is still going to give some entities a time advantage because they'll receive the information a microsecond faster?

MR. GRAY: It would be possible and this was an issue that the Commission talked about in its concept release on market structure that it issued back in January. Right now, as Gregg said, the rule is, exchanges can't provide the information to their proprietary customers any sooner than they provide it to the consolidator, and the issue that the Commission asked for comment about in the concept release was, should the exchanges be told, delay releasing the information to your proprietary customers until it's clear that the information has had time to go through the consolidator and get to the individuals? And a lot of people commented on that in various ways.

MR. BRENNAN: Would -- isn't an even simpler answer to say, eliminate proprietary -- eliminate the proprietary feed? Was that one you looked at? Is that seen as anti-competitive or anti-free market? But that would certainly solve the problem of differentiated access, right?

CHAIRMAN GENSLER: But the proprietary feed has greater depth of --

MR. BRENNAN: I understand. I understand.

MR. RUDER: That's still another question, the depth of book question. If -- whether we're talking here about the best quote being disseminated to the public and the public now does not get, as I understand it, the depth of book feed that goes under the proprietary feeds.

MR. COOK: I think part of the question here is what we're trying to solve for because I think all this is correct, and you could say theoretically that you can't distribute proprietary feeds at all. You could try to put some time delays and then people will try to game around that and so if, for example, you say, well, you can't collocate in the same building, people will try to collocate a mile away or two miles away, whatever, just outside whatever band you put. I mean, I think most of the very active traders in the markets and many of the traders who are trading on behalf of customers who need the speed, actually subscribe to these proprietary feeds, so they have it.

The delay, while it can be relevant in some circumstances, often is non consequential to people who are not basing their trading strategy on, you know, that -- it doesn't depend on milliseconds, so it really depends on your strategy. If you're able to trade on your strategy based on the consolidated feeds, it may not be worth it to you to pay some more for the proprietary feeds but on the other hand some people find it useful to get those feeds to put together the depth of order book. And so I think there are competitive issues here at play. There are commercial issues for the exchanges, in this role, venders of data that are important to their commercial strategy, and I think -- and it is important, though, to recognize that for many people this delay -- many people maybe -- many people who may be trading, this delay really isn't that significant, doesn't really impact their trading strategy.

CHAIRMAN GENSLER: Maureen?

MS. O'HARA: Can I just follow up a moment on this? So, one could think about the fact that there is a vector of information here, some of which, the price for example, is something that would be relevant for every trader, some of which orders of magnitude of the book are not relevant for every trader. How difficult -- or is it infeasible -- to sort of make rules that say that the price per se, the execution prices, all have to be available at the same time but the other information could be disseminated more quickly?

I'm just trying to think about the fact that not all information has value but some does, and is there any way -- have you considered, sort of, breaking this problem down into pieces and saying the price data has to be all the same but the quotes and other depth data could be allowed to coexist?

CHAIRMAN GENSLER: Maureen, can I ask -- when you say price data --

MS. O'HARA: Trades, the executed trades.

CHAIRMAN GENSLER: The executed trades, what's called the transaction data rather than the quote data.

MS. O'HARA: The transaction data, right.

COMMISSIONER BERMAN: From a technology standpoint, it's certainly possible and in fact there are two separate feeds, one of the trades and one of the quotes. In fact, one of the challenges that we had in the analysis of May 6th is actually tying those together. To the extent that participants are relying on the price to determine what quotes they want to put in, they will also be relying on quotes on the other side of the market, so if we do have delays between those two, we would have to think about what are the implications for people who are making markets to be able to determine, what quote do I want to place if they're seeing prices of actual transactions that have been delayed?

MR. KETCHUM: Just to follow up on that, Maureen. It seems to me, if I understand the question -- I may not -- that their fundamental complexity gets very hard. If you segregated out the top of book feed for every marketplace and every trading system that had a quoting obligation and you just provided the back book feed, the remaining information as proprietary information, the trouble is that the order that is identified as the best quote, given the latency issues, is going to be different, so you're going to have best bid information and best offer information that's not consistent with the depth of book that you're showing at the same time because it's going to be nanoseconds to a second delay depending on volume and the rest, so it's sort of hard, I would think, to detach the top of the book from the rest of the book if you're really getting -- because otherwise you're not going to get the actual feel at that instant as to what the book composition is.

CHAIRMAN GENSLER: Brooksley?

MS. BORN: Well, let me just raise a slightly different topic. I was interested in what the report had to say about the algorithm that was used by the trader that seems to have triggered or acted as a stimulus for the flash crash and I wondered if the staff knows whether that algorithm that has neither price limits nor time limits is commonly used, widely used in the marketplace or whether it's proprietary to just a few traders or executing brokers, and whether there has, in the past, been any study of algorithms and whether or not they can be limited to assure orderly trading.

MR. KIRILENKO: Thank you very much for this very important and thoughtful question. We have been engaged in discussions with market participants who provide automated execution services. We've looked at this specific algorithm and we've also looked at other automated execution algorithms and the -- each one of these algorithms consists of a number of moving parts and some of these moving parts are set in motion by the customers who set parameters so that as these parts start moving, some of these moving parts are preset within the box that is part of the algorithm.

What we were trying to discern in our understanding of the automated execution algorithms is whether or not there is capacity for an algorithm -- automated execution algorithm specifically, that is, just for background, automated execution algorithms are designed typically to take a trade, typically a large trade, and split it into a sequence of smaller trades so as to minimize market impact.

So, it could do it, depending -- these algorithms could do it by taking into account the actual prices at which they execute, they could also try to target a proportion of market activity, for example, volume. They also could look at depth. They look at -- they often randomize times at which they submit orders so as not to be detected by other market participants.

What we were specifically looking for is whether or not there is capacity -- or still are looking for, whether or not there is capacity was in automated execution programs to cascade and that is a very active area of inquiry, and this is the area of inquiry that feeds into our -- some of the issues that, hopefully, the Joint Advisory Committee would also consider, which is what is the role of the executing brokers in provision of automated execution services.

CHAIRMAN GENSLER: Andre, maybe if I can -- this may be the question that -- how common is the use of automated execution algorithms that don't limit price or time? I mean, other than the -- of course they always look at the price of the last trade, but don't have an overall price band or time band? I think that was --

MR. KIRILENKO: We looked at the large trades in the E-Mini. Large, and by large I mean that trades of the same size or larger, that occurred in the previous 12 months, and as the report states, that was the only time when an algorithm that did not take into account, did not set an overall price limit or time limit, was used.

MS. BORN: For these very large trades?

MR. KIRILENKO: For large trades.

MS. BORN: So, you haven't studied whether it's used for smaller trades?

MR. KIRILENKO: We have conducted conversations, we've had numerous conversations with executing -- this particular executing broker, and this type of algorithm, they did not provide specific statistics, but it is not widely used.

MR. COOK: I think the broader question of understanding algorithms and the whole process by which -- this is obviously so important in the markets now because almost any trade being entered into a high speed market like this needs to be done through some form of algorithm if it's of -- especially if it's of any size, because the whole purpose of the algorithm is to be able to execute the trade without influencing the market price, and I think understanding -- the areas that we would like to continue to understand better include the whole process for the design/creation of an algorithm, the way that it's made available to customers, what kind of controls are around that, what type of testing occurs, what kind of disclosure occurs around the provision of algorithms to customers so that they know. I think these are useful areas for further inquiry. They are somewhat picked up in the sponsored access proposal that the SEC approved on Wednesday with -- in a sense that there are obligations now for firms who have market access or who provide market access to somebody else, to make sure they have reasonable policies and procedures to deal with the issues such as error trades or trades that exceed preset limits of some type.

But it is an issue, I think, where we have been studying it, we actually have a taskforce at the SEC that was cross-divisional and formed before May 6th to begin to look at some of these issues and go out and meet with some of these firms and talk to them about the trading strategies they're using and the algorithms they're using, and I know Dan and David have been part of this. I don't know if you want to comment on, more specifically to your question about how prevalent some of these types of algos are, at least as much as we've been able to learn to date through our interviews with market participants.

MR. GRAY: Well, it's hard to say exactly how often a particular type of algo is used, but this participation algorithm, which is just based on volume, is not unusual. It can be often part of a suite, though I guess I would -- it's understood that you should be careful how you use an algorithm that doesn't have all of the throttles that some of the other ones do.

CHAIRMAN GENSLER: That's really -- staff will bail me out here, please, but as I understand, it's that many of the execution algorithms, a client has a choice to pick from a suite of what is -- that Dan said is a throttle. What is the limit? It's almost like doing a pull down menu. I don't know if it was literally a pull down menu, but so the client has a choice. Do they want to set price? Do they want to set time? Do they say, all right, I want to do 10,000 contracts over the course of the next three hours randomized? Do I want to do it within 3 percent or 6 percent or -- you know. So they have a choice. The algorithm might have a number of things programmed in and as I understand it, the executing broker here didn't see specifically the choices the customer made, and as we understand it, that is quite usual that the executing broker's algorithm is -- the customer is using that algorithm, it wants anonymity, so the executing broker doesn't know which choices they made, which throttles their limits.

MR. KIRILENKO: Right. I would like to --

CHAIRMAN GENSLER: Did I get that about right?

MR. KIRILENKO: That's right, and I would like to perhaps clarify a little bit that the use of an algorithm versus the parameters, which is what I was trying to say before -- versus the parameters specified by the customer, so the -- you know, it's often said that this particular algorithm -- basically, many algorithms can be set with certain parameters to do very similar things even though the algorithms are very different.

So, an algorithm that takes -- explicitly takes price into account, you can set the prices so wide that it will not. The algorithm that takes time into account, you can set the time to a month and it will not. So, the customer has a choice to set the parameters and so the -- on May 6th, it was both the parameters that were set and the algorithm that was used that are important, and from that extent we're trying to understand better what are the parameters and how the particular combination of parameters, not just the algorithms, that customers need to know about.

CHAIRMAN GENSLER: I'm sorry, Brooksley and then Susan.

MS. BORN: So, currently, at least with respect to this particular executing broker, there is no kind of oversight of the customer's choices. There isn't a review at any point of whether this has been an appropriate use of an algorithm that will not be disruptive to the market. Is that right?

MR. KIRILENKO: I cannot speak on behalf of the executing broker. Our limited understanding is there are certainly risk parameters in place prior to any of the customers could place any order or use any of the pipeline used by the executing broker. These particular customers must have accounts with executing brokers, they also have limits on how much they execute over what periods of time and what executing brokers could do for them.

Within those agreements there might be very specific requests that customers may give to executing brokers not to oversee their trades or not to see how the trade has been executed. And part of it, it could be easy to understand, is that the customer may not necessarily feel like disclosing its trading activity to an executing broker in order not to be, for example, affected by some other activity -- executing trading activity that this executing broker may undertake.

Therefore, a customer wants to protect what it wants to do in executing its large order, for example.

CHAIRMAN GENSLER: Susan?

MS. PHILLIPS: I understand that you're looking further into whether or not there should be some kind of constraints, constraints on these algorithms. I guess what I'm wondering is, are there in existence now any best practices that -- informal best practices -- that broker- dealers should be following?

COMMISSIONER BERMAN: At a recent conference given by SIFMA, we actually heard a panel on exactly that topic and I think today it's quite varied. You'll have some brokers who actually have throttles, they will override in real time trading as it happens. You have others who don't have those throttles, so I don't know to the extent that there are best practices. From what we've heard from some of those providing algorithms, it is a competitive market and many parties will use multiple algorithms by different executing brokers, and as with all things, if they find that there are throttles preventing them from doing what they would like at one party, they may go to a different party.

Within that, one thing I'd like to highlight and come back to something that Andre said before, when we think about executing algorithms, we normally think about feeding in prices slowly so that you don't move the market, but there is an added complication that has to do with the other side of algorithms, namely algorithms by parties who are not trying to execute but are trying to respond to what the market is doing, namely those that are generally run by high-frequency traders. In addition to feeding in information slowly so you don't disrupt the market, you have to feed it in a way that doesn't give you away, to show that there is an algorithm. So, there's quite a bit of a feedback going on that if someone can detect that there is an algorithm on the other side, then the person who is detecting the algorithmic trade can in turn have an algorithm that plays off of that. That's a recently new phenomenon, so it's obvious that you want to feed something in slowly, not to disrupt the market, but you also want to do that in a way that doesn't cause the market to change because of that algorithm itself.

CHAIRMAN GENSLER: I was just curious, Robert or Gregg, the rule that was just adopted, I guess two days ago, about sponsored access, does that require the executing broker to filter the choices, or is it like what we have currently in the futures marketplace where there are many risk filters, like our executing brokers have to make sure you have the margin and the financial resources, but in the futures market at least currently the executing broker does not limit the choices, these choices you're talking about? So, that's my question, what did the SEC do in that regard?

MR. COOK: Well, it does require that the firm with market access, so the one who has the pipes into an exchange and is using those pipes for its own trading or to offer a pipeline for someone else to come through, have in place a set of policies and procedures and supervisory controls around providing that access to address a range of issues including financial risk, risk of error trades, that sort of thing. It doesn't get

-- the rule is not very prescriptive about saying you can do this, you can't do that, but it does require that all firms establish a baseline for making sure that they have some reasonable controls around error trades, for example, but it doesn't limit the choices that a firm can provide in terms of algorithms made available to its customers.

CHAIRMAN GENSLER: So, it sounds like, though -- I mean, I'm sure that there are things we can learn in our world, and we'll take a close look at, particularly as we look at Dodd-Frank, but it sounds like it's about financial resources, or as in our world, margining and capability to do margining, error trades, using the pipeline as contrasted to a choice as to whether you limit a large order by time or price.

MR. COOK: Yes, but, you know, part of having reasonable controls would be making sure that you're not offering an algorithm that could reasonably be foreseen as having a negative impact on the participant or the market, so I don't want to make it sound like it's just about --

CHAIRMAN GENSLER: So, it could cover -- it could cover the other area?

MR. COOK: Oh, yeah.

CHAIRMAN SHAPIRO: And it clearly is about more than just financial and credit risk issues.

MR. KETCHUM: If I could just add, before the SEC's action this week, the exchanges in FINRA had general supervisory rules that went to this point, although not with the depth and direction that the SEC rule will now put in place and it certainly does look to control with respect to error trades. It certainly looks to control from the standpoint of risk standpoint. It looks at the very edges with respect to controls on things that could be viewed as disruptive although generally at most focusing on that activity added around a close or some unique event. As you note, Chairman Gensler, the challenge of going beyond that to directing with respect to individualized choices as to when you use particularly algorithms and what controls you build in with respect to stops and limits and a variety of other things, no one has tried to implement that far other than expecting careful supervision from the standpoint of broker-dealers. So, it remains an area of focus in our side as well as in your side.

MR. COOK: Just to give you an example, and to pick up on Rick's point that, you know, it was mentioned that we've had triggers of the single stock circuit breakers and some of them have happened because very large orders come in and they are executed too quickly in a way that in retrospect you'd say, well, that was kind of foreseeable that we're going -- for example, if you put in an order too quickly in an amount that's many times the average daily trading volume for a security and you try to execute within a couple seconds amounts that typically are executed over a couple days, that sort of control against that type of algorithm or order entry, whether it's by algorithm or otherwise, are the sort of controls that we're talking about requiring a firm that has access to a market to have in place to be able to filter out those sorts of trading activities.

MR. KIRILENKO: May I just -- just very shortly to some of the question that you ask. I think that there has been a quite genuine desire expressed to us by some of the executing brokers for certainty, for some greater certainty in parameters that they'd like us to consider. And they say, well look, these are algorithms. Just tell us what to program, we'll program it in. We just need to know what to put into the box. Just tell us.

CHAIRMAN GENSLER: Maureen and then I think what I'll do is -- you're going to stay at the table, I think, but have the subcommittee's report and then we'll continue the dialogue, but I think based on the subcommittee, so it would be helpful. But Maureen?

MS. O'HARA: I'd just like to return to a point that Gregg raised about the obligations for executing brokers in general, and in the case of an algorithm where a customer has made a choice of parameters, that seems like one issue, but something that seemed troubling in the crash was the routing decisions of brokers to apparently send orders to venues that had nothing in their books. And so the question of what is the best execution obligations in worlds where brokers sort of just route around venues to go to other venues without sort of checking that at all? Do you have any comments and feedback on that?

I mean, one of the issues that did seem to leap out at this is that, you know, many of the internalizers, for example, seem to have stopped internalizing and just routed away, and it raises, I think, very interesting questions about best execution and what are the obligations.

MR. COOK: There are certainly obligations from a best execution standpoint and we spoke to a number of the internalizers about their decision and how they thought through the process. The way that it was described to us was that they have algorithms themselves that are taking incoming orders and based on their own internal risk limits are going to process their orders to the best that they can possibly do. The best that they can possibly do when you get a market order that says you must sell immediately at this price, is to look out -- well, first, look internally, would you like to buy the other side, and if the answer is no, then to look out at the different venues.

So, they were cognizant of the fact that they were taking a market order and they saw that there was a price for 13 cents for a stock and they would say, sell that stock for 13 cents. And we asked about that, we said, well, why would you do that, and I think they had a fair answer which was, how can we not do that if we were instructed to sell that immediately? We had programmed our algorithms to do that already so there was no way of stopping that from happening in real time. If they wanted to have -- to get together and say, should we really be selling something at 13 cents, it would have been too late by that point.

The analogy that they gave us or the way that they viewed this was, imagine the stock is at $40 and it suddenly plummets to $20 and the customer says sell at any price and we decide that $20 is -- it's a ridiculously low price, but the market goes down to $5 and stabilizes. Then the market was at $5, the customer now has a stock that's worth $5 even though he could have had it for $20, so part of the issue here was not that the market went down, but that the market went down and then it went back up at the same time and people got caught in that whip saw.

So, it's a tricky problem, but it certainly does speak directly to the best execution responsibilities of broker-dealers.

CHAIRMAN GENSLER: I don't know if Professor Stiglitz is on the phone and we haven't heard or paused, but just before we go to the subcommittees just to see if Joe has any questions?

MR. STIGLITZ: I just have one question, which is in terms of that rule. Why don't you use price incentives to charge brokers for, say, erroneous trades so that they have incentives to make sure that anything going through their brokerage isn't erroneous?

MR. COOK: Well, it is something we could consider doing. I mean, part of the problem with the erroneous trade world is defining what is erroneous under the circumstances. But there certainly are incentives that we could take into account including either charging them for it, and frankly sometimes they are charged by their customers who seek to be made whole. I think that often happens. You could also not have a trade rate process.

MR. STIGLITZ: Yeah.

MR. COOK: Sorry, go ahead, Professor.

MR. STIGLITZ: Oh, no, I understand. It's just that what we're concerned here more is the systemic effects on others, so it's not just the effect on -- with the particular party, and in fact was that on May 6th you did break a lot of trades because you thought it was important for the systemic -- for the system, and, therefore, the fact that they hadn't designed systems that would avoid that is indicative that the system isn't working well when it's on the magnitude of what occurred.

CHAIRMAN SHAPIRO: I would just add, I think, that with this new rule, I mean, the ultimate paying the penalty is an enforcement case and if reasonable risk management controls are utilized and orders pass through those first, there's always the option it takes a while and it's a cumbersome process in some ways, but there is the option for enforcement action against the broker-dealer with the market access.

MR. COOK: Yes, absolutely. The market access rule is intended to raise the bar and give us a standard against which we can hold brokers. One of the issues with trying to come up with a more particularized fee or charge is, who do you charge and who and under what circumstances and how much, because some people might argue that this was not -- some events around May 6th were not necessarily particular actors doing something wrong, but they were responding to the signals they were getting and it's really the system as a whole that needs to be thought through, and I think part of what our approach has been in terms of the circuit breakers, moving to limit up/limit down, the new proposal that we hope to approve soon banning the posting of stub quotes, is to narrow or eliminate the circumstances in which you'd have erroneous trades, because that seems to be the real policy objective in the first place.

CHAIRMAN GENSLER: I want to thank the staff, but please stay.

As I think we noted at our last meeting, we have two subcommittees of this group and it's important that the public understand what those groups have been doing and the transparency of the subcommittees to report. We have a cross-market linkages subcommittee, which I think Brooksley Born, Jack Brennan, David Ruder, and Professor Stiglitz, Joe Stiglitz on the phone, are on and then we have a pre- trade risk management subcommittee with Robert Engel, Rick Ketchum, Maureen O'Hara and Susan Phillips. And Jack Brennan and Rick Ketchum, in a remarkable show of volunteerism, and an inability to step back when others stepped back faster, are each leading each of these subcommittees. I don't know if we'd go so far as to say chair, but if you want the titles, you can have them.

MR. KETCHUM: We don't want the titles.

CHAIRMAN GENSLER: But the leads of each of these are going to report. They've had, I think, numerous conference calls, but each of the committees, consistent with Federal Advisory Committee Act or what is known as FACA and the Government In Sunshine Act will now report back to this full committee, as they will in the future as well.

I think Rick was going to go first, and then Jack. Is that how it is? Rick?

MR. KETCHUM: Thank you, Chairman Gensler. And you've accurately described what has occurred. Our subcommittee has had a number of phone conversations. Our purposes, again, as you know, were limited. They were first to focus in particular in attempting to clarify for our own view, the market environment that existed on May 6th and exists today across the securities and derivative markets. Secondly, to attempt to identify issues. We both -- I think both subcommittees attempted to start identifying issues in its preordained area, but given the nature and capabilities of the persons involved and the interconnection to the issues, we identified issues that crossed across the boundaries of both subcommittees. So, in fact, Jack and I are going to hand it back and forth in looking at those issue identifications because in both cases each committee identified in each of the various, what I would say, buckets of issues, similar issues.

Let me take, just for a minute, to give you our perception from our subcommittee of the market environment, pass on to Jack for some of his --

CHAIRMAN GENSLER: What's the name of yours?

MR. KETCHUM: Ours is the pre-trading issue subcommittee.

CHAIRMAN GENSLER: Okay, pre-trading issue subcommittee report.

MR. KETCHUM: Exactly. So, as a table setting -- and then to pass on to Jack for the first sets of issues -- we looked, and I think the Commission staff's excellent summary today as well as, again, a further compliment for both the preliminary report and the final report for the care, detail, and thoughtfulness of it. I guess we see a few things with respect to the character of the market that is that we site neither positively or negatively but we think reflects the marketplace and strongly argues for the consideration and attention that the two commissions have been clearly giving it.

Those in first reflect as a result, starting from the equity market, which I love so much, conscious decisions of the Commission over a period of time to encourage for very socially useful reasons, both increased competition in the marketplace for trading environments, quoting, and orders, increased transparency of those orders, and lower -- quite low barriers to entry that are both reflected in the Commission's flexibility and encouraging automated trading systems and encouraging competition across exchanges and the registration of new exchanges.

The result of that has been, on the equity side, significant fragmentation that's characterized with a variety of factors. First, that fragmentation has included, as a result of conscious initiatives of the Commission, a degree of the market that reflects -- that is generally referred to in one way or another of dark pools, but I think while it reflects some independent trading, predominantly reflects dealer trading and proprietary trading through either matching systems or just interacting with customer order flow of that firm or other firms, and that percentage, which has always, in way or another, existed in U.S. markets, has grown now to various different calculations but certainly as described in the report in some ways, to about 30 percent of the transactions and perhaps more of the orders, and as it was reflected earlier, the participation of those dealers may vary and appears to from the report, drops off considerably and leads to routing into the organized transparent marketplaces in time of pressure and volatility.

That fragmentation also results in a commoditization of markets from a leverage standpoint, from the standpoint that both markets are quite constrained as to how they price their services, how they encourage particular liquidity providers to leave orders in their marketplaces, and with that, the degree in which they have flexibility to encourage market maker obligations or any regular requirements for continuous quoting at or around the marketplace because, again, the substantial reduction of leverage that has occurred in the electronic market environment.

That environment is also encouraged,

both because of the fragmentation and because of the flexibility the commissions provide, and similarly on the futures side, the flexibility that the CFTC's provided for an environment, to a high degree levels of high-frequency trading and electronic trading and that electronic trading, again, providing a great deal of liquidity on many occasions during normal times does have impacts with respect to market operations. It creates levels of message traffic that can result in delays as was discussed here, particularly delays at different times with respect to an inconsistent issue with respect to the dissemination of consolidated data as opposed to the individual feeds of each particular market.

In addition, that market structure is characterized by -- again as been noted by the staff and action's been taken by both commissions to look at, a proliferation of algorithms driving that electronic train, and that proliferation has evolved from algorithms that were effectively controlled by a limited number of large firms shifting over time to a variety of vendors providing those services shifting over time to, for lack of a better word, the type of naked access that exists across both broker-dealers and non-broker-dealers directly collocating, and wide varieties of separate algorithm, both development and maintenance and control, exactly Chairman Gensler, the point that you raised.

None of that is described and intended to describe from our subcommittee either from a positive or negative position, but only a reflection of the market that was sitting there on May 6th or arguably for a period of years before, and we believe that the conclusion out of that, certainly that market structure or probably any market structure that provides effective and easy access to electronic trading, is that liquidity problems are inherent difficulties in that high-frequency world that do deserve the attention of the commissions, not with any particular action suggested in that way, but certainly a recognition that in that type of world there will be a regular challenge from the standpoint of liquidity problems that can result in very significant market volatility and for reasons described in the report.

In addition, we think again, not surprising and consistent with, I think, what Gregg Berman said today, because of the speed of trading, uncertainty becomes a major factor in influencing the behavior of the market and that the questions and risks of that, responses to that uncertainty, are quite substantial because of the ability to immediately either drive substantial opportunistic trading into the market or remove substantial buy or sell liquidity in an extremely quick period of time that exists from an electronic trading environment.

And finally, that very fragmentation and the reality of that electronic trading and the fact that the interrelation between the futures markets, options markets, and securities markets have always been significant in the U.S. environment. That electronic trading has made that interrelation even greater and the importance and issues of coordination across the agencies and across the marketplace is even greater as well as a recognition that electronic trading has allowed efficient access to a wider variety of markets and a wider variety of trading relationships so that not only is it important to recognize that there is interconnection across directly related markets such as the E-Minis on the futures side, ETF options on the S&P Future and the equity markets, but also the relation in a less direct way as one sees from the trading on May 6th across a wide variety of asset classes from foreign currencies and dollar relationships to gold, silver, and a wide variety of other assets that in one way or another trade in a direct or indirect relationship with respect to equity markets.

All of that, we think, justifies the existence of the committee and the attention of the SEC and CFTC and raises a series of issues that we've tried to order from the standpoint of, although they're interconnected in a variety of ways, and with that, for the first couple buckets, I'll pass it to Jack Brennan.

CHAIRMAN GENSLER: Thank you, Rick, for the committee report or at least part of it because I gather we're going to go back, but Jack, I gather you're probably the post-trade committee then --

MR. BRENNAN: We're cross-market linkages and we do want to reiterate, one, the thanks to the staff for terrific work. The sprint from basics to the first report and then the subsequent report with your final findings. It's very impressive work, and congratulate the commissions on the fast action, you know, the list of actions that was presented this morning is very impressive and not comprehensive and not final, but really impressive, and so we think it's very important to get at one of the key themes that our committee has focused on -- our subcommittee has focused on -- which is investor confidence, and a lot of what we hear in all of this, you know, in our deliberations, the issue of investor confidence is very important as is -- and because we started out at cross-market issues, sort of regulatory mechanisms that I will spend a little time on, too, today.

Rick mentioned the third theme that sort of colored our conversations which is, you know, the interdependency, the automation, and the highly connectedness among the markets that is, you know, part of our lives today and we're not going to go back to a different environment nor necessarily would anybody want that, but it does color the next two themes that I would expose from our group, but they're really shared themes, as Rick said. Much as you tried to herd us into camel bins, we apparently had good springs and we jumped out without that last straw on our backs.

MR. KETCHUM: Though jumped out entirely independently and separately.

MR. BRENNAN: Yeah, thank you, Rick. You're the regular, I'm not.

So, the first area that we'd like to comment on, and it will seem a tad redundant, but

I would call it reemphasis on some of the areas you're already working on, and that is trading halts and market pauses.

Again, if you think of anything that gets right at interconnectedness, and more so today than ever and the most obvious place being the spider, the E-Mini options markets, the interconnectedness is very much there.

So, again, you've addressed some of these but we want to just share it where we went at this -- the committee members went at this independently, certainly, the issue of market halts and cross-market halts. Robert, you were just talking about it, but it's so important to look forward, not back, from our standpoint with respect to what are the metrics. Is the S&P 500 correct? Should it be the, you know, a far broader index? And at what level does it get triggered, how long, et cetera? And then, in a sense, a more -- a broader question which is do they make sense? Are cross-market halts the right mechanism? Which leads to the second issue, which is thematic, and again has been addressed here, but very important from our standpoint, and that is the whole issue of pauses versus halts and we think as you look at the results of your work, the staff work, and this came up in our first meetings and it's come up continually, you know, is that the new world? Are pauses -- particularly as it relates to the stock markets -- the new world? But is it implementable in an area where there are 40 trading menus for stocks? We think it deserves an awful lot of attention because the differentiated behavior of different markets during May 6th, but symptomatic of where we are today, makes it incumbent on us to look at a different mechanism, much as we looked at a different mechanism back in '87 and put the halts in place. So, that's a critical issue that we would like to see addressed further, we know you will, in addition the whole cross-market issue, do they make sense, and how.

The third issue, it gets more to the mechanics of specifically the stock exchanges and that is LRP's self help. Again, I'll speak for myself, not totally clear whether they were beneficial, deleterious, didn't get as much play in the second report as in the first report, but, you know, simple question of they're recognizing there are huge implementation challenges, but does May 6th and what we learned from there raise questions at the exchange level itself?

And then the final -- a final, not the final -- we wouldn't assert that all of this is comprehensive, but -- question specific to a product type, which is ETFs. Very new and just the question being asked which I know you've asked, are there special rules needed or related to broad market ETFs? Because their functional characteristics are so similar to a product regulated in other venue, obviously the futures market, and again a market, as we've spoken about in these committee meetings so far, that has become very large and ubiquitous.

The last item, we obliviously, and we know you will, and Robert you already alluded to it a bit, was the single stock futures -- single stock circuit breakers. Terrific -- terrific idea, both spiritually and actually when you implemented them. The FINRA board would like to take credit for making you do it, but that wouldn't be quite legitimate, but we'd like to think it -- since it went well, we'd like to take credit for it, the governors of FINRA, but we should, as you already said, are they working right? Why? You know, are we fat finger susceptible and other things? But an innovation, in an instant in some ways, but sometimes they're great innovations, so as a specific takeaway we'd like to see that looked at.

That's the first, Chairman, theme that I'd like to address on behalf, really, of both committees independently. Thank you, Rick. The second one is -- and we've, again, addressed this at a -- in your reporting out, and that is the whole issue of market access and transparency, you know, the theme of fair and equal access and how do we think that plays out today in this highly interconnected market. You've already discussed some of them and frankly as we were having our last meeting, you were issuing a rule around sponsored access and direct access. The questions -- and this is, again, a question that will come up in many areas -- that we think get highlighted in this episode and in your work, is about responsibilities that come with privileges and it's not just with respect to this specific issue of sponsored access and direct access, but I know in our subcommittee's conversations it kept coming up again and again and again. If you get a right or you have a right or you're granted a privilege, what are the responsibilities that come with it? And have our sense of, what are the responsibilities, kept up with the evolution of the privileges that have been granted? And, again, a similar theme comes up in collocation. You know, I think it's safe to say we don't expect anybody to roll back the clock and, you know, Robert, you mentioned, so it's a mile -- you want to be a mile away, if we say you have to be a mile away. I said jokingly, I want to be in the real estate business near -- near the data. Forget about being in the markets, the better business is being in the real estate business right near the exchanges, but, again, are there responsibilities that come with collocation?

And do we think collocation has an effect beyond that which we believe is fair? You know, the whole theme of high-frequency trading when we were sort of -- when we were thinking about both committees' reports, you could have had a whole theme on -- a whole separate section -- we could have had a high-frequency trading subgroup if we wanted to because it runs throughout this, but clearly the market access and transparency, because it gets to practices and it was already asked about, Professor Stiglitz asked about, you know, should there be prices -- should there be incentives around behavior, and one of the big questions from a market access and transparency standpoint has to do with quotes that are pulled. And, you know, we look and we say, are withdrawn orders in this environment at the speed at which markets work problematic to -- and come back to the macro theme from our subgroup -- which is investor confidence, and is it false liquidity? Does it look like there's much more there than there is? Market book depth, obviously, is a whole other subject matter, but when it comes to specifically high-frequency trading, it's a question of whether that practice benefits from the good markets and can accentuate problems in bad.

Gregg, you said it looks like they're buying and selling, they're on May 6th, but it's a bigger question than that as to whether there's -- there are appearances and behaviors that run throughout -- through the normal markets, that should raise concern. We ask the question, we ask it without prejudice, but we think it's a theme that is very much live.

So, those two themes, we think, are vitally important for additional work. You're already doing a lot in that regard, but critically important, and I'll flip it back to Rick for our next one.

CHAIRMAN GENSLER: Thanks, Jack. Rick?

MR. KETCHUM: Again, building on it, Jack has at least -- and I'll state again -- these really are purposes of both issue spotting for the commissions and to begin a conversation with members of the advisory board. They don't reflect conclusions of the subcommittee, nor are they going to reflect everything that even my subcommittee members may think, and so I look forward to the conversation after this.

Jack ably raised a lot of questions that our subcommittee would put under the question of, what do you do with empty books? You're in an environment where there's risk of empty books, how do you react to them? The second set of questions or group of issues that we think the Commission should continue to focus on is the question, again without suggesting that there are miraculous answers, how do you keep the book from becoming as empty? How are there ways to, in way or another, encourage liquidity in a high-frequency world or at least avoid discouraging liquidity in a high-frequency world?

The issues we would suggest that the Commission should at least continue to attend to, recognizing that you have taken steps already, I would briefly tick off as these: First, recognizing, as Jack just discussed and was discussed by the staff of the normal behavior that will occur with respect to any trader not subject to particular obligations in periods of volatile time, which is there will be a liquidity provider for a while and they'll sell for a while. The question as to whether there is value in creating increased differentiation with respect to market makers and not recognizing -- or market maker-like activity as identified by the economists and not recognizing that for anything affected to occur, particularly on the equity side because of the fragmentation and lack of leverage of the exchanges, it would have to be a Commission initiative that went across all exchanges for it to occur.

We believe there are a variety of questions on market maker differentiation that could be addressed with just saying it's not right. We recognize that market makers are not a panacea in any way or that particular designs of market making can also discourage competition, and so we don't suggest that there are simple answers, but we do believe that questions as to whether differentiation of at least liquidity provider behavior and expectations of that occurring in volatile times, whether it be from the standpoint of regulatory requirements, fees, oversight in one way or another, are worth further evaluation.

Second, given the timing issues, as again identified by the staff, we think further analysis and effort to try to reduce -- to increase transparency and reduce differences from a timing situation from the standpoint of data access and data feeds are a wise issue for the commissions to be focused on and deserve continued focus.

CHAIRMAN GENSLER: In that case was it fees or feeds?

MR. KETCHUM: Feeds, sorry. F-E-E-D-S. I apologize. We think, indeed, it may be -- we think that includes the question as to whether greater book information and possibly additional analytical information from the standpoint of imbalances in the book and findings ways to have that information more effectively get out to the public and the participants in the market are worth evaluating.

In addition, again recognizing the benefits behind the policy, we believe it is appropriate for the Commission to reevaluate the terms and the evolution of internalized business and business from the standpoint of operating outside of exchanges with quoting and transparency obligations. We don't start that with an assumption one way or another with regard to the lack of benefit from a competition and choice standpoint, that internalized business provides, but we recognize that there's been substantial growth and we think the factual indications of how that business flew back to the organized markets during May 6th is instructive and worth at least further analysis and probably interconnected with the question of differentiation with regard to quoting obligations or obligations during periods of volatility.

Finally, we think that beyond the questions of how perhaps steps can be taken to make the books somewhat less empty during volatile times, it is a good thing for the Commission to review -- the commissions to review best execution requirements as a little bit discussed earlier, and that while regulation NMS sets up a very specific, very rigid set of requirements with respect to honoring the best bids wherever they exist, the lack of specificity with regard to the care in interacting with orders across all limit order books, the lack of specificity with respect to the use of orders that may not reflect the risks of high volatility in short periods of time to some of the questions raised by Chairman

Gensler, we believe, deserve to be re-reviewed, and while that doesn't suggest that we think that it's not appropriate for individual markets to experiment with different ways of providing that liquidity, we do think that the overall question and the issues of guidance from a standpoint of best execution would be important to return to the agenda of the Commissions and we would recommend that be reviewed as well.

And with that, I think the last piece, which better for not a self regulator to talk about, is the question of regulatory oversight and I'll pass that back to Jack and we promise we'll shut up.

CHAIRMAN GENSLER: That's all right, so, Rick, I thank you for -- you've completed your subcommittee report.

MR. KETCHUM: I may not have done it ably, but I'm done talking with respect to our subcommittee report.

MR. BRENNAN: And I will shortly follow him. But the last theme and the last issue that, actually, again has permeated the whole work here and is the question of actually your, and broadly, the Commission's access to information, and, again, listening to the staff this morning, I think it was reiterated in some ways about how much we've learned in this process already, but at a high level, a couple of specific issues that we thought were worth, at least, examining and the first one is specifically why it's not appropriate for Rick to be presenting this part, and that is, the whole question, as we've discussed, of a consolidated audit trail on the stock markets. And the how, the why, at what cost, real time versus after the fact, and, you know, clearly a major issue for the SEC and one that we believe this event and the diagnostics around this event highlighted.

Secondly, as Rick just talked about, the whole -- in both markets -- the whole transparency of order books and how that helps you do your jobs most effectively, both from a prophylactic standpoint and on an ongoing oversight standpoint.

The third, and this is -- it actually was alluded to again with regard to the information flow, and it's the whole question of understanding the exchange's business models today, because as we know, business models have changed drastically and does that have an impact on behavior? We know incentives create behavior -- are there to incent behavior and will create different ways of doing business and it's a very high level question, but we think it's one worth contemplating and how does it -- how has it changed the way each of the commissions needs to think about their relationships and, importantly, again, the behaviors of those exchanges both with customers and then competitively with each other. A big question.

And then the last issue with regard to the whole information access for you all, it was already addressed, but I think we would reemphasize it strongly is the understanding the algorithm, the effect, and the nature and the utilization of algorithms. You know, for some of us it's kind of old news, but it's always new news in that old news and you realize just how vital it has been to this specific episode and your opportunity to get deep and knowledgeable about those in all of the markets again and understanding how firms like mine use them, but what their ramifications are.

So, Chairman Gensler, that concludes our subcommittee's report. Our hope is that now that we've stopped talking, I know there's lots of insights and opinions on the part of the committee members and there's much more depth below these high level oversights, so I hope we can engage in a conversation.

CHAIRMAN GENSLER: Absolutely. I think -- I don't know whether I officially accept the reports, but I'm going to turn to Chairman Shapiro.

CHAIRMAN SHAPIRO: Thanks, Gary. First of all, thanks to the subcommittees, in particular to Jack and Rick. I thought this was extremely helpful. You raised incredibly thoughtful points and have laid out for us, I think, a lot of work that we need to continue to do to address what I believe are the right issues that you've raised.

I wanted to go back to one thing Rick said, internalization is an issue we've been particularly interested in for a long time, not just because of the events of May 6th when we saw what had been internalized order flow going back into the markets, but as you can imagine, the markets raise -- the organized markets raise it with us all the time.

I wonder if you have any just very preliminary thoughts about what we should be exploring there specifically? I mean, I can imagine a range of responses to do nothing at all, all the way to, perhaps, ban internalization, to something in the middle that might require price or size improvement, if you internalize, and I just wonder if you had other points in the spectrum that we ought to be looking at and thinking about?

MR. KETCHUM: I don't personally. I

think your concept release set out the issues, both the benefits from choice and competition and the issues with respect to proprietary trading, different definitions of internalization with respect to the firm's own order flow, their customers, and aggregating a variety of broker-dealers order flow in different models, and I -- as an old NASDAQ, I would note that in a market structure that no longer exists, the effective result of that requirement where internalization really mostly existed in the old world was in the NASDAQ market. There was always a requirement, at a minimum to quote reasonably related to the market and that there was transparency associated with any dealer trading that existed in NASDAQ. That, for a variety of legal reasons, et cetera, has kind of disappeared over time. That would seem to me to be a starting point. The question of price improvement and what's appropriate for that, I think, are issues that the committee thought were important for the Commission to explore, but I don't think -- while individual committee members might have views one way or another, I don't think we, as a subcommittee, had a view one way or another.

CHAIRMAN GENSLER: It strikes me, while it's beyond the remit of what we're doing today, it's certainly within the advice that we look for from this committee is, there's a whole market that both of us are -- right now is internalized, but we're taking on, is the swaps market as well, and so, I mean, the futures market has not had this issue of dark poles, but in a sense we have because swaps are just another derivative that is dark, and I don't want to compare the percentages.

If it's 30 percent there, the swaps markets are bigger. So, as we directionally move to bring the swaps market into greater transparency, some of what you've said today is really helpful for that market as well.

MR. KETCHUM: And just know, Chairman Gensler, that I think you're absolutely right on that. And it really goes to the point we made before that the asset integration of trading today is so dramatically different than it was even 10 or 20 years ago, that the opportunities that come from swap dealer regulation from the standpoint of both transparency and information from a regulatory oversight standpoint, I think, is tremendously important. And I look forward to the environment you get afterwards vis-à-vis -- and I think a large part of what Jack raised is that consolidated audit trails, as, I think, the Commission basically said in its release, now has to not stop at borders across commodities and futures and over- the-counter derivatives and the like, because each of them impact the other. And the regulation of the swap dealer marketplace, I think, could provide some real opportunities for significant enhancements in the sophistication of surveillance.

CHAIRMAN SHAPIRO: Could I ask another question maybe generally of the committee? International regulators have been following May 6th very closely, as you can imagine, and as they see their markets evolving some to look more and more, particularly in Europe, like the U.S. Market, did you -- have you talked at all about or could you perhaps at another committee meeting start to give some thought to the extent to which, as we begin to take steps in this area, we need to be coordinated with our international counterparts. I wouldn't imagine on everything that that would be necessary, but I would imagine that there would be discrete areas where we might move to address certain issues, that we don't want to have an unintended effect on the migration business out of the United States or create an opportunity for arbitrage for a less well-regulated market.

MR. KETCHUM: Well, I'd certainly say yes although some of the things we're just trying to catch up to you on such as consolidated trade reporting to get there, but decisions as to how to deal with the liquidity fragmentation issues, I think, makes great sense for their consultation.

CHAIRMAN GENSLER: Maureen?

MS. O'HARA: I think one of the things

that emerges from looking at these episodes is that the nature of markets today is just very different, the nature of where liquidity comes from, and one of the things that actually -- is highlighted by May 6th is that in general, markets actually work extraordinarily well, it's these episodic periods of ill liquidity that are obviously not acceptable. And there have to be ways to deal with these. One of the things that becomes clear is that trading now is at such speed that a lot of trading decisions are made ex ante, that is people choose the algorithms that they're going to use and then the algorithms go off in trade, and poor decisions up front can result in poor outcomes at the end.

I think the same thing translates into a mandate for regulation that's on an ex ante and not an ex post basis, that it's almost too late by the time the problem emerges to have the regulatory response. And so a lot of what I know our subcommittee chatted about, and I would feel confident, but don't know, that the other subcommittee talked about, is that the regulatory structure now has to move to an ex ante basis. And a lot of the things that we've talked about, the notion of pre-specified trading halts that will occur, right, before any event occurs, we know that that's going to occur, I think that's the nature of regulatory structures going forward.

And I think a lot of the suggestions that we will be making will be, how do you move a regulatory structure that in the past probably operated more ex post because trading was slower and couldn't be done that way, into an ex ante basis? And how do we measure the risks of the various types of challenges that arise in high-frequency worlds so that we're not dealing with these problems in the past, that we're monitoring and going forward? And that speaks to questions about, how do we want exchanges to provide information so that traders can see what's happening without, sort of, having to react as well?

Those are issues that, I think,

internationally arise because we're all dealing with the same issues, and one of the things that, I think, you know, the good news that comes out of all bad events is, you know, life is never wasted, you could always serve as a bad example. We now have an opportunity to be a good example in taking all the things we've learned and suggest a template, not only for how we will regulate markets, but how markets in general, so, I'd like to think that we can go there and cooperate, of course, we don't have all the good ideas on our side, but we have had the opportunity to think about these.

CHAIRMAN GENSLER: Maureen, thank you. I'm wondering if I can quote you with my kids on that last piece.

MR. BRENNAN: That's so much better than the camel thing. Let's stay with that one. That is really good.

CHAIRMAN GENSLER: Brooksley?

MS. BORN: Well, just one small specific point on internalization that I think shouldn't be lost, you know, the report indicates that a great deal of the broken trades were retail customer trades that an internalizer sent to the public markets and because they were market sell orders and/or stop loss orders, they were executed at the bottom, and it seems to me that really raises some issues about whether that kind of order is appropriate for retail customers and whether internalizers should be accepting those orders without limits.

CHAIRMAN GENSLER: David?

MR. RUDER: I have a couple of points. The first, I think, is something that we know about as regulators and that is that the technology of the markets is something that we find it very difficult to anticipate. And I've always said, and it may be a shame, but it's true, that the regulations follow market innovations. So, I think we need to be aware in our -- in whatever's done, that we don't restrain the markets so that they can't accomplish their true purposes.

And that sort of drives me to sort of where we were talking about, the market information process. It seems to me we're not going to prevent the high-frequency traders from getting information first and having an advantage over the retail customers, so we need -- the study has to be some way in which to impose some costs on -- for those people in terms of advantage. And we used to have costs in the days of the specialists, we used to have costs that were imposed on specialists. We had market continuity report requires no gapping, sometimes we asked a specialist to step up in times of problems. And what we're really talking about is whether or not there should be some obligations placed on the people who are in the high- frequency trading mechanism and whether there should be some requirements that they provide liquidity, and that's sort of the broad picture. I don't know whether you want to call them market makers and place market making obligations on them, or whether you simply want to say, here are your liquidity preserving obligations.

I had one thought that's been coming to me due to a seminar I've been operating on this same subject, but the question is whether or not the decimalization process has affected the markets. The fact that the quotes are in a penny really prevents, I think, the market-making function from existing the way it used to be. You don't have clusters of liquidity around pricing points, and one of the suggestions that might be looked at is whether or not the pricing intervals should be increased from a penny to two pennies or three pennies or a nickel so that you could then reinvigorate the market-making structure, and I see this as an economic incentive that might be inserted in the markets instead of a regulatory incentive, because if you do create incentive for market making, then you may get more liquidity.

CHAIRMAN GENSLER: I had a -- Susan?

MS. PHILLIPS: I guess I'd like to make just a couple comments, first of all on the report, and compliment the staffs for a deeply forensic analysis and I don't think I've ever seen this much detail packed into 300 pages between the two reports. And I think one of the things that, you know, when you see in detail the different types of trading that's going on, you realize that the fragmentation is occurring in a variety of different ways, not just between exchanges and over the counter, but between and among computers and people, and computers and people have different reaction times. And I have to say that when we first, within our subcommittee, started talking about the first report, in particular, you know, the thought that we were going to start seeing lots more pauses and lots more constraints on the market, I have to say, as sort of a more free market-oriented person, gave me significant pause myself. But I'm becoming -- I'm coming to an understanding that some of these things, like the LRPs, some of the pauses, even the limit up/limit down kinds of things do provide a way for all of the participants to get the information within a reasonable amount of time.

And so, I think, as you're going forward, in looking at some of these trade -- you know, these various constraints and perhaps guidance for broker dealers, for example, to try to balance keeping the markets operating, as David has mentioned, but at the same time creating an environment in which all market participants can participate.

You know, in some ways I think it's really very surprising that the markets recovered as quickly as they did. I mean, the fact that they came back as quickly as they did, I think, does demonstrate the strength of the overall market system, and including the fact that you had all of this back and forth between all of the different markets and traders.

I do think that there were some things that -- sort of structural things that had been brought out by this learning opportunity of May 6th and it's not just -- you know, we talk about transparency, but the question then is, what is meaningful transparency. I mean, you can dump a lot of data out there and it may not be all that helpful, and one of the things -- just to give an example, and Maureen has talked about this in our subcommittee calls -- maybe there are different kinds of data that would be useful for either the exchanges or through some kind of consolidated reporting system such as depth of the limit order book. You know, to the extent that you know, you know, how many orders are available on either side of the market should give some guidance to market participants in the way they submit their executions, and so maybe some simple -- some kind of simple ratios would be useful to traders to try to figure out. And I would hope that the exchanges themselves would be thinking about this kind of information because it does give more confidence to traders that they know what they're doing when they drop an order in there.

So, I think that in many ways it's kind of surprising that this very sizable move in the market one day, we had fairly quick recovery and yet we do have an opportunity to make some changes, and both commissions have started down the path, and the exchanges have too, it's not -- exchanges, FINRA, NFA -- I mean, they're looking at things they should be doing to try to figure out a way to prevent these things because it is a market confidence issue. So, I commend you, but I think it's going to be an iterative process and it's going to take some pilot programs like this. Limit up/limit down works in futures markets pretty well. That's been a tradition for many years. But you also have a pit style trading and is it going to be transferrable to securities markets where you've got fragmented markets.

So, it's hard to know how the implementation will work, so I think it's going to take a bit of experimentation, some pilot programs, but it seems to me that you're on the right track.

CHAIRMAN GENSLER: Rick. I'll just save my questions.

MR. KETCHUM: Well, I'd just add on to, I think, Chairman -- former Chairman Phillips' really good points. Maureen's probably too shy to note it, but she's done what I think are two exceptional papers that I'd recommend to the Commission on -- that propose ways of thinking and measuring with regard to order toxicity.

CHAIRMAN GENSLER: I've read ones that --

MS. O'HARA: We distribute it, yeah.

CHAIRMAN GENSLER: -- the one with the tutor. What's the other one?

MR. KETCHUM: Well, no, one of them is actually in English for lawyers and then the other one does the numbers that you can read, Gary, but --

CHAIRMAN GENSLER: No, no.

MR. KETCHUM: I really like the one that was English for lawyers.

CHAIRMAN GENSLER: That one I might not be able to read.

MR. KETCHUM: No, that one I can't read. No, you can read them both. The point I really want to make on it other than the fact that it was terrific, terrific original work is that it does describe again the questions of what makes books empty. And what makes books empty is uncertainty and risk and it is interesting how VIX contracts have provided the ability to address one set of, in a fairly gross way, uncertainty and risk.

I think greater information on things that in some way or another are a foreteller of toxicity or even the possibility of contracts that allow liquidity providers to more effectively hedge the risk of informed order activity or otherwise high-risk activity for liquidity providers could be really valuable and it's for that reason I mention Maureen's -- and I think Susan's absolutely right, that that type of exploration from the standpoint of, how do you create an environment where people can offload some of that toxicity risk.

CHAIRMAN GENSLER: Can I just ask one of my two questions because it relates to the empty books? My question for the group that you might think about today and further is this empty book scenario, might that relate to market pauses? I'm bringing the two together. But market pauses currently in the equities markets and cross market are about price movement, but they don't necessarily speak directly to the empty book issue.

CHAIRMAN SHAPIRO: Except to the extent they exist to help rebuild the book.

CHAIRMAN GENSLER: Right, they certainly, as Chairman Shapiro says, exist to rebuild the book, but they're only triggered by a certain price movement and a certain time period, either like cross markets since the prior day's close or the pilot program that has had, I think, some very real effect, but it's still uncertain over minutes. And I highlight that because in the futures marketplace there was a market pause that does relate somewhat to the book. The stop loss limit that occurred on May 6th was because the -- I guess it was the next trade would have been down six full points, six handles, right? So, it somewhat relates to the book, but that book in the

E-Mini which started the day with about 100,000 contracts and the order book went both sides, it was about 50,000 contracts when the large trade came in, was down to 1,000 by -- resting buy orders. And so, fortunately, the stop loss happened, but you could have seen that, what if that 1,000 order was inside the 6 points, they would have actually probably just -- excuse the expression -- but blown through the order book as happened to Ascencia and other things in the equities market. So my question for the group is -- to keep it in English is -- might any part of the order book, maybe in the futures market more relevant than the securities market, relate to market pauses, again, as Chairman Shapiro said, to rebuild to book or give it -- maybe give it five seconds, five minutes, whatever, to rebuild? Maureen?

MS. O'HARA: I think, you know, our committee did speak about these issues because it -- the challenge in a high-frequency world, and in a world, as David Ruder has born it out so well, that resting orders on books now is not -- is certainly in equities as common as it was, and so liquidity almost has a just in time feel to it.

The challenge of an empty book is, you know, once you have an empty book you really are dead in the water, in a sense, and so providing proactive information about the state of the amount of liquidity seems a sensible approach to go. I think the futures stop logic was really demonstrated as an excellent approach in the sense that the stop logic was ex ante, it moved in advance of what was going to be a disaster. I think we have to sort of keep that in mind. And you're right, it's not necessarily basing things off of the price that just happened, it has to look forward and think about the prices that will happen. It's a lot easier to do that in futures though than it is in a fragmented equity market, and therein lies the real challenge that, unfortunately, our subcommittees did not solve, but I think the issue is one that we do have to think about and it may have to do with disclosure of depth on books so that routing decisions are in advance realizing you don't go there because it's going to create problems. But I think that is a huge, huge issue and not completely solved by just simply limits in prices.

CHAIRMAN GENSLER: So, if I can leave that question, at least from one of your colleagues or chairs, is just whether market pauses themselves have any triggering from information from the book, the emptiness of the book, or the thinning out of the book.

MR. BRENNAN: One of the questions though that we've heard loud and clear, and this is not just the book but sort of what's real liquidity and what's ephemeral liquidity has changed a lot Maureen in terms of what we think it is. So, because of the withdrawn orders that that happens often, and so it's a great question and it would be a fourth or fifth catalyst for a market pause and we'll certainly kick it around, but there's a subsidiary question that I think we kind of scratch our heads on at this stage seeing what we see from this --

CHAIRMAN GENSLER: You mean, what's real liquidity?

MR. BRENNAN: Yeah.

CHAIRMAN GENSLER: I'm sorry. Brooksley?

MS. BORN: Well, I mean, I'm going to pick up on that point because I really think that some in depth looking at high-frequency trading is necessary and demonstrated by the staff's report. It's pretty clear in the staff's report that although that one trader who put in the very large sell orders on the E-Mini was a trigger, the high-frequency traders moved in immediately, bought it, decided whoops, you know, their algorithms told them to dump it, and a number of them then withdrew liquidity from the market.

I do think investor confidence in the markets is being affected by perceptions that high-frequency traders have unfair access to the markets and unfair access to market information, and it seems to me that it would be very beneficial for the commissions to look at this carefully. The suggestion, I think, David Ruder made that perhaps with their advantages of information and advantages of access, they should also have some responsibilities of either a market-making kind of role to some kind of role to maintain liquidity would be useful to explore. I also think there are some major problems with order cancellations which, at least from a futures perspective, would seem to almost, you know, be fraudulent orders, putting in orders that you have no intention to do anything but probe for where the rest of the market is.

So, I would strongly recommend that some looking at the role of high-frequency traders, the impact they have on liquidity, the appropriateness of their activities, and whether they should be regulated in some meaningful way.

MR. RUDER: Could I just talk about something else slightly different? I think that with regard to halts and pauses that the commissions need to be careful that they're talking about two things. One is a circuit-wide -- one is a market-wide circuit breaker and the other are the single stock circuit breakers. But if you're talking about the market-wide circuit breakers I think we're in a very new world because we not only have the futures contracts which effect the whole securities markets, but we now have the spy contracts, the ETF contracts, which are somehow demonstrative of where the market's going. So you need to structure the circuit wide -- the market-wide circuit breakers in order to take into account what kind of signals are being made from the ETFs.

And the second thing that's just -- that is interesting is that we're not talking about circuit breakers that are going to be a long pause so that the market can get all the information. Rick, we did half an hour or an hour in 1988 and --

MR. KETCHUM: Both.

MR. RUDER: Both. Yeah. And they're the ones that are still in place, but we're talking about what the machines are thinking about, and we need to know, I think, in looking at the algorithms, what kinds of inputs the algorithm -- the algo-makers are putting in in terms of what their activities are going to be if certain events take place, and I don't know how you get that information. Maybe the staff can go out and ask everybody what are your aglos -- what are your protections against major crises?

CHAIRMAN GENSLER: You know, I say one thing, I was in Chicago this week for a number of reasons, mostly with Michelle Barnie, who's the European Commission for Internal Markets, but I also, Monday night, had a dinner with eight high-frequency traders. These were founders, I think amongst them, they did say at one moment -- and they weren't bragging or anything -- they said, you know, there's some days that the eight of our firms are probably half the volume in certain contracts. And I didn't ask which, but amongst them, they all wanted what Andre said earlier. They want certainty. They want to be able to program their programs and if something's going to be deemed a disruptive trading practice ex ante, they want to know it. They want to put it in their boxes so that they -- you know, they do that.

But they did have one suggestion that I'd be curious of your reactions to. Again, you don't have to react today. They'd like the exchanges to have more, both in the equities and in the futures markets, the exchanges have more risk parameters. And I said, well, they do have them, they have price banding and they have a whole sort of things, like in the E-Minis, you can't put more than 2000 orders in. And they said, well, our programs could break down and we could, for instance, have like a machine gun, a 1,999 volume, you know, just hit, repeatedly. They actually all wanted -- they'd like the exchanges to have something to shut them down at some point as a risk parameter.

It was just an interesting -- to your point. There may be other things like that.

MS. O'HARA: I think that one of the things we have to bear in mind is that the exchanges are in the business to do -- you know, to provide liquidity and execute volumes and I think the exchanges would love to design things that work well. I think the firms are not out to ruin markets. I think they're out to try and provide a service and create liquidity and they need tools. And I think part of what the regulators can help do is really give a template for both groups to think about how they fit into this.

So, I think that one advantage that will come out of this is I suspect firms will be looking to be smarter and exchanges will be looking to be smarter and I certainly think the great work the staff has done really helps all the parties figure out the new world in ways that I don't think anyone completely appreciated before this started.

CHAIRMAN GENSLER: Commissioner O'Malia?

MR. O'MALIA: Thank you. I'd be

interested to know -- following on your point, Gary -- the issue of direct market access and should the exchanges have these authorities to, you know, set the access barriers.

The FIA did a paper, which was the first issue the Technology Advisory Committee here at the Commission looked at, on direct market access. I was wondering if either subcommittee looked at that paper and had any thoughts about it and/or additional recommendations that should be implemented to support that?

CHAIRMAN GENSLER: And if you haven't seen it, we'll make sure Andre or somebody will send it around.

MR. O'MALIA: Either the staff or the advisory committee.

CHAIRMAN SHAPIRO: I guess I'd be curious as we figure out this issue about whether exchanges should have more risk parameters on the extent to which it will really be important that they be the same at all the exchanges and all the venues or we've just actually made the world a little bit more complex by having order routing decisions then made based on individualized risk parameters at each of the different exchanges or trading venues.

MR. KETCHUM: It seems to me there's sort of a nuanced answer to that. I do think that the Commission's role on the equity market side or the stock side, is critical, because we shouldn't have the illusion that the exchanges have the leverage to be able to act. They are commoditized from a competitive standpoint. The flow of -- order flow even with respect to minor pricing changes is quite remarkable at this point and I don't think any exchange can make a series of decisions from an access standpoint and providing things that may both reduce speed, to some degree, and/or reduce some order -- the flexibility of some orders. I think the Commission has to fundamentally define it.

I would say within that context, though, I would be a little cautious in not letting -- if an exchange feels they can differentiate in that way, letting them go beyond a Commission minimum because I think, first, it provides different alternatives for best execution decisions or execution decisions, and secondly, it provides an opportunity for experimentation, but I do think you're right, Chairman Shapiro, that the only way this will work on the stock side of the equation is for the Commission to be very aggressive to ensure at least a minimum level of consistency. Experimentation beyond that, perhaps, but a minimum level of consistency because the exchanges just don't have the leverage.

CHAIRMAN GENSLER: Do you know of the FIA?

MR. KETCHUM: I would love to see the FIA paper, but I have not had a chance to review it, and I'd certainly be very interested in including it in the committee's evaluations.

CHAIRMAN SHAPIRO: Maybe we could circulate both of the two papers Maureen's done and the FIA paper to the committee later today.

CHAIRMAN GENSLER: Joe? I haven't heard

you and I don't know if you're still there. Professor Stiglitz?

MR. STIGLITZ: I'm still there. I don't have anything particular to add at this point except for a point that I've made on other occasions which is some people have, you know, remarked about -- well, two points. One is the function of the market, and obviously I keep it focused on what do you mean by the function of the markets. And here, I guess, is related to the other point that I've raised which is one needs to see the whole ecology, the whole system, as they interact. And I've been concerned -- this issue that we've raised on other occasions -- that the -- one of the things that's going on here is that the flash traders may be extracting ranks from the fundamental traders by trying to extract information from them, and, therefore, actually undermining the efficiency of the market as a whole. That is, to put it another way, you know, the paper that Sandy Grossman and I wrote a number of years ago showing that if we had fully efficient markets, nobody would have any incentive to invest information because prices convey information and that eliminates the incentive for anybody to get it. And the problem here is that flash trading may in effect increase the efficiency of extracting information from the informed to the uninformed in the sense that flash traders aren't using information that is of any fundamental value. They're using information -- they're getting information from others who are getting information and, therefore, undermining the efficiency of the market.

And therefore, a lot of the discussion about worrying about is it interfering with the functioning of the market looking at it from the perspective of the flash traders, or from those engaging in these very fast trades I think may be fraud in terms of what our broader objective -- which should be protecting consumers, investors -- ordinary investors, and in terms of making a market that is truly more efficient.

CHAIRMAN GENSLER: I couldn't tell

whether people wanted to comment on Joe's comment. Jack?

MR. BRENNAN: The one comment would be that his comment on fundamental traders believing they're paying rent to high-frequency traders is a deeply felt position on the part of what we call much more traditional traders. We actually had one on one of the panels from Southeastern Asset Management and you would think they were long-term holders and why do they care, the rest of this is noise, but there is a deeply held view, partly on Brooksley's point that there really is an effect that one wouldn't think was natural, but because of being on this panel I hear from lots of "traditional, fundamental traders" that they believe there is a curious effect on the efficiency of the market when one would think that it had the opposite effect.

MR. STIGLITZ: Theoretically, you can show that that has to be the case. So I -- you know, I was on the phone on that meeting and I remember his saying that and I get that from other people, too. But I just wanted to say that there's actually a very strong theoretical case for what -- for that claim that they're making. In fact, it's hard to believe it's not true.

CHAIRMAN GENSLER: That what's not true? So, if you say affirmatively, what is --

MR. STIGLITZ: That is to say that they aren't in fact doing any fundamental research on the -- the flash traders are not doing fundamental research on what the underlying supply and demand trends in our real economy. What they're trying to do is extract information from prices, order flow, you know, market -- that's what we're all talking about, how they're trying to gain the algorithms and algorithms are trying to stop them from gaining them, and so forth. And so given that, they aren't adding information, they're just reprocessing other peoples' information, and in that sense, they almost inevitably are taking away -- to the extent that they make a return, they're taking away rents from those who are providing information.

CHAIRMAN GENSLER: Joe, at the risk of raising my head above this fox hole about high-frequency traders, but the market ecosystem has some who do fundamental research and has many investors who buy and hold for long term, but it has traditionally for decades had people who were also either specialist or pit traders who one might contend did a modest amount of fundamental research, but very little when you stand in the pits in Chicago. Even today there are still pits.

How do you differentiate the people that did that and provided very short-term liquidity based on order, flow, and information from what a high-frequency trader does?

MR. STIGLITZ: That's a harder -- you're exactly right. I mean, and the provision of this kind of liquidity is of some value. The real question is, as you go from smoothing out movements from within, you know, within a week to within micro -- within a minute, the social value goes down to zero clearly. And so the question is, the specialists always were, in fact, taking out rents from the fundamental trader, but they were providing a benefit that allowed people to sell the asset when they wanted. But what did that mean sell it when they wanted? It wasn't selling it within the next, you know, nanosecond, it was really, can I convert this stock into cash within a reasonable period of time?

So, it's that balance that I think we've lost. I don't think that there is any incremental social value in the price information. That's clear. There's no real -- and is the right provision of liquidity -- the question is, does it actually not drain liquidity from the system for the relevant -- what we really care about which is say fundamental traders who want to be able to have the option of selling when they want -- when they need cash for one reason or another. Does that make sense?

MS. O'HARA: Joe, this is Maureen O'Hara, and I think, you know, what I would interpret your remarks as saying is that we shouldn't lose sight of the fact that markets have very important roles, one is liquidity and the other is price discovery. The price discovery role is really based upon the ability of fundamental traders to learn new information and be able to trade on that information in markets in a way that compensates them for their efforts.

So, to the extent that any of our structures inhibit the ability of fundamental traders to do the important work of bringing new information to the market, that would be a bad thing and we definitely need to be careful that any sort of practices that degrade the ability to trade on fundamental information are avoided.

The issue of whether high-frequency traders, by definition, degrade that is somewhat more challenging because I think the high-frequency guys would argue that they really, instead, allow the markets to have a great deal of liquidity and that allows the fundamental traders to be able to trade on their information and earn a rent. Right? If you learn new information but you can't trade on it, then actually it's going to be difficult to earn rent. So, I think you've raised a very good point for this Commission and the task force to think about which is balancing those two very important topics and making sure that the provision of liquidity doesn't erode the ability to trade on information and make markets efficient.

MR. STIGLITZ: That's right, and let me just say, you know, some of the earlier research before the flash trading occurred actually suggested that there could be even advantages of having markets that were not continuous, so you could aggregate liquidity, so if you meet -- you know, markets that met once a day or even less frequently than that, because they -- you know, the price discovery isn't going on in continuous time, but decisions aren't made in those same kind of continuous time and certainly not in nanoseconds.

And so that literature actually suggested that there were advantages in terms of liquidity for the fundamental traders and incentives for providing information from having less frequent trading. So, that highlights the point that you just raised and that I was trying to emphasize, that we really want to keep in mind -- and this is (inaudible) I just want to emphasize -- keep in mind what the real functions, social functions, of these markets are.

MR. KETCHUM: Just a brief supplement with the leeriness of a lawyer wandering into social good discussions, but I agree with both of the points in some ways. I think Professor Stiglitz rightly says that I think we need to look at the overall impact. I do agree with Professor O'Hara that it seems to me, at least to me, that there is contributions to both market liquidity and market efficiency and pricing that comes from high-frequency trading that shouldn't be ignored.

I would say there's one subset that is interesting in viewing trading around the world versus the United States that would suggest that there is at least a reallocation of cost, to some degree. Most of the rest of the world and the world and the United States on the equity side until fragmentation became the reality, charged, at least with respect to ratios of high levels of message traffic with low levels of executions. Without saying whether it's social good or not social good or the rest, it clearly was viewed by exchanges or exchange-like things as less valuable than quoting activity that generally resulted in executions because it imposed significant transactional costs from a technology standpoint, surveillance, regulation, et cetera. That has disappeared from pricing, I think, in the United States in both areas -- not in the futures so much --

CHAIRMAN GENSLER: No, actually in the futures world there's still a premium charge if you have high quote or message volume compared to your transaction.

MR. KETCHUM: More to my point, in a futures world where there is more concentration, there's some of it --

CHAIRMAN GENSLER: But it's only a small

premium, but there is a premium.

MR. KETCHUM: And I would suggest that even the small premium probably suggests the greater risk of potential competition that exists in the futures market today rather than a few years ago.

In the equity market it's completely disappeared. I think it hasn't disappeared because there's a different view with respect to the overall benefit of a low quoting to trade ratio from a cost standpoint, it's disappeared because there's no pricing power left and I do think it's worth the Commission looking from an allocation standpoint with respect to price, at least pricing if nothing else, that I think you've had a reallocation because the exchanges can't price against activity that may generate huge numbers of quotes for relatively few trades in the high-frequency world.

CHAIRMAN SHAPIRO: I guess I'd just say that I think this last discussion really points to the issue Jack raised about investor confidence and it's really intimately tied to that, and I would add to that issue of confidence in the quality of the markets and the capability to raise capital efficiently and effectively. I think we have to sort of bare that in mind as an umbrella over this discussion.

CHAIRMAN GENSLER: I would agree with that and even though I stuck my head above the fox hole, I just -- you know, I absolutely think our markets have changed because of technology and what was once done in the specialist or in the pit -- seven of these eight high- frequency traders I met with Monday night who founded their own firms, they employ collectively 2,500 employees, and, you know, they're not just 3 people somewhere. Many of them are programmers. But seven of the eight were former pit traders and one was just a software developer, if I remember, because we went around the table and they said how they started their firm.

It's all within the last 10 years, some within the last 3 or 4 years. So, it's this dramatic shift of markets and how we maintain investor confidence, issuer confidence in our markets, the hedgers that hedge and use these instruments. It's absolutely critical that the price discovery function and liquidity is provided.

I just want to make sure whether Elise or Scott had things or if any commissioners are on the phone, I know Bart Chilton was on earlier.

MS. WALTER: I'd just like to plant a thought. I mean, I know we're coming close, to come pick up on two themes that were mentioned before, and that's the interrelatedness of the markets and informational advantages or disadvantages. I would love to get the wisdom of the committee members on -- and this is probably a long-term issue -- how important the consolidation of information across markets in a standardized sort of way that gives people truly comparable access at a comparable point in time in a combined fashion is? I mean, how much of a disadvantage are market participants at that their flows of information are coming from different places at slightly different times?

I feel pretty strongly about that in the regulatory area but I don't know whether that's a difficult issue to solve and I don't know how important all of you would think it is particularly with respect to market participants and I don't know if anybody has any comments on that today, but if I could kind of put that on your thinking agenda for the future, that would be great.

MR. O'MALIA: I'd also like to extend my thanks to everyone who's participated here, the staff and the committee members. It's interesting to hear some of this debate and it's less about specific recommendations, but also what role the fundamental market plays, and it's an important debate to have.

I do have a couple of questions on some of the solutions or potential solutions. We've talked about circuit breakers and pauses and LRPs, et cetera. I'd like to get a sense -- somebody raised the issue of, you know, the book being empty or a fully emptied book. Which of these various remedies might apply to which category and how we can avoid emptying the book and then what, you know, specific solutions are for an empty book and how we restore that?

The other one is the speed of the market, and I think Maureen raised it, and I think Susan raised it as well, but what would the impact be of slowing down the market? Would it exacerbate the liquidity crisis or not? And at what point is it -- obviously when it came back, it looked -- the market looked like a great thing to have, all the liquidity coming back as fast as possible. So, if we could take some thought to the speed of the market and whether slow downs in market crisis would help or not.

And any solutions on high-frequency trading are more than welcome. Thank you.

CHAIRMAN GENSLER: I don't know if Commissioner Chilton is still with us or any of the other commissioners are on the phone.

COMMISSIONER CHILTON: I'm here, Mr. Chairman. I know it's awkward on the phone for folks, so I appreciate your patience. But I'll try to be quick and forthright and I won't go too much overboard in thanking everybody, but I really am impressed by both the staffs and our advisory committee with all the discussion now and the work that's gone into this, and particularly with you, Mr. Chairman and Chair Shapiro, with all the work you've done, not jus ton this, but on the Wall Street Reforms Act. We really owe you a debt of gratitude.

My quick takeaways here are, first, as Gregg suggested early on when he was talking, perhaps the circuit breakers need to be more fine-tuned. When I say that it strikes me that it strikes me that the circuit breakers and the stop logic, you know, what's used in the futures market, really need to be harmonized between the two markets. If we do that it might help avoid sort of the arbitrage opportunities that HFTs were looking at in the flash crash and sort of stop that cascading calamity that the staff described.

Those sorts of harmonized shock absorbers, if you will, I think could be of real assistance in ensuring some market integrity.

And then second, at the CFTC, and the Chairmen refer, I think, briefly to this, we're in the process of coming up with a proposal for mandatory position limit but those position limits are for commodities of finite supply -- energy, metals, and ags -- but given what we saw in the flash crash, you know, perhaps we should be looking at -- I think we should -- limits on financial futures or even, you know, robotic algos. And Professor Stiglitz and Maureen were talking about both of these things, but it seemed to me, so say you have a limit of whatever it is, it's a hard number limit or it's a percentage limit, but for the sake of argument, say it's 10 percent, and that might be fine. But should an HFT or an algo trader be able to buy or sell 10 percent of the market 10 times in a minute? You know, that has a possibility, it seems to me, of roiling the market.

Now, you know, some high-frequency trading cowboys may be able to scoop up the micro dollars in nanoseconds, but it could also disrupt markets. So, it seems that there's a good argument to me, you know, that this sort of trading, as Professor Stiglitz was saying to some extent, could be, you know, in some regard parasitical trading which doesn't really have a great contribution to market efficiency.

So, and then the last thing is that, you know, it seems to me as regulators, at least at the CFTC, that we should have some team, Mr. Chairman, that we should have some team of folks who are IT experts, who look at this, look at algos. I know that folks will get concerned about proprietary information -- the exchanges do this, the CME does this a little bit, but there's got to be some responsibility on the government to have some sense. There's a story that's posted on the FT's site, they call it the trading room site, online. Jeremy Grant wrote it, this morning, and it talks about how the Indian regulators both on the securities side and on the futures side, test the algos before they get put into the production environment. I don't know if that's something we should do or not, but it seems to me that we should certainly look at it.

And then the final thing, and Mr. Chairman, you mentioned this and Commissioner O'Malia and I have talked about this before, too, whether or not we actually hold folks who actually run these renegade algos accountable, that we have a disruptive trading practice rule out for comment right now. One of the questions is whether or not these algos gone wild. There should be some accountability for them. I mean, I think so. But what that is, Mr. Chairman, you were talking about your meeting with the HFTs the other night. They definitely need some certainty. It would have a quelling impact on the market if we just left it right open, so we've got to have some certainty as to what this is, but it seems to me some sort of parameters with some sort of accountability is needed.

But I look forward to getting the comments, and thank you again for dealing with me on the phone. I know it's a little awkward for you guys. Thank you.

CHAIRMAN GENSLER: No, thank you, Commissioner Chilton. And I think Commissioner Dunn is on the phone as well.

COMMISSIONER DUNN: Yes, I am. Mr. Chairman, thank you and thanks to this advisory group and the staff for all their hard work they've put in this, and especially to Rick and Jack for being volunteered to chair up those subcommittees. I really appreciate it. I was most interested in your reports, but I guess, Maureen, you get the tip of the hat for the quote of the day. I certainly hope we don't end up as that bad example.

Two points that come to mind to me listening today, and first of all, to the two chairmen, I think it is just absolutely imperative that we go forward on getting the definitions out for our implementation into Dodd-Frank, and frankly, I'm disappointed that staff has not been able to reach conclusions on that. It looks like we're slipping a little bit in the timeframe that was our goal. But I think it's important that we all are working with the same nomenclature and as I listen to this discussion today, that just has been reinforced, so please make sure that we get those definitions as soon as possible. There's just too much uncertainty out there without knowing what we're actually talking about.

The second point on the high definition and algorithms, I had said during our technical -- Technology Advisory Committee meeting that I wanted to know who was responsible for oversight, who should be privy to what algorithms are based on, who should be regulated and how can they be regulated, and the discussion today has really moved this, in my mind, much further down the road. I have a much better understanding of what the expectations are out there.

Mr. Chairman, your meeting with the

high- frequency traders reminds me of the old B-grade movies where the detective walks into the murder site and sees written on the mirror: Please stop me before I kill again. I think it's incumbent upon us to have that certainty, I think, as a template or best practices guides are something that we need to be working on.

And the third issue is funding. I would be remiss if I didn't bring this up because everything that the advisory group has talked to us about today I see as going to be requiring some type of financial output on the behalf of both commissions. And to that end, since so many of the issues that we have are a result of the interrelationship between the two markets, I think it is incumbent upon the CFTC and the SEC to work collectively on these issues and not to be reinventing the wheel in both commissions. I think we can save some money for the taxpayers, but, again, without the fiscal and human resources to address these issues, it's going to be the public and the financial world that's going to be the victim if we don't have those resources.

So, again, thanks to all the members of the advisory group, and especially the staff for the work that they've done.

CHAIRMAN GENSLER: Thank you, Commissioner Dunn. I want to assure you it was a dinner that I asked for and it was very helpful. It was very helpful.

These are active participants in our markets. I just wanted to -- we do have to approve minutes, but I also wanted to suggest that if each of the committee members could get back to the staffs on your availability in early January. What we'd like -- I know it's an ambitious schedule, but what we'd like -- and Chairman Shapiro and I were just chatting so this is maybe a little audible here, meaning our staffs don't know I was going to say this -- but what we'd really like is that if you all could be prepared to come back with some recommendations, you know, through your subcommittee work and whether you need some ways under the FACA committee to have conference calls and so forth, but this committee doesn't go away after January. I mean, you continue to advise us, not just on May 6th, but on other matters, but if we can try to get to that in this timeframe, that would be terrific.

So, but with that, finally we need to actually discuss and approve the minutes of the August 11th meeting of this committee. And I think I'm supposed to --

MR. BRENNAN: Second.

MR. KETCHUM: Third.

CHAIRMAN GENSLER: Any discussion? All in favor.

GROUP: Aye.

CHAIRMAN GENSLER: Any opposed? Minutes being approved. And I think then given the minutes, we're done.

I think the next thing I'm supposed to do -- do I need a motion to adjourn this meeting? Just want to make sure. All in favor.

GROUP: Aye.

CHAIRMAN GENSLER: Thank you so much.

Thank you, Commissioner Chilton and --

CHAIRMAN SHAPIRO: Thank you all very much.

(Whereupon, at 11:57 a.m., the PROCEEDINGS were adjourned.)

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CERTIFICATE OF NOTARY PUBLIC

DISTRICT OF COLUMBIA

I, Steve 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