

U.S. SECURITIES AND EXCHANGE COMMISSION

FIXED INCOME MARKET STRUCTURE
ADVISORY COMMITTEE MEETING

Monday, October 5, 2020

9:32 a.m.

Via WebEx Videoconference

100 F Street NE

Washington, D.C.

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1 PARTICIPANTS:
2 Chairman Jay Clayton
3 Commissioner Hester Peirce
4 Commissioner Caroline Crenshaw
5 Commissioner Allison Lee
6
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8 Michael Heaney, Committee Chairman
9 Dan Allen
10 Horace Carter
11 Robin Foley
12 Gilbert Garcia
13 Tom Gira
14 Larry Harris
15 Mark Kim
16 Scott Krohn
17 Ananth Madhavan
18 Lynn Martin
19 Amy McGarrity
20 Rick McVey
21 Lee Olesky
22 Ola Persson
23 Suzanne Shank
24 Larry Tabb
25 Sonali Theisen

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1 PARTICIPANTS(CONT.):
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3 Kumar Venkataraman
4 Elisse Walter
5 Rachel Wilson
6 Brad Wings
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1 PROCEEDINGS
2 MR. HEANEY: Good morning. Thank you for
3 joining us for today's SEC's Fixed Income Market
4 Structure Advisory Committee's meeting. I can confirm
5 that we have a quorum and will call the meeting to
6 order.
7 For the record, in addition to me, the
8 following FIMSAC members are in attendance: Dan Allen,
9 Matt Andresen, Horace Carter, Robin Foley, Gilbert
10 Garcia, Larry Harris, Mark Kim, Scott Krohn, Ananth
11 Madhavan, Lynn Martin, Amy McGarrity, Rick McVey, Lee
12 Olesky, Ola Persson, Suzanne Shank, Darryl Street, Larry
13 Tabb, Sonali Theisen, Kumar Venkataraman, Elisse Walter,
14 Rachel Wilson and Brad Wings.
15 It's great to see everybody and the committee
16 members, albeit on Webex. And while we all probably
17 wish we were together in Washington, D.C., I'm hopeful
18 that the next meeting will be in person. Before we
19 begin our meeting, I want to remind all participants in
20 today's meeting to be mindful of when your line is muted
21 and unmuted.
22 Please make sure to mute your line when you're
23 not speaking and remember to unmute your line when
24 called upon. I'll begin by welcoming the commissioners.
25 I understand Chairman Clayton will be joining us later

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1 this morning and will give his opening remarks then. So
2 I'll ask that Commissioner Peirce kick things off today
3 with her opening remarks.

4 COMMISSIONER PEIRCE: Thank you, Michael. And
5 thank you to the rest of the committee for your
6 continuing hard work. Welcome to our newest members.
7 Although the committee is scheduled to wrap up its work
8 in the near future, I favor extending it indefinitely.
9 The Commission needs your expertise and insights about
10 market events. Some of you have been serving on the
11 committee since its inception which has entailed a large
12 time commitment and a lot of hard work. So when I ask
13 that the committee be extended, I understand that some
14 of you may not be able to continue to serve.

15 Regardless of whether the composition of the
16 committee remains the same as it is today, I'm confident
17 that it will continue to be a valuable resource for us.
18 Today's discussion, for example, will shed light on
19 market events earlier in the year with a focus on
20 corporate bonds, municipal securities and ETFs. As
21 difficult as that time was, it may teach us valuable
22 lessons about where changes are necessary and how to
23 make the regulatory structure more robust. The draft
24 recommendation to define electronic trading and
25 establish reporting standards is the kind of practical

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1 input that is particularly useful as we look at ways to
2 support the modernization of the fixed-income markets.
3 Thank you again, and I look forward to today's
4 discussions.

5 MR. HEANEY: Thank you, Commissioner Peirce.
6 Commissioner Lee?

7 COMMISSIONER LEE: Thank you, Michael. It's a
8 pleasure to join you today. And I agree with you about
9 being hopeful that the next meeting will be in person.
10 We certainly hope so. I really appreciate the time and
11 the talent that each of you on this committee and on the
12 panel devote to helping us work through issues related
13 to fixed-income markets. And your agenda today is, as
14 it always is, thoughtful and timely.

15 Just as we must do for equity markets, it's
16 critical that we examine lessons learned from the recent
17 market events caused by the pandemic. Fixed-income
18 markets underpin finance and risk management in the U.S.
19 economy and even globally. And some of what we've seen
20 this year, wider credit spreads and a surging demand for
21 liquidity created hazardous conditions that led to some
22 fairly significant federal intervention.

23 So I think it's incumbent upon us to look at
24 this from every angle and to understand whether there
25 are policy implications that flow from that. And I'm

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1 also really interested in the discussion surrounding the
2 committee's recommendation on standardizing a definition
3 for electronic trading and helping to ensure consistency
4 in the reporting of electronic trading volume. That's
5 important for investors and corporate communities but
6 also for regulators in ensuring that we have accurate
7 data for our oversight function. So thank you for
8 bringing your attention to that issue.

9 In a similar vein, now for future
10 consideration, particularly if the committee's charter
11 is further extended, which I also support, it would be
12 good to get your views on whether fixed-income market
13 data might be more broadly harmonized with international
14 standards like the uniform product identifier, uniform
15 transaction identifier, critical data elements. These
16 are open, cost-based data standards that are intended to
17 allow easier aggregation of market data across asset
18 classes and across jurisdictions to better facilitate
19 market oversight.

20 And generally, I know these standards have
21 been conceptualized as applying to over-the-counter
22 derivatives. But, you know, if we're going to consider
23 those standards for derivatives, it may be worth
24 considering whether they should also apply to the
25 financial instruments underlying those derivatives. The

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1 financial instrument global identifier or FIGI is one
2 example of a freely available open product identifier.

3 And the Commission recently sought comment on
4 allowing the FIGI as a voluntary alternative to existing
5 proprietary identifiers in some recent proposal. So,
6 you know, should the committee decide to take a broader
7 look at data standards and fixed-income markets? I
8 submit that it may make sense to consider the use of
9 freely-available open data standards like UPI, UPI and
10 FIGI because they have the potential to democratize
11 access to information and promote better risk management
12 and oversight through allowing easier aggregation of
13 data by market participants and regulators.

14 So just leave you with that thought. And
15 also, I want to let you get to your work. Again, my
16 sincere thanks to all of you for lending us your time
17 and your expertise.

18 MR. HEANEY: Thank you, Commissioner Lee.
19 Commissioner Crenshaw?

20 COMMISSIONER CRENSHAW: Good morning. It's
21 great to be at my first meeting. I believe I have met
22 some of you in the past. I know some of you. And I
23 look forward to meeting the rest of you, as you've
24 discussed earlier this morning, hopefully in person,
25 perhaps at the next meeting but hopefully one day soon.

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1 I think of -- I think the work of this committee has
 2 been extremely valuable in terms of providing
 3 recommendations to the Commission on how to improve our
 4 oversight of the fixed-income markets. So thank you all
 5 for those efforts.

6 I understand that today the committee will
 7 consider a recommendation regarding consistent standards
 8 for the reporting of electronic trading. For regulators
 9 and investors alike, analyses yield better results when
 10 the data being analyzed is standardized and more
 11 complete. I'm interested in hearing how a more
 12 comprehensive definition of electronic trading can yield
 13 more consistent and predictable data reporting to
 14 everyone's benefit. And I share Commissioner Lee's
 15 interest in the potential role for standardized
 16 nonproprietary identifiers in making this data more
 17 accessible and usable for both regulators and the
 18 public.

19 I also understand that today the committee
 20 members will be sharing observations and lessons learned
 21 from the COVID-19 pandemic. I'm particularly interested
 22 in your observations of how bond ETFs responded during
 23 the time of the greatest COVID-related market
 24 volatility, the extent to which concerns about liquidity
 25 mismatch were realized and the impact on investors. I

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1 would like to hear your views on the role of the Fed and
 2 the CARES Act in relieving the pressure and how the
 3 funds might have fared without this intervention.

4 It appears the consequences might have been
 5 much more severe without the Fed's decision to absorb
 6 liquidity, including on secondary market. I'm also
 7 interested in the longer-term implications of COVID-19
 8 for the corporate bond and municipal bond markets. For
 9 example, do you have insights to share on the impact of
 10 COVID-19-related changes in consumer spending and the
 11 demand for commercial real estate or the impact of the
 12 challenges facing state and local governments?

13 More broadly, I look forward to hearing your
 14 thoughts on what we have learned about how we might
 15 protect these markets against future acute and
 16 unexpected shocks to the economy. Again, thank you all
 17 for your participation on this committee. Your work has
 18 yielded important insights. It seems clear that there
 19 remains important work to be done. And I also support
 20 extending the charter, as the other commissioners have
 21 mentioned. So thank you again, and I look forward to
 22 all the presentations.

23 MR. HEANEY: Thank you, Commissioner Crenshaw.
 24 Next I'll turn it over to Brett Redfeam,
 25 director of the Division of Trading and Markets and the

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1 committee's designated federal officer for his remarks.

2 MR. REDFEARN: Good morning. Thank you,
 3 Michael, and thank you Commissioners Peirce, Lee and
 4 Crenshaw. I would also like to welcome everybody to
 5 today's FIMSAC meeting. It's good to see so many faces.
 6 And I hope everybody is staying healthy and safe.

7 Let me just start by introducing my SEC
 8 colleagues who are here with us in this virtual meeting.
 9 Joining us from the Division of Trading and Markets, we
 10 have Elizabeth Baird, one of our deputy directors, and
 11 Dave Shillman and John Roeser, associate directors in
 12 the Office of Market Supervision.

13 We also have Rebecca Olsen, director of the
 14 Office of Municipal Securities, and Tim Husson,
 15 associate director in the Division of Investment
 16 Management. Finally, we have S.P. Kothari, SEC chief
 17 economist, and Amy Edwards, assistant director in the
 18 Division of Economic and Risk Analysis.

19 Before we get started, I need to remind
 20 everybody that the views expressed during the meeting by
 21 SEC staff are those of the speaker and do not
 22 necessarily reflect those of the Commission, any
 23 commissioners or any other members of the staff. I'd
 24 like to start by giving an enthusiastic thank you to all
 25 of our FIMSAC members for your continued and tremendous

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1 efforts on this committee. I'm also happy to welcome
 2 our new committee members, Robin Foley from Fidelity
 3 Investments; Ola Persson from FINRA; and Darryl Street
 4 from the government of the District of Columbia.

5 While this may be their first public meeting,
 6 they have already gotten engaged in the committee
 7 through our subcommittees and we're already benefitting
 8 from their expertise. In addition to this committee's
 9 consideration today of a potential 16th recommendation
 10 to the Commission, today you all will be making several
 11 presentations concerning the impact of COVID-19 on our
 12 fixed-income markets, especially during the March/April
 13 period of extraordinary market volatility and
 14 uncertainty.

15 As I mentioned back in June, from my
 16 perspective as a director of the Division of Trading and
 17 Markets and the FIMSAC designated federal officer, the
 18 COVID-19 pandemic tested our fixed-income market
 19 structure in terms of price discovery, liquidity,
 20 trading volumes, clearing and settlement. So far, it
 21 seemed to have largely risen to the challenge. Some key
 22 metrics show that our fixed-income markets have
 23 significantly recovered from the peak stress conditions
 24 of March, for example, volatility of the indices, repo
 25 rates, bond ETF discounts, the NAV, bid-ask spreads and

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1 yield spreads.

2 Nonetheless, we are still not yet back fully

3 to pre-pandemic levels. It's hard to imagine a more

4 relevant time for a committee like FIMSAC to provide the

5 Commission with its views on the performance and

6 resiliency of our fixed-income markets. Over the three

7 years that you've been working together, you've helped

8 us better understand the strengths and weaknesses of our

9 existing fixed-income market structure. And today,

10 we'll further benefit from your views about how our

11 markets have performed during the COVID-19 pandemic and

12 related risks that require our focus going forward.

13 Our sessions today will include presentations

14 based on data and on your personal experiences in this

15 unique market environment. Before I wrap up, I also

16 want to reiterate once again the importance of public

17 engagement. We continue to encourage interested parties

18 to submit comments on the work of the committee,

19 including via the FIMSAC webpage on the SEC's website.

20 This has been a great way for FIMSAC and the

21 Commission to gain additional insights into many of the

22 issues under consideration. I look forward to today's

23 discussion. And with that, I'll turn it back to you,

24 Michael.

25 MR. HEANEY: Thank you, Brett. As chair of

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1 the committee, I, too, would like to welcome our new

2 three members, Robin Foley, Darryl Street, Ola Persson.

3 We're glad to have you join us today. You each bring an

4 impressive amount of expertise to the FIMSAC. And I

5 look forward to working with you. And I'm sure I can

6 speak on behalf of the committee, which does as well.

7 I just want to echo what Brett said about all

8 the hard work and the enthusiasm and the dedication to

9 FIMSAC, especially over the last four or five months,

10 which has been obviously somewhat of a trying time for

11 us all. It's been an incredible effort by the committee

12 members to make this meeting what I'm sure will be a

13 large success. So thank you again.

14 Moving to today's agenda, we do have a full

15 day, one recommendation to consider, three panel

16 presentations, two in the morning and one in the

17 afternoon, followed by the FIMSAC member observations

18 this afternoon. This morning, the Technology and

19 e-Trading Subcommittee will present their recommendation

20 on TRACE identification of electronic trades, which, if

21 approved, would be the committee's 16th recommendation.

22 This recommendation is tied to an earlier

23 FIMSAC recommendation, the e-trading oversight

24 recommendation, a framework for the oversight of

25 electronic trading platforms for corporate and municipal

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1 bonds recommended for review by the SEC. In crafting

2 the preliminary recommendation, the subcommittee

3 believes that a consistent definition of electronic

4 trading and an industry standard for reporting

5 electronic trading volumes is a necessary component to

6 that earlier recommendation.

7 The second agenda item of the morning will

8 focus on the pandemic's impact and associated market

9 volatility on the corporate bond market. Gilbert

10 Garcia, chair of the Corporate Bond Transparency

11 Subcommittee, will be leading that presentation.

12 Following the corporate bond discussion, we'll look at

13 the impact of the municipal securities market. Lynn

14 Martin, chair of the Municipal Securities Transparency

15 Subcommittee, will moderate her subcommittee's

16 presentation.

17 After a lunch break, we'll start the afternoon

18 session with a look at the performance of our bond fund

19 and ETF markets during the pandemic. Ananth, chair of

20 the subcommittee, will lead that discussion. We'll

21 close the day with a -- with more general observation

22 from the FIMSAC members.

23 As FIMSAC approaches the conclusion of our

24 third year, there have been many issues raised, topics

25 discussed and debated and a rich examination of market

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1 structure issues facing fixed-income markets. While the

2 committee successfully passed 15 recommendations, there

3 may have been ideas that committee members believe are

4 worthy for the Commission for further evaluation. This

5 final agenda item is intended for any FIMSAC member to

6 express what they view as significant issues for the

7 future consideration by the Commission.

8 Of course, the conversation doesn't end here.

9 As the chairman indicated at the June meeting, the

10 committee will likely be renewed until March 2021, which

11 gives us additional time to consider, deliberate and

12 potentially recommend new topics on matters related to

13 fixed-income market structure.

14 Finally, to manage today's discussion on this

15 virtual platform, I want to emphasize our discussion

16 protocol for the day. This protocol will help avoid

17 each other -- speaking over each other and keep some

18 order to the meeting. After each presentation today,

19 there will be a dialogue segment where I'll open it up

20 to members to ask questions or express views on the

21 subject being discussed. If anyone would like to ask a

22 question or express a view during this time period in

23 the dialogue segment, please let me know by email. I

24 will call on all members in the order received in the

25 emails. Finally, I'd like to remind everyone again to

1 please mute your line until called upon and re-mute when
 2 you're done speaking.
 3 RECOMMENDATION REGARDING DEFINING ELECTRONIC TRADING
 4 MR. HEANEY: With that, let's move to our
 5 first agenda item. Our first agenda item is a
 6 preliminary recommendation from the Technology and
 7 Electronic Trading Subcommittee. Rick McVey, chair of
 8 the subcommittee, will provide an executive summary of
 9 the preliminary recommendation regarding TRACE
 10 identification of electronic trades. I'll then open it
 11 to discussion to the committee.
 12 Rick, over to you.
 13 MR. McVEY: Good morning and thank you,
 14 Michael. This morning's recommendation from the
 15 Technology and e-Trading Subcommittee follows the SEC
 16 concept released last week that asks important questions
 17 on fixed-income electronic trading, including one of the
 18 common attributes that define fixed-income electronic
 19 trading platforms. What are the current inconsistencies
 20 in the regulatory framework for fixed-income electronic
 21 trading, and should the SEC consider amendments to Reg
 22 ATS to take into account the unique features in
 23 fixed-income electronic trading? Our recommendation
 24 should also be viewed as a follow-up to the first
 25 recommendation from our subcommittee to encourage the

1 SEC, FINRA and MSRB to form a working group to create
 2 one cohesive regulatory framework for fixed-income
 3 electronic trading venues to ensure resiliency in our
 4 markets, eliminate inconsistencies in the way that
 5 regulation is currently applied, and avoid the risk of
 6 redundant regulatory oversight.
 7 Our committee believes that creating a common
 8 definition of electronic trading fixed income will allow
 9 regulators, investors, dealers and industry analysts to
 10 more accurately understand the trends and growth in
 11 electronic trading in U.S. fixed-income markets.
 12 Today's practices for reporting electronic trading
 13 volume and market share vary widely across fixed-income
 14 e-trading venues.
 15 As a result, it is extremely difficult for any
 16 market participant to have a full and accurate picture
 17 of the electronic market share, transaction costs and
 18 liquidity available across various fixed-income trading
 19 venues. As one example of this challenge, total
 20 fixed-income volume reported by ATS-registered venues in
 21 corporate bonds has been running around 7 percent of
 22 TRACE. However, industry analysts estimate the total
 23 electronic trading in investment-grade corporate bonds
 24 is running at approximately 32 percent of TRACE.
 25 This is because the current ATS rules were

1 written to address platforms that provide services
 2 commonly performed by registered stock exchanges and did
 3 not contemplate different fixed-income protocols such as
 4 electronic request for quote or RFQ. Additional
 5 inconsistencies arise in electronic trade volume
 6 reporting due to whether the trade was directed to a
 7 single dealer or multiple dealers reporting for trades
 8 that are matched principal trades conducted in an
 9 all-to-all trading environment versus disclosed
 10 client-to-dealer trades and trades where a registered
 11 ATS may give up the trade to a different broker-dealer
 12 for trade settlement often resulting in double reporting
 13 to TRACE.
 14 Furthermore, there is a common practice in the
 15 fixed-income industry today where some market
 16 participants trade off-venue through traditional means
 17 by phone or instant message and then report the
 18 post-trade message on venue in order to achieve
 19 straight-through processing. Some fixed-income
 20 platforms include these process trades in their volume
 21 and market share reports while others do not.
 22 Given the wide differences in reporting
 23 standards today, it is difficult at best to conduct
 24 direct comparisons on market share and liquidity
 25 available on various platforms and to get a true sense

1 of the market share trends in total for fixed-income
 2 electronic trading.
 3 Our recommendation, as a result, is for the
 4 SEC to clearly define electronic trading so that any new
 5 regulation or framework comprehensively covers the
 6 platforms and trading functionality that the SEC intends
 7 to cover without reliance on the current ATS definition;
 8 take the above-discussed factors into account when
 9 defining electronic trading, including single dealer
 10 versus multi-party execution and fully electronic versus
 11 post-trade processing; and establish industry standards
 12 for electronic trade reporting that address the current
 13 inconsistencies described above relating to ATS
 14 functionality, single-counting versus double-counting
 15 and the treatment of give-up trades for settlements.
 16 With this change, we believe all market participants,
 17 including regulators, will have a consistent and
 18 accurate picture of electronic trading trends across
 19 U.S. fixed-income markets.
 20 And Michael, that concludes my remarks and
 21 summary on the recommendation. I will turn it back over
 22 to you.
 23 MR. HEANEY: Thank you, Rick. I'll now turn
 24 it over to members for questions or comments and
 25 perspectives on the recommendation.

1 MR. REDFEARN: Looks like Sonali wants to jump
2 in.

3 MR. HEANEY: Can you hear me? Sonali, please.

4 MS. THEISEN: Thanks very much. You know, I'd
5 just like to say that I've seen a lot of thought went
6 into this proposal. And thanks very much to Rick for
7 putting all of the work and effort into pulling this
8 together.

9 I think that as a headline matter, you know,
10 this has come up with FIMSAC for a few times now since
11 the start of our charter. And I think that it's just a
12 fairly fundamental need for the market to have some type
13 of consistency. It's very foundational that there be
14 some type of consistency in how we think about
15 electronic trades so they can be measured. I think
16 there is a lot of public interest in this topic, whether
17 it be by market participants, you know, the regulators,
18 researchers, etc.

19 And I think that, you know, this is one of the
20 pieces that -- certainly that like there is some
21 regulatory complexity to solving. But it's quite
22 foundational for the market and certainly a question
23 that we receive in our -- constantly, you know, what
24 does e-trading mean. Where can I see those numbers?
25 How should I compare them? It is the questions that we

1 don't see, you know, how it benefits us to kind of start
2 regulating fixed servers or fixed-messaging platforms in
3 this process. And with that, I'll say thank you again.

4 MR. HEANEY: Thank you, Larry.

5 Other comments, questions?

6 Let me turn it over to Brett or the
7 commissioners. Any questions or comments for Rick or
8 the subcommittee?

9 MR. REDFEARN: No. I mean, this is a great
10 discussion. Thank you for the recommendation. You keep
11 coming with them. And we talked about some of these
12 things before. So we appreciate the discussion. I will
13 seek to see if any of the commissioners have comments or
14 questions.

15 MR. HEANEY: Thank you, Brett.

16 Okay. If there is no other comments or
17 questions, I will entertain a motion to vote on the
18 recommendation. If I could get somebody to move it,
19 please --

20 PARTICIPANT: So moved.

21 MR. HEANEY: Thank you.

22 PARTICIPANT: Second, Michael.

23 MR. HEANEY: Thank you. I might do what we
24 did in the last meeting as well, just so everyone is
25 familiar. I'll do a roll call for the vote. So if you

1 get every day by -- from investors.

2 MR. HEANEY: Thank you, Sonali.

3 Larry Tabb?

4 MR. TABB: Thanks, Michael. I want to also
5 thank Rick for running this. I think he did a great
6 job. And I totally agree as an industry analyst that we
7 need a better way how to categorize electronic trades,
8 especially with the tremendous complexity and how all of
9 the trading kind of fits together.

10 The one thing I'm a little concerned about is
11 the overarching view to kind of regulate everyone. We
12 just need to be careful that we don't wrap in messaging
13 platforms that have no relationship to providing capital
14 or -- you know, or matching buyers and sellers together
15 because that could then rope in fixed platforms or fixed
16 servers because, you know, if both sides are regulated
17 -- and, you know, we just need to be careful who we --
18 who gets roped into those regulations. And that's my
19 major concern.

20 But anybody who matches two buyers and sellers
21 together I fully agree should be regulated. Anybody --
22 any mechanism that kind of functions in the center of
23 accepting risk or managing those transactions should be
24 regulated. On the other hand, if it's just me sending a
25 message to a dealer through a messaging platform, I

1 would be prepared to unmute as we go alphabetically --

2 Dan Allen?

3 MR. ALLEN: Approve.

4 MR. HEANEY: Matt Andresen?

5 MR. ANDRESEN: Approve.

6 MR. HEANEY: Thank you.

7 Horace Carter?

8 MR. CARTER: Approve.

9 MR. HEANEY: Thank you.

10 Robin Foley?

11 MS. FOLEY: Approve.

12 MR. HEANEY: Thank you.

13 Gilbert Garcia?

14 MR. GARCIA: Approve.

15 MR. HEANEY: Thank you.

16 Larry Harris?

17 MR. HARRIS: Approve.

18 MR. HEANEY: Thank you.

19 Scott Krohn?

20 MR. KROHN: Approve.

21 MR. HEANEY: Thank you.

22 Ananth Madhavan?

23 MR. MADHAVAN: Approve.

24 MR. HEANEY: Thank you.

25 Lynn Martin?

1 MS. MARTIN: Approve.
 2 MR. HEANEY: Thank you.
 3 Amy McGarrity?
 4 MS. MCGARRITY: Approve.
 5 MR. HEANEY: Thank you.
 6 Rick McVey?
 7 MR. McVEY: Approve.
 8 MR. HEANEY: Thank you.
 9 Lee Olesky?
 10 MR. OLESKY: Approve.
 11 MR. HEANEY: Thank you.
 12 Suzanne Shank?
 13 MS. SHANK: Approve.
 14 MR. HEANEY: Thank you.
 15 Darryl Street? Perhaps unmute. I'll just --
 16 Darryl Street?
 17 PARTICIPANT: You're on mute, Darryl.
 18 MR. STREET: Sorry. I was trying to use my
 19 phone for that. Approve.
 20 MR. HEANEY: Thank you.
 21 Larry Tabb?
 22 MR. TABB: Abstain.
 23 MR. HEANEY: Okay. Sonali Theisen.
 24 MS. THEISEN: Approve.
 25 MR. HEANEY: Thank you.

1 Kumar Venkataraman?
 2 MR. VENKATARAMAN: Approve.
 3 MR. HEANEY: Thank you.
 4 Elisse Walter?
 5 MS. WALTER: Approve.
 6 MR. HEANEY: Thank you.
 7 Rachel Wilson?
 8 MS. WILSON: Approve.
 9 MR. HEANEY: Thank you.
 10 Brad Wings?
 11 MR. WINGES: Approve.
 12 MR. HEANEY: Thank you.
 13 And my vote is yes. We do have the needed --
 14 in excess of 11 votes in favor of the recommendation,
 15 which will be passed and approved by the committee.
 16 Rick, thank you again for all your hard work
 17 as subcommittee chairperson and the entire subcommittee
 18 for the hard work on this. Very much appreciated.
 19 CORPORATE BOND MARKET OBSERVATIONS AND LESSONS LEARNED
 20 MR. HEANEY: Okay. Let's move along. Next on
 21 the agenda we have the member observations of the
 22 pandemic impact on the associated market volatility on
 23 the corporate bond market. Gilbert Garcia, chair of the
 24 Corporate Bond Transparency Subcommittee, will lead the
 25 discussion.

1 Gilbert, I'll turn it over to you.
 2 MR. GARCIA: All right. Let's go. So
 3 Chairman Clayton, commissioners and my fellow FIMSAC
 4 committee members, ladies and gentlemen, I'm Gilbert
 5 Garcia. And this, again, is the Corporate Bond
 6 Transparency Subcommittee.
 7 This has been a team effort from the
 8 beginning. So we're going to have essentially many of
 9 our speakers presenting as part of this presentation.
 10 But I could assure you we're going to be fast. We're
 11 going to be smooth. And we're going to be on time. I'm
 12 going to serve as your host, your timekeeper and your
 13 slide conductor. So I'm now going to go ahead and start
 14 sharing the slides.
 15 Okay. Very good. So what you're going to see
 16 today is that while COVID caused significant volatility,
 17 overall, our conclusion, markets worked. And they
 18 worked very well. And unlike Lehman Brothers where the
 19 primary focus seemed to be monetary policy, during
 20 COVID, not only did we have significant monetary
 21 stimulus, but we had unprecedented fiscal stimulus.
 22 If you look at this first slide, this is just
 23 a slide of the Federal Reserve balance sheet. And you
 24 can see on the X-axis time from '03 to 2020 and on the
 25 Y-axis, the size of the balance sheet in millions. And

1 you'll notice that right before Lehman Brothers in that
 2 '03 to '08 time period, the balance sheet was about a
 3 trillion dollars. And then we had several different
 4 quantitative easing programs where the Fed bought
 5 securities. And we topped out right around
 6 four-and-a-half trillion.
 7 And then you'll notice we started to have some
 8 runoff in 2018 and '19. And then came COVID. And
 9 during COVID now, we are already over \$7 trillion in a
 10 place that we haven't seen before. And one of the
 11 results, of course, has been an unprecedented growth in
 12 money supply. And for those of us who don't recall the
 13 quantitative theory of money, you can see it there in
 14 the center. Well, of course money times velocity equals
 15 price changes times economic growth.
 16 And you can see on the X-axis time from 1948
 17 to the present. And you can see the year-over-year
 18 percentage growth on the Y-axis. I won't go through all
 19 the different stress points in the '70s and certainly in
 20 modern times with Lehman Brothers and Greece. But the
 21 one thing to see is even during those stress points, the
 22 growth rate of money supplied year-over-year was
 23 approximately 12 percent. And during COVID, we've been
 24 at unprecedented levels, at almost 25 percent and
 25 frankly -- and still counting. And so what you're going

1 to see here in our presentation is, despite some of this
2 incredible fiscal policy and monetary policy, we also
3 had commercial paper back-stop programs and
4 bond-purchasing programs.

5 And while they were hardly used, their mere
6 existence went a long way to stabilize markets. So
7 where the dealer community might have had challenges
8 during the COVID crisis, a new hero has really emerged
9 to take up a lot of the slack. And that is electronic
10 trading. And you're going to see that during the
11 following presentations and slides as we go forward.
12 I'm now going to turn over to my colleague, Kumar, who
13 is going to begin here.

14 And we're ready, Kumar.

15 MR. VENKATARAMAN: Thank you. Thank you,
16 Gilbert.

17 In the next few slides, I'll move our
18 conversation from a very macro perspective that Gilbert
19 provided to a micro perspective of the BBB market during
20 the challenging events of 2020. One area of exploration
21 of the Credit Rating Subcommittee, which is chaired by
22 Amy McGarrity, on which I serve, was the conflicts of
23 interest and the issuer pay model which might lead to
24 inflation of current ratings. The incentives to receive
25 a higher rating were particularly high for issuers that

1 kindly offered to say more about this during his
2 presentation.

3 But as can be seen from the chart, these
4 stress conditions improved remarkably during the second
5 quarter of 2020 and continued into the third quarter, as
6 was observed from a report that came out just recently
7 this week. The BBB non-financial bond issuances set a
8 new record, more than doubling the issuances observed
9 before the onset of the pandemic, as seen in this chart.

10 Next slide, Gilbert. Thank you.

11 The chart on the left here shows that the
12 investment grade and high-yield composite indexes, as
13 well as the S&P-founded index saw steep declines in the
14 two weeks before March 23rd, coinciding with the Fed
15 announcement of the 2.3 billion in -- trillion in
16 liquidity facilities. These declines were sharply
17 reversed.

18 And the chart on the right shows that the Fed
19 announcement coincided with a sharp reduction in BBB
20 spread from about 400 basis points to 225 basis points
21 and also offered a significant boost to the BBB bond
22 issuance activity. So what all these patterns suggest,
23 that the unprecedented Fed interventions had calmed the
24 market. With that, I will turn over to Sonali, who will
25 share the overall market trends and perspectives in the

1 fall on the threshold of investment grade and high-yield
2 rating. That is the vehicle issuers in the BBB
3 category. And this segment of the market has received
4 particular attention from FIMSAC.

5 In the midst of high economic uncertainty and
6 a sharp decline in economic activity, as might be
7 expected, we saw an unusually high number of downgraded
8 debt with BBB rating, 329 billion in the first six
9 months of 2020, according to an S&P-founded global
10 ratings report. And this is forecasted to be 640
11 billion by the end of the year.

12 Another statistic, over the 12 months ending
13 June 2020, the percentage of BBB non-financial debt that
14 has been downgraded is 4.5 percent, while the comparable
15 statistic in June of 2019 is 1.3 percent. So these
16 patterns point to a heightened stress in this segment of
17 the market.

18 Next slide, Gilbert. Thank you.

19 However, by other metrics, the BBB market has
20 fared really well. In February and early March on the
21 onset of the crisis, the BBB nonfinancial bond issuance
22 activity experienced a sharp decline. During this
23 period, a large amount of revolving credit facilities
24 were either partially or fully drawn in anticipation of
25 credit markets potentially freezing up and Scott has

1 new issuance market. Thank you.

2 MS. THEISEN: Thanks so much, Kumar. And
3 thank you so much to the chairman and Commission as well
4 as myself and staff members for the opportunity to
5 provide observations today. I think as a headline
6 matter before I begin, I think what we've learned
7 through the pandemic and for capital markets is that in
8 2020 -- is that, you know, situations are fluid and can
9 escalate quickly but that, you know, adaptability, quick
10 response and collaboration from public and private
11 sector have made for the best outcome.

12 So as the pandemic unfolded and this exogenous
13 shock reverberated, you know, through the funding
14 markets and into secondary trading, you know, there is a
15 number of observations that I'd like to make and go into
16 some data. So on slide 2, as you can see, you know,
17 initially the capital markets seized across the board as
18 the pandemic unfolded in the U.S. The U.S. IG market
19 saw zero issuance the first week of March. And the
20 high-yield market was effectively shut for several
21 weeks.

22 Bear in mind that this was at the height of
23 this terrible news cycle and a period of, you know,
24 complete global uncertainty that was leading to a sharp
25 selloff in credit and some balance sheet, you know,

1 challenges for the market. However, once, you know, the
2 Fed intervened in March, the markets opened up, I'd say,
3 constructively and logically, starting with, you know,
4 higher quality and moving into BBBs and then into
5 high-yield. And you can kind of see this, you know, in
6 the charts that, you know, the IG market issuance rose,
7 you know, and then led into sort of a -- right to the
8 high-yield market.

9 You know, once the markets reopened and credit
10 spread began their massive rally, I'd say that we've
11 seen sort of two ways of issuance. The first was in
12 March through May. And that was, again, really
13 borrowing in the face of uncertainty. And so it started
14 with, you know, higher-quality ratings, moving into BBBs
15 and then into high-yield in April and June.

16 And you can see then the markets took a bit of
17 a -- bit of a bleeder at least in July and then followed
18 by now the August/September wave, which I've categorized
19 more, you know, proactive issuance reacting to tighter
20 spreads where, you know, IG issuers we've seen have
21 mostly been repaying debt and churning out their
22 commercial paper. I would also, you know, note on the
23 side that, you know, quite phenomenal that the IG
24 markets experienced seven of their ten busiest weeks,
25 you know, in history of issuance between March and May.

1 And as I move to slide 3, you can see that the supply
2 has been extremely well-absorbed. Investors have
3 continued to add risk, you know, post-stimulus, which
4 has led to a massive spread tightening. And this has
5 really led to, you know, great pricing dynamics for
6 issuers in deal pricing and in order book description.

7 And this, of course, you know, has really not
8 only the primary markets but, you know, price action in
9 the secondary markets, which, you know, move to price to
10 where the primary market clears. You know, 20 of the
11 lowest new-issue coupon has been achieved during this
12 tightening. And I'd say that what generally feels
13 different in this cycle versus, you know, the '08/'09
14 crisis is that investors quickly pivoted to a what can I
15 buy mode versus, you know, I want my money back,
16 particularly with, you know, risk -- rates approaching
17 -- approaching zero.

18 As I move to slide 4, you know, as I mentioned
19 previously, the liquidity crunch, you know, impacted the
20 CP market. And this was arguably the first time that,
21 you know, we've really seen a disruption in the CP
22 market, as there -- as there was access during '08 and
23 '09. Across the CP and short-end bonds, you know, the
24 front end is really what shut down in early March. And
25 since then, we've seen CP balances come down fairly

1 dramatically.

2 So year-to-date, if you look at the high
3 versus where we are now, we're down about 39 percent of
4 CP outstanding. And so now given that issuers --
5 refinance out the curve, this may be a structural shift
6 for a while for the CP markets. So I'm going to stop
7 here for a moment to turn this presentation over to
8 Scott. Thank you.

9 MR. KROHN: Thanks, Sonali.

10 From an issuer's perspective, you know, as we
11 sit here today with issuers breaking records in terms of
12 the debt issued, it's easy to forget how stark the
13 crisis was in March. And, you know, I think part of the
14 mission of this Commission and advisory committee has
15 been how can we shore up markets for that next crisis.
16 And I think we've seen it in the March-to-April time
17 frame.

18 And from our perspective at Verizon and the
19 caveat here is that this particular crisis was extremely
20 punitive in terms of companies that investors thought
21 were going to be okay and those that weren't going to be
22 okay. So Verizon with connectivity, whether it's
23 wireless or Fios on the East Coast with broadband was
24 obviously a stay-at-home, school-at-home, work-from-home
25 beneficiary. So you can take these comments from me as

1 a little bit of a caveat because we were relatively
2 better off.

3 But nonetheless, as Sonali pointed out, we saw
4 the closure of the high-yield market. We saw the
5 disruption of the CP markets. We activated our
6 emergency liquidity planning playbook at the end of
7 February. And, you know, our choice was do we go to the
8 market and just test it, or, you know, do we draw on our
9 revolver. And I think, as Sonali pointed out, there was
10 a record draw on bank revolvers as part of this crisis.

11 And what we actually were looking for is a --
12 given the taint associated with drawing on revolvers was
13 a -- just a standalone, short-term credit facility. And
14 as a sign of how the banks were in a much different
15 position this time versus last time, the banks just
16 said, "No. We prefer you drawing your revolver. We're
17 so busy helping other clients." And again, maybe this
18 is more Verizon but they incurred -- just drawing
19 revolver. And we decided not to do that because we
20 still think there is a taint associated with that.

21 So we tapped the markets on March 17th. And,
22 you know, again, this crisis on March 17th felt as bad
23 as the Lehman crisis, although in the back of our mind,
24 I think we all thought that with a vaccine sometime on
25 the horizon, whether that's one or two years, at least

1 there was a likely definitive end to this crisis versus
 2 Lehman.
 3 And when we went to market -- and Amy will be
 4 interested in this. You know, during times of crisis,
 5 credit ratings are merely a reference. The market does
 6 its own analysis. So we went to market at the same time
 7 as a AAA oil and gas company as well as a single-A
 8 delivery company, which was also a stay-at-home
 9 beneficiary. And our spreads were better than both as a
 10 BBB-plus. So again, crises tend to be a good time to
 11 look at ratings in terms of being reference points, not
 12 necessarily determinative of issuance costs.
 13 You know, again, I think this is referenced.
 14 The Fed came in and turned this market from a crisis
 15 into an issuing opportunity, not only re-implementing
 16 all the programs that they had in '08/'09 but doing many
 17 more in addition to cutting rates to zero. So even with
 18 our crisis offering on March 17th, we issued at 3
 19 percent for a 10-year, which was 50 basis points -- only
 20 50 basis points higher than our all-time low for a
 21 10-year issuance. So what we told our board of
 22 directors is this is pretty cheap insurance in a time --
 23 in a crisis. And as a reference, we also issued in
 24 October of 2008 that 3 percent compares to 8.6 percent
 25 in '08. So, you know, I think what companies are doing

1 now as this market has pivoted with the pistol stimulus
 2 that has accompanied the Fed stimulus, you would never
 3 think that it would be true that Verizon, you know, in
 4 March and April had all-time highs in customers being
 5 current. And that's with 40 million unemployment
 6 claims.
 7 And so that speaks to the unprecedented pistol
 8 stimulus that accompanied the Fed stimulus. You know,
 9 work unemployment claims on average went from \$300 a
 10 week to a thousand dollars a week. And at the same
 11 time, \$1200 stimulus checks were sent. So the consumer
 12 stress is almost completely absent. And I think that's
 13 why we've now seen this market turnaround.
 14 From an issuance perspective, what issuers are
 15 doing now is hoarding cash still because of a potential
 16 phase two of the virus. And they're doing liability
 17 management to clear out near-term maturities as well as
 18 take advantage of NPV-driven long-dated exchanges, given
 19 we never seen interest rates this low and all issuers
 20 are breaking records in terms of coupons and new
 21 issuances. Thanks. Over.
 22 MS. THEISEN: Great. Thanks so much, Gilbert.
 23 So now moving on to secondary markets and
 24 trade volumes on slide 5. So I'm going to share some
 25 observations on overall activity. And I certainly want

1 to thank our committee member, Ola Persson, at FINRA for
 2 sharing this data to provide here.
 3 So on slide 5, as you can see, both IG and
 4 high-yield volumes in March through June of 2020 were
 5 significantly higher than the period average overall and
 6 then, you know, certainly since the same period the year
 7 before. So if we compare March through May of 2020 with
 8 prior year, IG total secondary volumes were up about 28
 9 percent. And for that same period, if you look at just
 10 the turquoise part of the stats bar, new-issue trades,
 11 so trades of bonds issued within the last 30 days, were
 12 actually up 179 percent.
 13 So to Scott's point again, you know, it's a
 14 phenomenal amount of issuance. And that really -- the
 15 primary market, you know, led to growth in secondary
 16 market volume quite substantially. For high-yield for
 17 that same period and that same year-over-year comparison
 18 of March through May of this year versus last, total
 19 high-yield volumes were up 54 percent. And again, that
 20 turquoise part of the bar, you know, new-issue component
 21 of that was -- the new-issue component was up 106
 22 percent.
 23 So, you know, markets certainly remained very
 24 active during the volatility. You know, they continued
 25 to trade. And I would note that, you know, I think

1 high-yield overall volume increases outpaced IG given
 2 there was downgrades of some pretty significant, pretty
 3 large structures. I'd also note that, you know,
 4 particularly in March, you know, the front end of IG
 5 secondary trading paused significantly. And so there
 6 was a volume drain there that was still significant risk
 7 transfer out to -- I'll switch now to slide 6.
 8 So headline observation, you know, pivoting
 9 from looking at volumes to now, you know, this number of
 10 tickets that go through the market -- and my headline
 11 observation here is that risk transfer continued through
 12 the volatility in institutional -- in the IG market, the
 13 top half, the most significant growth was in ticket
 14 counts, was in the sub-5 million tickets, the turquoise
 15 bars again, during, again, that March through May period
 16 year over year.
 17 That was up about 25 percent in terms of
 18 ticket count. And in high yields, the most significant
 19 growth was above what the current block size is of 1
 20 million, which is up 48 percent, again, March, May, year
 21 over year over prior. And one note that I've made here
 22 is I think, you know, I'm highlighting these changing
 23 dynamics in the market, is another reason for us to
 24 consider and reconsider recalibration of trades to have
 25 a higher, you know, block ratio for high yield relative

1 to IG. I'll switch now to slide 7. So pivoting now to
2 spread movement and market-making in slide 7 and 8, not
3 surprisingly, you know, the quoted bid offers in both IG
4 and high-yield moved out, you know, dramatically as
5 absolute spreads widened. And they've then come back in
6 now with the aggressive rally since late March.

7 We've chosen to show quoted bid offers here
8 instead of executed bid offers because we think that
9 gives the best sense for, you know, the pricing of
10 immediate liquidity. You could also look at, you know,
11 executed bid offer. That also gives you some
12 interesting information -- but you'd have to bear in
13 mind that that contained, you know, order flow as well
14 as, you know, some things that we had discussed in
15 previous recommendations around embedded transaction
16 costs, timing, etc.

17 So looking at the constituents of the LQD, the
18 corporate bond constituents of LQD and HYG ETF as proxy,
19 I'd note that, you know, IG bonds moved from just under
20 four basis points to almost 17 basis points of quoted
21 bid offer and are now at about six basis points, five to
22 six basis points quoted bid offer. And in comparison,
23 you know, the high-yield bonds moved from about under,
24 you know, .4 -- price points to 1.4 points and are now,
25 again, you know, just under .6 points. So these trends

1 of, you know, normalization have continued very slowly,
2 as you can see from the chart, since June. But we
3 continue to, you know, move towards normalization of
4 quoted bid offers.

5 Slide 8, Gilbert. Thank you.

6 So with respect to the relationship of spread
7 across the credit spectrum, I've included an interesting
8 dispersion chart from our strategist, Tom Mickelson.
9 Both of these scatterplots chart the absolute BBB
10 spreads on the X-axis, and the Y-axis is the basis
11 between BBB and single-A and BB and BBB spreads
12 respectively.

13 So as you can see on both charts, the
14 dispersion or the difference in the higher rating and --
15 versus lower rating, as represented on the Y-axis --
16 actually lower than the fitted curve on March 23rd,
17 signaling that, actually, higher rated bonds
18 underperformed right at that time as investors sold, you
19 know, higher-quality paper during liquidity concerns.
20 And then for context, it included on the chart, you
21 know, March 6th and September 18th data as well, also in
22 red, to show that the relationship, you know, prior and
23 since has corrected. And then moving to slide 9, so
24 throughout, you know, our comments in the back, we've
25 highlighted, you know, March 23rd as, you know, an

1 inflection point with the Fed's actions.

2 And by all accounts, you know, the data
3 confirms and, I think, you know, anecdotally all our
4 comments thus far have confirmed that, you know, the
5 Fed's announcement and certainly the secondary market
6 credit facility and the primary facility were certainly
7 catalysts for market stabilization by providing a clear
8 backstop. The PM ETF has not been used to date. And I
9 would note that, you know, SM -- purchases began with
10 credit ETF purchases as the details of cash bond
11 purchases were being fine-tuned.

12 And as you can see on the slide, you know, the
13 overall purchases have been relatively light relative to
14 the size of the facility and the market outstanding.
15 But nonetheless, we think -- have an important impact on
16 the market. We think particularly that the ETF
17 purchases initially were meaningful into the market in
18 two ways. One, you know, the purchases implicitly
19 impacted the entire curve, not just the under five-year
20 issuance, which is where, you know, corporate bond
21 purchases were focused.

22 And second, the impact of the purchases were
23 more directly observable to the market in the form of
24 premium-end discounts and NAV values which we think were
25 a constructive signal of strength. For context, you

1 know, the LQD premium discounts in NAV swung 10 percent
2 in under a week. So it went from, you know, 5 percent
3 discount, roughly, around March '19 to a 5 percent
4 premium around March 25th.

5 So moving on to slide 10, you know, I would
6 like to, you know, address some of the comments and
7 questions around dealer market-making and capital
8 constraints. First and foremost, I would highlight
9 that, you know, as a bank, as a broker-dealer, we were
10 there for our clients through the volatility. And since
11 we had robust capital and liquidity position coming into
12 the pandemic which we've continued to build on, however
13 -- you know, for the marketplace, given the extreme
14 dislocations in pricing, it is fair to say that banks
15 found themselves in situations where while they were
16 focusing on facilitating customer needs, they were also
17 trying to adhere to somewhat inflexible risk and
18 regulatory frameworks. And that led to some
19 distributional frictions of a balance sheet.

20 So there is a number of indicators that could
21 be studied. But as a simple measure, I've included the
22 aggregate GSIB bank VAR and RWA over time. So you can
23 see these risk and capital metrics moved higher
24 quarter-over-quarter for quarter ending March 31st and
25 then again moved meaningfully higher as of June 30 --

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1 June 30th.

2 So banks, you know, clearly needed to manage

3 through some challenging circumstances with this

4 accelerating VAR and RWA consumption. So, you know,

5 what happened, you know, in the nutshell? Market, you

6 know, risk, capital-driven -- market risk-driven capital

7 metrics, of course, skyrocketed on the back of

8 volatility, which was more severe than previous cycles

9 and therefore drove a recalibration of VAR and stress

10 VAR.

11 In addition to VAR, you know, credit rating

12 migration impacted RWAs and therefore, you know, capital

13 ratings. Some banks saw, you know, the increases in RWA

14 as credit migration pushed down ratings. This is really

15 a simplified version of the story. It has other factors

16 which are -- others are probably more qualified to tell

17 the story. But I'd make two other headline

18 observations. You know, the first is, you know, GSIB

19 banks generally maintain -- banks generally maintain

20 significant capital buffers over the regulatory minimum.

21 As these buffers are not really viewed as something that

22 is -- they are to be used.

23 The second observation would be that it was

24 fortunate that GSIB scores were not a factor in the

25 Q1/Q2 turmoil and that dealer balance sheets didn't

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1 really suffer from any GSIB behavioral constraints. So

2 in a sense, you know, the timing of what occurred was

3 lucky versus, let's say, you know, the end of this year,

4 particularly with the upcoming election.

5 So finally, in conclusion, you know, I'd like

6 to note that the market successfully weathered

7 tremendous volatility during unprecedented extenuating

8 challenges. Obviously, you know, in New York City,

9 across the world, in addition to, you know, individuals

10 and companies grappling with mushrooming healthcare

11 crisis, you know, grappling with business contingency

12 plans, with liquidity concerns all while, you know,

13 trying to figure out how to have their children attend

14 school on Zoom, you know, for the first time.

15 So I'd like to acknowledge the strong

16 leadership from market regulators in quickly

17 acknowledging the severity of the situation and taking

18 decisive action. You know, the regulators stepped in to

19 provide appropriate relief in areas such as reporting

20 and record-keeping. This flexibility allowed for the

21 transition quickly to work from home while, you know,

22 the regulators, you know, simultaneously committed to

23 supporting the markets and staying open. So, you know,

24 I think it was really important to highlight that. This

25 was, you know, a great, collaborative effect. It was

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1 equally, I think, commendable that market participants

2 adapted quickly with little, if any, disruption. But,

3 you know, many financial institutions are included for

4 the first time in history, witness the majority of

5 front-office personnel working from home. And as Rick

6 and Lee will surely highlight, electronic markets were

7 also really put to the test and passed, in my view.

8 You know, the fact that there was no

9 noteworthy outages or issues for the electronic bond

10 markets despite record updates, record transactions,

11 settlements, that was an excellent outcome for the

12 overall market ecosystem, good news in that department,

13 as I would say. So I would like to conclude my comments

14 where I started regarding the lessons learned, which is,

15 you know, the proven resiliency of the markets, of the

16 public and private institutions and the people who make

17 those markets have been, I think, a clear silver lining

18 from the pandemic. Thank you.

19 MR. GARCIA: Thank you, Sonali.

20 And thank you, Scott and Kumar.

21 We're now going to move on. So far, we've

22 talked about some macroeconomic factors. We've talked

23 about downgrades. We've talked about the

24 primary/secondary market, including from an issuer's

25 perspective. Now we're going to go to electronic

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1 trading.

2 Rick?

3 MR. McVEY: Thanks, Gilbert. I'd also like to

4 thank Sonali and Scott and Kumar for their comments as

5 well. And Lee and I are now going to do our best to

6 tell the story of the electronic trading markets in

7 corporate bonds through the credit event in the spring.

8 And I would like to just start with a couple of overall

9 comments on the market to follow Sonali's remarks.

10 This was a credit event that, in many ways,

11 was far more severe than what we went through in 2008.

12 And to put that in perspective, credit markets had never

13 anticipated an event that would impact every sector of

14 the economy and every region of the -- in the world at

15 the same time. And as a result, what we saw in credit

16 spread widening in both high-grade and high-yield this

17 year, we had more widening of spreads between the end of

18 February and the end of March in four weeks this year

19 than we had in eight months in 2008.

20 So this was a very significant shock to the

21 market. And I think there are some good stories around

22 the performance and importance of electronic trading

23 venues through the event. And I'd just like to follow

24 on Sonali's comments to talk a little bit about that

25 from the MarketAxess perspective. Most of our bank and

1 dealer clients and investors relied on disaster recovery
2 sites for events like this and did not have everyone set
3 up in a way that would allow them to trade from home
4 environments. With the regulatory relief that was
5 provided that Sonali mentioned, we moved, at
6 MarketAxess, 10,000 users in one week to their work-
7 from-home environment and provided the security
8 certificates that they needed to do so safely. And I'm
9 sure you're going to hear very similar comments from Lee
10 on that as well.

11 So maintaining connectivity to critical
12 liquidity providers, banks, dealers and alternative
13 market makers through electronic venues, in my opinion,
14 was fundamental and important to the success of working
15 through the credit event that took place in the spring.
16 So this first slide is just a slightly different picture
17 on what Scott and Sonali were talking about in terms of
18 the substantial new-issue activity in the market. So I
19 don't want to dwell on it for long. But the green line
20 shows the turnover in the top 1,000 CUSIPs reported to
21 TRACE on a rolling 12-month basis.

22 And what you'll see there is with the
23 substantial and record-setting new issue calendar
24 beginning with high-grade and followed by high-yield.
25 The top issues really drove the increase in TRACE

1 volume. So you see the top 1,000 CUSIPs with a
2 significant increase in turnover. And many of those
3 were the newly-issued bonds that Sonali mentioned. If
4 you look at the lower line, that is actually mostly
5 seasoned bonds that have been in the market for longer
6 than four weeks. And turnover has been up a little bit
7 but generally flat during the course of this year. So
8 most of the increase in TRACE was really connected to
9 the significant increase in new-issue volume.

10 And Gilbert, let's go to the next slide.

11 The next two slides, I'm not going to really
12 spend any time on. But this is the complementary
13 picture on bid-ask to what Sonali described as quoted
14 bid-ask. This is traded bid-ask. So we run a -- what
15 we call a BASI index, a bid-ask spread index, based on
16 the observable bid-ask from the TRACE data primarily.

17 And you'll see the bid-ask, because of the
18 extreme amount of risk and volatility in the credit
19 markets, did go up for a period of time as much as
20 ninefold. It started to recover after the Fed programs
21 were announced in late March. We're not quite back to
22 where we were pre-credit event, but we work our way
23 pretty close back to where we were. And the following
24 slide, Gilbert, shows a very similar picture in high-
25 yield, obviously a lot of stress in high-yield markets

1 throughout the event. Bid-offer went up about threefold
2 in high-yield. Many bonds were not able to trade at
3 all. But for the observable bonds that did trade in
4 TRACE bid-offer there was up about threefold.

5 And Gilbert, let's go to the next slide.

6 So this is courtesy of Greenwich Associates.
7 And they are one of the research firms that really does
8 their best to put the full picture of electronic trading
9 together for their clients in high-grade and high-yield.
10 So they are doing that through a series of conversations
11 with all electronic trading venues to try to understand
12 what they are including in their reported trading
13 volumes and do their best to get it on an
14 apples-to-apples comparison. And you will see that the
15 total market share in what they reported electronically
16 traded in high-grade did dip a little bit in March and
17 April but recovered pretty quickly.

18 But a couple of things on that. We conduct
19 mostly RFQ volume on the MarketAxess platform. And our
20 share in March and April was actually higher. And we
21 typically represent somewhere around two-thirds of the
22 overall market activity that Greenwich Associates is
23 reporting. And I just want to put a word in for RFQ.
24 It's -- I think Sonali and other market-making firms
25 would agree RFQ has proven to be a competitive,

1 resilient and sustainable protocol for fixed-income
2 securities. And when you're dealing in a market like
3 corporate bonds that are highly fragmented with less
4 frequent trading throughout the day, RFQ allows the
5 price provider or market maker to be at risk at the
6 point of execution. And throughout the extreme
7 volatility, the RFQ electronic volume in the market
8 actually went up. And the share went up as well.

9 The protocols that were challenged are the
10 ones that require live streaming prices or have extended
11 matching sessions where market makers and others are at
12 risk for longer periods of time and often on a
13 continuous basis. Those protocols proved to be very
14 challenging through the credit event because of the
15 extreme volatility. So the share did dip a bit
16 initially.

17 But by May, we were back to where we had been.
18 And it's interesting to note with the success of the
19 electronic trading venues and the convenience of trading
20 from home electronically, the share in both corporate
21 bonds and high-yield estimated by Greenwich Associates
22 has reached new highs over the last three or four
23 months.

24 And Gilbert, let's go on to the next slide.

25 So just a quick comment first on resiliency.

1 And Lee will have similar comments, I'm sure, from his
2 perspective. But it's not to take -- be taken lightly.
3 Our message traffic on MarketAxess from late February
4 through early April on many days was up threefold from
5 what it was in January and February. And there were
6 many days in that period where our trade count was
7 double.

8 So there was a significant amount of increased
9 activity coming through the electronic trading
10 platforms. And I, too, would agree with Sonali. It was
11 a good result that all of the e-trading venues in fixed
12 income proved to be resilient and, I think, provided a
13 valuable service through the credit event for market
14 participants.

15 Most of our orders on MarketAxess are now
16 available all to all. So investors or dealers that
17 submit orders into the MarketAxess system have the
18 choice of making them available to the entire network.
19 And almost always, they take that option. What's
20 interesting is if you look at January and February. The
21 percentage of trades that landed with a non-traditional
22 market maker on our platform jumped from 28 or 29
23 percent of our trades -- trade volume to about -- at the
24 peak to around 37 percent. And it settled in around 35
25 percent. This, too, is very different from 2008. If

1 over a third of the volume traded on the -- access
2 system during the credit event.

3 Gilbert, let's turn to the next slide.

4 The other piece that's valuable to the
5 industry is that when the markets are stressed as they
6 were in late February through certainly mid-April and
7 bid-offer is so wide, the value of finding an electronic
8 natural match goes up substantially. And so what
9 investors and dealers have been able to do
10 electronically is find the natural matches in the market
11 that reduce the need to cross significant bid-ask
12 spreads in times of credit stress in the system.

13 And you will see that liquidity taker savings
14 went up about threefold based on our estimates in March
15 on the MarketAxess system. And liquidity providers also
16 achieved greater savings. So I think the transaction
17 cost savings that go through the market where we had
18 around 130 million in estimated savings back to our
19 clients during the month of March alone are another
20 important part of the importance of all-to-all trading
21 and the growth of it in fixed-income markets.

22 So, Gilbert, let's go to the next one.

23 And then finally, I know Ananth is going to
24 speak extensively about this. But the other stark
25 change in my mind about where we are this year relative

1 you look back at 2008, not only was e-trading at a
2 totally different level. It was almost entirely
3 traditional client-to-dealer trading.

4 With the increase in all-to-all offerings in
5 fixed income, the venues have allowed new market
6 participants to enter credit trading and commit capital
7 to this market where they have not been able to in the
8 past. So what -- there are three forms of new liquidity
9 that have resulted for investors and dealers that are
10 placing orders on the e-trading venues.

11 First, significant new alternative market
12 makers have emerged, many of them active in ETFR that
13 have now moved on to become full-blown market makers.
14 Second, investors have an easier time sharing their
15 order with more dealers, not only in the U.S. but
16 outside the U.S. Dealers are incented to make markets
17 because of the availability of order flow. And third,
18 investors are able to respond to other invested orders
19 as well.

20 So the pool of liquidity now available on many
21 electronic trading venues is significantly more diverse
22 than where we were in 2008. And I think that was a
23 critical source of additional liquidity for the credit
24 -- through the credit event in the spring. And you can
25 see that that additional liquidity was responsible for

1 to where we were in '08 and '09 is the substantial
2 growth of ETF assets. And with the growth of ETF
3 assets, we've also seen a significant growth in ETF
4 share trading.

5 It was uncommon three or four years ago to
6 find many traditional dealers that had ETF fixed-income
7 share trading on their corporate bond desk. It was also
8 uncommon to find many institutional investors that were
9 using ETF shares as a risk transfer mechanism. It is
10 exactly the opposite today.

11 Most every significant market-making firm is
12 actively using ETF shares as part of their risk
13 management and risk transfer mechanism. And the same
14 can be said of institutional investors. In my mind,
15 this was also a complementary source of liquidity for
16 credit markets during the credit event that was
17 incredibly valuable to help the markets function. And
18 the end result was that TRACE volumes did go up through
19 this credit event and actually quite substantially. So
20 while bid-ask and transaction costs were higher, trades
21 were getting done, and volumes were up substantially.
22 And I do think it's all part of the new ecosystem that
23 we have for credit trading.

24 And with that, Gilbert, I am finished with my
25 comments. And I think you can turn it over to Lee.

1 MR. GARCIA: Thank you, Rick.
 2 Lee, it's all you.
 3 MR. OLESKY: Thanks. Hey, Gilbert, I just
 4 want to say a word of thanks to you for spending the
 5 time with all of us over the last week or so pulling
 6 this together. Not an easy task. And thanks to the
 7 rest of the committee members. I'll try not to go over
 8 things that we've hit on already.
 9 I want to continue with the story that Rick
 10 started in terms of what's been happening with e-trading
 11 because I think, you know, obviously the pandemic
 12 impacted so many lives and businesses almost overnight.
 13 By mid-March, at TradeWeb, we have about a thousand
 14 employees. We went home, all thousand people, within a
 15 day or two. And probably, most importantly, so did tens
 16 of thousands of other clients of ours that were able to
 17 connect with the networks that are available today from
 18 their home. That is just not something that could have
 19 happened years ago.
 20 You know, this connection, the systems worked
 21 incredibly well. It allowed our clients to find the
 22 other side of the trade to interact and probably, even
 23 more importantly, tap into data to be able to see what
 24 was happening in the market. If you remove us as
 25 individuals from our in-person environment, especially

1 on a trading desk or in an organization, a financial
 2 institution, the first thing you're going to miss is
 3 that interaction and the ability to assess what's
 4 happening in markets. And the evolution of e-trading
 5 has allowed for so much more data to be available
 6 real-time to people's laptop at home. And I think that
 7 that was a huge factor.
 8 We'd obviously already been seeing a surge of
 9 growth in electronic trading over the years with
 10 digitization of risk workflows, etc. But I think work
 11 from home really underscores the importance of this.
 12 And it functioned incredibly well. You know, as
 13 everyone said, the moment that mattered the most, I
 14 think, in mid-March was the Fed. The Fed stepping in
 15 and stabilizing markets really brought things back into
 16 shape.
 17 Obviously certain markets, you know, were hit
 18 more aggressively. But I do think that the electronic
 19 and really the infrastructure held up incredibly well,
 20 allowing for price discovery, allowing for execution
 21 under incredibly extreme conditions. So, you know, the
 22 value of electronic trading varied by markets. TradeWeb
 23 has a wide variety of different markets we're in. But I
 24 think when it comes to credit, one of the nice features
 25 is we have a number of new technologies that platforms

1 have been providing, which I'll talk about a little bit
 2 later, that further eased some of the stress in the
 3 markets.
 4 March, April and May for TradeWeb were three
 5 of the highest volume months we've had on record. And
 6 given the dislocation, it's really incredible to see
 7 this. As we see, Gilbert has moved into this first
 8 slide here. This is a little bit repetitive of some of
 9 the things we've seen. But I think it is important for
 10 one purpose alone, which is you can see the spike in
 11 pricing across the curve here.
 12 But what's really relevant, I think, is this
 13 information is now available; right? So if you roll
 14 back the clock a number of years ago, you just couldn't
 15 have this kind of time series information. Even from
 16 TRACE, you didn't have real-time prices the way you have
 17 TradeWeb's product is AI-priced where there are
 18 real-time prices being generated. Other participants --
 19 Rick has a feature as well that allow for this e-data
 20 that's available real-time.
 21 If we go to the next slide, you can see some
 22 more metrics here. I think the models, as you can see
 23 in the upper left-hand corner there, were not as
 24 effective in terms of the immediate stress in March. If
 25 you go to the lower right-hand column, you can kind of

1 see what was actually going on, which, to us, is the
 2 price something was executed at versus the next best
 3 price in the market.
 4 But the point is the real-time models are
 5 really now available. And I think that that eased
 6 things considerably. I want to talk -- if we could go
 7 to the next slide for a second, these next two slides
 8 are really just the surge in at-home use. So our credit
 9 markets, you can see in February and March, we had more
 10 users than we've ever had log in. And these are
 11 actually instances where individuals are trading.
 12 If you flip to the next slide, system-wide on
 13 TradeWeb, we had, you know, 6,000 users logged in.
 14 Across our whole system, we were over 100,000 users
 15 logged in. These are users who went from a work
 16 environment to a home environment incredibly seamlessly.
 17 You know, not everyone was the same. A lot of firms had
 18 their own infrastructure that functioned incredibly
 19 well. I think this is one of the key factors in
 20 lowering the stress in the market.
 21 You know, obviously the Fed was No. 1. Let's
 22 not kid ourselves. That was the most important thing.
 23 But having this functionality available at home, I
 24 think, was critical in terms of easing the stress. If
 25 we go to the next slide, yeah, this -- Rick talked about

1 this a little bit. This is all to all. This is another
2 new protocol in the market in -- you know, relatively
3 new in the last several years where the markets, buy
4 side, sell side, everyone is providing liquidity to
5 everyone else. That, of course, spiked in March as a
6 percentage. These are the TradeWeb numbers, up to about
7 40 percent in March.

8 Tailed off as the market sort of started to
9 normalize but then has kind of recovered now so that
10 fully 30 percent of the business not on TradeWeb is in
11 an all-to-all, you know, anonymous environment, which I
12 think is, you know, a significant change in terms of
13 access to liquidity for the market. The next slide, I'm
14 back to talking about the Treasury market. You know,
15 TradeWeb is known as a rates platform.

16 But the -- I think why this is important to
17 remind people of is even in the context of the credit
18 markets, when you see this kind of bid-offer spread --
19 right? -- the 3 p.m. spot time is when a significant
20 portion of our passive investment flows get spotted. So
21 it's very related to the credit markets. You had this
22 incredibly -- it's the widest I've ever seen in my
23 lifetime. It actually spooked me more than anything
24 that week, was the bid-offer on, you know, the most
25 liquid market in the world, the Treasury market. So

1 folks needed to hedge their credit positions with the
2 Treasury market. And with such a wide bid-offer, it
3 added further stress to the situation. So if you go to
4 the next slide, please, you can see a new kind of
5 technology that we've been applying to the markets which
6 allow a link to a live electronic Treasury trade at the
7 time that you're doing your credit trade. So this is
8 what we call electronic spotting linked to a Treasury
9 hedge on IG trades.

10 And you can see on this slide how much even in
11 voice-processed business -- so these are trades that are
12 done over the phone on credit but get a link into an
13 electronic Treasury trade. So I know we're going to
14 work hard on trying to come up with definitions for
15 electronic trading, which we talked about at the
16 beginning of the session this morning. But this is
17 another little complexity to dividing things properly
18 because here we have a processed credit trade, which we
19 report as a processed credit trade, but it's linked to
20 an electronic Treasury trade.

21 So I think it's interesting to see the surge
22 here. I think that this netting functionality that we
23 have, which eliminate the bid-offer at a time when the
24 bid-offer is so wide, tremendously helped, you know, our
25 clients on TradeWeb. And you can see the spikes as a

1 result of that during the times of stress.

2 If we go to the next slide, please, Gilbert --

3 Yeah, this is just illustrating some of the
4 savings. So if you look at the savings and you do the
5 math in the month of March, just this savings on
6 eliminating this bid-offer was, you know, approximately
7 \$5 million in the month of March because of the value of
8 netting out this wide bid-offer, which was up to 35
9 bucks a million, as you can see, on 150 billion --
10 trades. Now, that's normalized now that the markets
11 have normalized. So, you know, it's come down. But at
12 that time of stress, clients were able to access that
13 kind of functionality and get a bit of relief.

14 If we go to the next slide, I think this is
15 another example of innovation, tech innovation, that I
16 think is really gaining speed in the credit markets.
17 This is a function we've had for several years. We call
18 it portfolio trading. We introduced this in 2019. And
19 it allows a client to electronically trade a portfolio
20 of up to now 800 different bonds at a set price with a
21 single counterparty. And you can see what happened here
22 in the month of March. As this pressure on liquidity
23 hit, the need for efficiency, everybody is at home.
24 They are trying to get a bunch of things done. You see
25 a -- you know, kind of spike and a continued growth of

1 portfolio activity. It's normalized a little bit here
2 as you go out to the tail end in terms of more recent
3 activity.

4 But, you know, this has become particularly
5 popular as a way for clients to trade large baskets of
6 bonds in a single transaction. You have the link to
7 index activity. You have the link to ETFs. But in a
8 time of crisis, you also have an ability to do a large
9 number of bonds moved with one keystroke.

10 We go to the next slide, we show a little bit
11 of what's been going on in portfolio trading, you know,
12 both -- this is the TradeWeb portfolio volume. So you
13 can see the actual share of the market. We're now up to
14 doing close to 50 percent of portfolio trades and how it
15 has continued to grow. It's not necessarily -- you can
16 see in the heart of the crisis, I think there was a
17 little bit of panic. So people weren't trying new
18 things in March. They were trying to find liquidity.
19 But I think the follow-through now has been very evident
20 that portfolio trading is another technology innovation
21 that will assist clients in doing things more
22 efficiently and at a lower cost. So I wanted to just
23 make one last point. I know Gilbert is going to be
24 ruthless on my time allocation. So hopefully I have a
25 couple of seconds still. The one thing I would notice,

1 a lot of the things worked incredibly well; right?
2 We had the new technology tools working
3 incredibly well. Rick pointed out the all-to-all
4 activity, the network effect of what's going on with
5 credit trading was tremendous. The systemic integrity
6 of our technology -- and I mean collectively, our
7 technology, right down to the phone companies, allowed
8 us to move to a work-from-home environment incredibly
9 seamlessly at a time of, you know, incredible stress in
10 the market.

11 Where were there some challenges? I would say
12 from our perspective, we saw a slowdown in some of our
13 AI tools. So we have some rules-based technology that
14 allow for a quicker trade than just a click to trade
15 where there is actually an algorithm, essentially an
16 algorithm, that allows trading to occur. That slowed
17 down significantly in March and April as a result of the
18 -- you know, the seizure in the market.

19 So anyhow, the -- I want to say that was
20 probably the only thing that we noticed dropping that's
21 since come back. I'm incredibly proud of how well the
22 market performed given the magnitude of stress. And
23 I've been around long enough to have been through the
24 '08 crises and the 9/11 crises. And I think thankfully
25 we had electronic trading and connectivity that allowed

1 seen show that electronic trading is only 20 to 30
2 percent of all volume depending on credit quality.
3 Trading off electronic venues, thus, is quite
4 significant, though, as Lee mentioned, it's obviously
5 quite important when everyone had to go home. So being
6 able to trade on electronic venues is very important.
7 Rick and Sonali's bid-ask spread results show that the
8 spreads on electronic venues rose and quite
9 substantially. And they are topping out about 18 basis
10 points for investment-grade securities.

11 These trades -- these spreads primarily
12 reflect trades among dealers and not necessarily the
13 prices that customers receive, although, to some extent,
14 customers are in that flow as well. The spreads
15 associated with actual customer trades rose
16 substantially more. In analysis that we didn't have
17 time to present, I measured these spreads from TRACE
18 reports of trades that involved customers. And those
19 are all customer trades.

20 Spreads for institutional size customer trades
21 rose to about 100 basis points from about 25 before.
22 Those for retail size trades rose to about 250 basis
23 points for investment-grade securities from a base of
24 about 50 basis points and to 350 basis points for
25 high-yield securities from a hundred and -- a base of

1 for a much more easier way for people to connect and
2 trade during the crisis. Thanks. Thanks.

3 MR. GARCIA: Thank you, Lee.

4 I want to say thank you to Kumar, Scott, of
5 course, Sonali, Rick and Lee. And sort of tying it all
6 together, I want to ask Larry to sort of step in and
7 just, as I turn off the sharing of the video here, let
8 Larry kind of tie it all together for us. And then I'll
9 have, like, 30 seconds of closing comments. And then
10 we'll turn it over to Michael Heaney. Larry?

11 MR. HARRIS: Thank you. A few quick key
12 points. When company revenues fall but expenses don't
13 fall as much, companies get in trouble, and credit
14 qualities must suffer. Fed actions that can improve
15 liquidity and, for a while, even support prices but they
16 ultimately -- the Fed ultimately cannot support credit
17 qualities. And so it's very important that we get the
18 real economy back on track.

19 The extraordinary expansion of the money
20 supply by the Fed must raise concerns about inflation.
21 Such concerns will ensure that the Fed will not always
22 be able to act as it did in March 2020. Accordingly,
23 it's very important that we consider where else we can
24 find liquidity. Electronic trading is only part of all
25 secondary trading. The Greenwich results that we've

1 about 125. Many of these trades were riskless principal
2 trades. Those are trades for which a broker-dealer
3 typically obtained liquidity from an electronic venue or
4 perhaps another broker-dealer and then passed through
5 the position to the customer with a markup. These
6 markups also increased in March 2020, although most of
7 the increase was for trades that appeared to have been
8 arranged outside of electronic venues where the
9 broker-dealer had more of a touch.

10 Ultimately, the markets cannot always depend
11 on the Fed for liquidity. Liquidity comes from entities
12 that are willing to commit capital. Additional
13 liquidity can come from figuring out how to get more
14 liquidity from current participants or from figuring out
15 how we can get more participants to offer liquidity.
16 Clearly, we must consider both sources. But the
17 lowest-hanging fruits probably will be found by making
18 it easier and more rewarding for more entities to
19 provide liquidity. Rick's results show that new market
20 participants are increasingly active in MarketAxess,
21 suggesting that new liquidity will largely come from
22 nontraditional participants. Thanks.

23 MR. GARCIA: Thank you, Larry.

24 So, team, hopefully you can see that there is
25 a lot here. Before I turn it over to Michael, I just

1 want to say another thing that's extraordinarily
2 different this time is the technology of video and the
3 concept of trading and seeing people in video. And I
4 think the most important thing anecdotally, it reminds
5 us that behind all the numbers, behind all the markets
6 are people. And I have seen in the background in the
7 most tense of times of doing trades dogs barking. I've
8 heard babies crying. I have seen people fall asleep,
9 and all you could see is their arm hanging up. I have
10 seen people laying down and with curlers in their hair.
11 At the end of the day, the markets are still people.
12 And that's why it's so critical that we do all of our
13 best to keep these markets efficient and we keep them
14 working for all of us.

15 Michael Heaney, I turn it over to you.

16 MR. HEANEY: Thank you very much, Gilbert, and
17 all the presenters. This was a terrific presentation
18 and a very, very solid and thorough report. So I thank
19 everybody who participated in it. I do have a couple of
20 questions. Let me -- albeit he's on the presenting
21 committee. But I would like to start with Kumar.

22 MR. VENKATARAMAN: Thank you. Thank you,
23 Michael. I agree. This was a fascinating presentation.
24 I learned a lot listening to all the remarks. My
25 question is the following. So it's clear that the event

1 in March 2020 was sudden. It was a massive shock,
2 economic activity. The market was resilient, recovered
3 nicely both with new issuances and with secondary market
4 trading. Electronic trading platforms played an
5 important role. But overhanging all this is the
6 unprecedented Fed intervention which calmed the markets
7 and help reverse the sentiment.

8 And so for a moment, if we assume that this
9 type of massive Fed intervention in the market should
10 not be expected to be the norm, are there any sort of
11 structural weaknesses that we were able to identify,
12 particularly in the early phases of the pandemic shock?
13 And if so, are there things that we can do to address it
14 so that, next time around, the market is resilient, even
15 if the Fed intervention is not as massive?

16 MR. HEANEY: So let me just open it up to the
17 subcommittee to respond. While thinking about that, the
18 one thing I will say, and it was a question very similar
19 to Kumar's, was the -- had the subcommittee considered
20 the implications had the Fed not acted as aggressive,
21 which is basically exactly where Kumar is going. Were
22 there additional measures, perhaps, that -- also that
23 the subcommittee felt that could have been adopted that
24 weren't? Based on the initial comments about how
25 successful the Fed was, etc., it seems like that may not

1 be the case. But I just -- I'll add on to that part of
2 Kumar's question and see if the subcommittee would like
3 to respond.

4 MR. HARRIS: I'll speak a little bit to it.

5 The most important part of the Fed's intervention was to
6 ensure that companies with refunding needs would be able
7 to refund. In a period of uncertainty, if the people --
8 as the companies have to pay off their old securities
9 and issue new securities, if they are doing the payoffs
10 but they are not able to issue the new, they are going
11 to run into big trouble. And so I think this is, by far
12 and away, the most important function of the
13 contribution of the Fed at this time.

14 As to secondary trading, secondary trading is
15 obviously affected by potential problems in the primary
16 market that might spook it. But by and large, it seems
17 that the mechanisms work. Spreads clearly close as
18 people became more uncertain about values. But as that
19 uncertainty went away, the spreads dropped as well. If
20 we can get more liquidity into these markets from other
21 sources by relaxing some of the constraints that Sonali
22 spoke to or alluded to on the traditional dealers and by
23 finding ways to get other people to provide more
24 liquidity, then we'll be better off in the future.

25 MR. GARCIA: And, Kumar, from my perspective,

1 Gilbert -- this is Gilbert -- I think that what was
2 really extraordinary this time was the size of the
3 fiscal stimulus and again, focusing on keeping
4 consumption going, which, of course, we all know is
5 about 70 percent of the economy or so. That's what was
6 really critical at this time. I think government and
7 Fed learned from Lehman, which is why I think they acted
8 so decisively.

9 And we'll really never quite know if we would
10 have turned into a Lehman moment because, if you blinked
11 your eye, you might have missed everything. And you
12 might have thought nothing has happened because that's
13 how quickly things began to settle down. And I really
14 think we cannot underestimate the impact of the
15 willingness to buy credit. Just saying we're going to
16 buy credit was all it took to really stabilize those
17 markets.

18 Sonali?

19 MS. THEISEN: Yes. I would agree with that.
20 And I think -- you know, I think Rick said it earlier.
21 You know, this was an exogenous shock that hit globally
22 to every sector at every moment; right? So I think that
23 the calming -- like I think the markets behaved really
24 well, and it was a really great collaboration between
25 public and private sector. I think that as soon as like

1 -- to put to Gilbert's point, just if you go back to the
2 actual, you know, utilization of the credit facilities,
3 it hasn't been a lot. It's just a signal to the market
4 that calmed the market and caused -- market did what it
5 -- what it needed to do.

6 I think there is an open question as to
7 whether more should be done to prepare for the next --
8 hopefully this is, you know, a once-in-a-hundred-years
9 event; right? And hopefully there is not, you know,
10 this extreme event for the marketplace, you know, again
11 that affects, you know, the entire globe in every sector
12 simultaneously.

13 So I'm not sure, you know, outside of some of
14 the points that we touched on a bit in my presentation
15 towards the end, like I'm not sure that there is all
16 that much more that could have been done. And I think
17 the important thing was that the markets responded
18 swiftly to actions that were taken. They didn't stay
19 spooked.

20 MR. OLESKY: Yeah. The only thing I would
21 add, if I could, I agree with everything Sonali was just
22 saying and, Gilbert, what you were saying. The only
23 thing I'd add is, Kumar, in terms of, you know, how do
24 we -- every crisis is different, first of all. So we --
25 this was just such a unique event. Hopefully we don't

1 have to deal with this exact situation. But I do think
2 a few things that have proven to be incredibly helpful
3 and will continue to be more and more helpful is the
4 interconnectivity and the strength of our
5 infrastructure.

6 I think that that is just an absolute -- we're
7 in good shape now, as was proven by tens of thousands of
8 people going remote or working from home instantly. We
9 could work on that. We could continue to invest in the
10 technology, the communication points, the analytics, the
11 data, those types of things that will get people
12 comfortable. The Fed action is a different level. I
13 can't really speak to that even. I think that that was
14 so seminal here that that's -- let's leave that to the
15 side.

16 But I do think we could continue to invest in
17 our connectivity because, ultimately, if you have the
18 whole network connected and able to interact and find
19 the other side of their trade, it will make for the best
20 situation that's available at the moment. It doesn't
21 mean that we're not going to have other, you know,
22 stressful times in markets where the bid-offer is
23 incredibly wide. And there may very well not be buyers
24 or sellers at a particular moment. But if you invest in
25 that network and connect up, you will be able to make

1 for the most efficient transaction that you possibly
2 can, which will assist the market.

3 MR. HEANEY: So can I just follow up on that?
4 I'm going to say to ask it of Lee and Rick, but it's
5 really of the sub-co. And it's exactly again that
6 point. So this recent time of market stress clearly
7 pointed to electronic trading venues as a very, very
8 suitable outlet for transmission of risk. We've seen it
9 in the past. And I don't mean overall but in spurts.
10 And it stops and starts at times.

11 Does this subcommittee -- and particularly --
12 I'll start with Lee and Rick. Do you think this is
13 different? And so if we fast-forward to what is
14 considered more normal times in either 2021 or
15 thereafter, is this percentage of volume on elec-trading
16 platforms do you think stays, sticks, maybe even grows?
17 So is it more of a more permanent change in a risk
18 transfer? It certainly was for five months and has been
19 steadily increasing. But do you think this creates a
20 change to your point, Lee, so that in 18 months' time,
21 in fact, it's actually still growing and it's a seminal
22 change in just the platforms as a percent of overall
23 risk transfer?

24 MR. OLESKY: Michael, I think it is an
25 acceleration. I think that there are events in history

1 that accelerate what was inevitably going to happen.
2 And this has clearly been an acceleration from our
3 perspective. The fact that we were trading a trillion a
4 day and on one day traded a trillion and a half in the
5 month of March with, as Rick said for his system, many
6 multiples of the number of messages that we could ever
7 have imagined we were going to get into the system and
8 everything held up, I think this does accelerate further
9 digitization regardless of when people start finding
10 their way back to the office.

11 I think that, you know, the change has
12 occurred. I think it will continue to accelerate,
13 though. I think that there will be more and more.
14 Credit markets are 30, 35 percent electronic. You know,
15 our Treasury markets are over 50 percent electronic.
16 The markets are different in different asset classes and
17 products. But I think they are all marching towards
18 more digitization. This is just an example of why. And
19 I think there will be more and more innovation that will
20 lead to more seamless interaction between this wide
21 community that might want to buy or sell an instrument.

22 MR. HEANEY: Thank you, Lee.

23 MR. McVEY: Yeah, I just -- you know, you're
24 obviously talking to two people that have a vested
25 interest in the growth and tend to be optimistic about

1 it in general. But I'm encouraged by what I see as
2 well. In fact, you know, July and August were very low
3 volatility months for fixed-income trading in general.
4 But the electronic share held up at spring levels and in
5 some places increased.

6 You know, and we're talking, you know, mostly
7 about high-grade and high-yield corporate bonds. But
8 we're seeing across every market in the world that the
9 electronic share is growing. And I -- you know, I think
10 the benefits are front-to-back. There is a lot of data
11 generation that is fed back to fixed-income market
12 participants that helps them with price discovery. The
13 all-to-all growth has brought new capital into our
14 markets. It's really important to drive down
15 transaction costs. We see that growth every single
16 quarter where there are not only new entrants but the
17 ones that had come in over the last three years or so
18 are getting larger. We also see a behavioral change
19 where people are realizing that there is a better risk
20 transfer mechanism available today than where we were
21 four or five years ago.

22 So you see dealers really, in my mind,
23 embracing more electronic trading. It's efficient for
24 them. They are able to get in the middle of more trades
25 with their clients. They are investing very heavily in

1 -- to be responsive to their client demands. And let's
2 not forget about the huge increase in efficiency, in
3 reducing errors and cost savings post-trade. So the
4 immediate post-trade APIs that go back to market
5 participants really drive down costs after the trade as
6 well. So I would be optimistic. You know, another
7 market, Michael, that you will be very familiar with,
8 high-yield, if you -- we had our volumes out this
9 morning.

10 But a year ago, the high-yield market share
11 here in the U.S. traded electronically on MarketAxess
12 was about 10-and-a-half percent of TRACE volume.
13 Today's numbers were 16 percent. So tremendous growth
14 in a market that a lot of people said would never go
15 electronic. And you're seeing the same benefits coming
16 through in high-yield.

17 So I do think we've opened up the market in a
18 very positive way. It's driving down transaction costs.
19 It's improving in efficiency. And I think it's coming
20 as a benefit to both dealers and investors. And for
21 that reason, I think it's likely to continue to grow.

22 MR. HEANEY: Thank you, Rick. Can I turn to
23 Sonali, please?

24 MS. THEISEN: Sure. Thank you, Michael. I
25 would agree with everything that Lee and Rick have

1 mentioned. And I think it's an important point that
2 Rick raises, the operational efficiencies going forward.
3 And I think if you look broadly at the electrification
4 of the credit markets, what we've seen -- right? -- is
5 the -- that the search function has already been
6 improving with data.

7 So, you know, investors have an easier way to
8 be more targeted in their engagement and where they want
9 to look for liquidity. And I think what's been an
10 interesting catalyst, you know, through these recent
11 months, as Rick and Lee mentioned, that, you know, just
12 consummating that trade electronically and the
13 operational efficiencies, I think that part will only
14 continue to grow.

15 I think the balance of by what protocol that
16 is consummated will, you know, reflect that the market
17 dynamics -- so whether that's, you know, all-to-all
18 trading that Rick and Lee spoke of, whether it's
19 disclosed RFQ, whether it's completely bilateral and
20 executions that can happen through bilateral API that
21 Larry touched upon -- Larry Tabb touched upon, you know,
22 I think that that blend will find some equilibrium and
23 then obviously also change during periods of volatility
24 to some extent. I fundamentally don't believe that, you
25 know, the actual search function in the market and --

1 that's going to, you know, change drastically from what
2 we see today here, let's say, you know, a central order
3 flow or -- or those types of protocols for corporate
4 credit because I don't think it's suited to those
5 protocols to the extent that other markets are. But
6 that said, again, like, the electrification and that
7 spectrum will only accelerate.

8 And I -- you know, we have -- we hear from --
9 you know, from a number of our key investors, investor
10 clients that, you know, state their goal is to get to
11 100 percent, you know, electrification and sort of,
12 you know, the operational efficiencies of booking
13 transactions in the near future. So I do think that
14 this was a good catalyst that spoke certainly from the
15 sell side perspective, as Rick highlighted. It's -- you
16 know, the efficiency of being done on a trade and having
17 that, you know, book and go through and no one having to
18 double-key it, it's quite obvious. So I think that, you
19 know, as I said in my comments, this has been a good
20 sort of silver lining to the pandemic for the markets
21 going forward.

22 MR. HEANEY: Thank you. Let me go to Brad
23 Wings, who has lodged a question or comment as well.

24 MR. WINGES: Yeah. I was just going to
25 essentially agree with Lee and Rick. I mean, the silver

1 lining of what happened in March and April certainly was
2 the acceleration for the broker-dealer community of what
3 we all saw coming, which was the trend going to the
4 electronic market. It created all the efficiency,
5 created the ability for faster execution. And as a
6 large clearing firm as well, it certainly made -- the
7 electronic execution made it a lot less likely for an
8 error touching those securities. So if we look back in
9 March and April on the events and sending everybody into
10 remote environments, certainly that was a silver lining
11 benefit of how the markets performed, which we didn't
12 have the benefit of that nearly to the degree in
13 '07/'08.

14 MR. HEANEY: Thank you, Brad.
15 Gilbert?

16 MR. GARCIA: Yeah. Michael, from the buy-side
17 community, there is no doubt more people will use it. I
18 think that whatever uses there was before COVID, COVID
19 made us use it more. And we realized not only is it
20 easy. Not only is it fast but the whole compliance end
21 of it makes it so beneficial. The keeping track of best
22 execution, the keeping track of all the bids and offers
23 and everything together in one location, it just makes
24 the whole compliance end of our business that much
25 easier. And I'm not so sure we all appreciated it until

1 COVID.

2 MR. HEANEY: Thank you, Gilbert. Any other
3 comments or questions before I turn it over to ask Brett
4 and the commissioners?

5 Okay. Brett, any questions or comments?

6 MR. REDFEARN: No. This has been a fantastic
7 discussion. I really appreciate it. I've actually
8 learned quite a bit. And I think there is a lot of
9 great insights here. I guess the -- you know, one of
10 the themes that we've had is lessons learned. When I
11 think about the amount of electronic trading that we
12 have been seeing, you know, I think to Lee's comments
13 about, you know, the investment and communications and
14 the underlying resiliency, the market, those are
15 obviously important technological investments.

16 I guess, you know, the only question I have is
17 for regulators, if there is anything else that we should
18 be thinking about in terms of ensuring the -- you know,
19 the appropriate regulatory framework going forward as
20 well, you know, in circumstances like this where, you
21 know, we -- just what can we learn such that if we deal
22 with these things again, we are fully prepared or even
23 more prepared than we were last time. I'm just throwing
24 that out there if anybody has any additional thoughts on
25 that.

1 MS. THEISEN: I think it -- perhaps, you know,
2 it speaks to the importance of the recommendation that
3 was put on the table today that, you know, again,
4 knowing exactly what venues are out there, where trades
5 are getting done and by what protocol has become, you
6 know, more important than ever to ensure that, you know,
7 there is a clear understanding of how sort of the pipes
8 and the ecosystem are all fitting together.

9 MR. OLESKY: Yeah. I agree with that, Sonali.
10 I think you're absolutely right. This does highlight
11 the recommendation that was made earlier in terms of
12 harmonization. It's challenging also, though, I would
13 add, because everything is changing. So, you know, we
14 had these debates in terms of defining e-trading in our
15 subcommittee. And I know that this will be a challenge
16 going forward as there continues to be innovation with
17 new protocols. Is it electronic? Is it voice? Is it a
18 combination? What is it exactly? We're doing that on
19 trade right now where we have a voice process trade
20 linked to an e-Treasury trade.

21 I think that will continue to evolve. And
22 really we need the Commission to kind of be on its toes
23 in terms of trying to react to but not stifle the
24 innovation that's likely to surge forward as more and
25 more capital will be invested in this space. I think

1 this is a clear area where capital will flow because of
2 the opportunity. And the innovation may just even heat
3 up more.

4 So it will be a challenge to kind of keep up
5 with that from a regulatory standpoint because it's --
6 you know, every day, it feels like, it's changing a
7 little bit. And a year or two from now, I'm sure when
8 we look back, we'll say, "Wow. It's even changed more
9 than we thought."

10 MR. HEANEY: Interesting point. And again,
11 the purpose of this is to think about those kind of
12 challenges going forward, what we learned from the last
13 period of volatility. So I think that's certainly wise
14 comments and a warning, in so many words, for the
15 Commission. Let me turn before we run out of time and
16 just to ensure -- and see if any of the commissioners'
17 questions or comments --

18 Okay. Other FIMSAC members, questions or
19 comments?

20 Gilbert, again, I want to thank you and the
21 entire subcommittee. This was an incredibly informative
22 presentation. And as Brett said, we all learned a lot.
23 So appreciate the time and the efforts being made in
24 what's a very challenging time as it is. This was, I
25 think, incredibly insightful for all of us and hopefully

1 for the Commission as well.
2 David, I think at this point, if we can, we'll
3 take an eight-minute or seven-minute break, and we will
4 resume at 11:30. I would ask for all FIMSAC members to
5 just keep the video feed -- keep it on as you take this
6 break, and we will reconvene at 11:30 sharp.

7 (A brief recess was taken.)

8 MR. HEANEY: I would like to welcome Chairman
9 Clayton to the FIMSAC meeting. Good morning, Chairman
10 Clayton, and I'll turn to you for opening remarks.

11 CHAIRMAN CLAYTON: Thank you, Michael. And
12 thanks to all of you for being here at least virtually.
13 Recognizing that this very productive meeting is well
14 underway, I will take just a few minutes to share some
15 thoughts. More detailed remarks will be available
16 online.

17 First I want to thank each of our committee
18 members for their tremendous efforts to further the work
19 of this committee, especially as we have all had to
20 adapt to working in a new environment. Your
21 contributions to the Commission have been significant,
22 and I assure you they are continuing. Second, I am
23 pleased to welcome new members Darryl Street, Robin
24 Foley, Ola Persson to the committee. We look forward to
25 working with you and benefiting from your experience and

1 insights. Third, I continue to be impressed with the
2 breadth and depth of the issues the committee has raised
3 and the recommendations you have provided for
4 consideration by the Commission and by Fed. I believe
5 this is a product of the diversity of experience, candor
6 and commitment of the individuals who have given their
7 valuable time to the committee.

8 There are more details on your varied and
9 impressive backgrounds in my posted remarks. And
10 despite the potential challenges associated with
11 incorporating your diverse viewpoints and reaching
12 consensus on difficult issues, you have succeeded in
13 making 16 recommendations to the Commission over the
14 course of 11 public meetings since the committee was
15 established in 2017. I had high expectations for this
16 committee when I began my tenure and decided that we
17 needed to hear directly from fixed-income market
18 experts. And you have exceeded even my highest hopes.

19 Here I want to express a special thank you to
20 Michael Heaney for his leadership which promoted
21 collegiality, rigor and productivity. Fourth, I would
22 like to highlight just some of the many recent actions
23 that have benefited from your past efforts. Last week,
24 as part of our proposal to extend Regulation ATS and SCI
25 to treasuries and government securities, the Commission

1 issued a concept release of electronic corporate bond
2 and municipal securities market. In the concept
3 release, drawing on this committee's recommendations,
4 the Commission solicited public comment on a range of
5 issues that will help inform our future policy
6 concerning this critical aspect of our fixed-income
7 market structure.

8 Additionally, FINRA recently issued regulatory
9 notices related to committee recommendations regarding
10 the practice known as pennyng as well as TRACE
11 reporting for certain corporate bond trades. Fifth,
12 today, the committee considered a recommendation from
13 the Technology and Electronic Trading Subcommittee to
14 improve our collective ability to better understand
15 electronic trading volumes in our corporate bond and
16 municipal securities markets. I understand and support
17 the desire for this enhanced transparency. And I
18 appreciate your attention to this matter.

19 Finally, I am glad you are discussing how our
20 fixed-income markets performed in and since March of
21 this year. To date, our fixed-income markets and our
22 financial markets more generally have weathered
23 volatility and uncertainty admirably but we cannot rest.
24 I view today as a valuable opportunity to reflect on and
25 assess our fixed-income market structure in the midst of

1 these unique circumstances. I look forward to the rest
2 of today's discussions, and I do hope that you will not
3 mind if I participate actively this afternoon. Thank
4 you all very much.

5 MR. HEANEY: Thank you, Chairman Clayton. I'd
6 like to take a minute and just go off script and thank
7 Chairman Clayton for his incredible success and the
8 dedication leading the Securities and Exchange
9 Commission over the past four years. Chairman Clayton's
10 swift action to form the Fixed Income Market Structure
11 Advisory Committee was incredibly insightful and timely
12 and correctly pinpointed the issues overhang various
13 sectors and securities within fixed income. It should
14 provide real benefits to the marketplace both now and in
15 the future.

16 And Chairman Clayton, it's been an honor to
17 work for and alongside with you. I thank you for the
18 opportunity to be part of FIMSAC. I know I speak for
19 the group at large. It has been a pleasure to serve.

20 MUNICIPAL SECURITIES MARKET OBSERVATIONS AND LESSONS
21 LEARNED

22 MR. HEANEY: Next let's turn over to the part
23 of the agenda where we will go to municipal securities
24 market, do the similar deep-dive that we just
25 experienced with Gilbert and team and the corporate

1 bond. It will evaluate the impact of COVID-19 and the
2 associated market volatility in the municipal securities
3 market. I want to remind members to manage the
4 discussion. Please email with an interest to speak or
5 questions to ask. I'll now turn it over to Lynn Martin,
6 chair of the Municipal Securities Transparency
7 Subcommittee.

8 Lynn?

9 MS. MARTIN: Thank you, Michael, Chair
10 Clayton, SEC commissioners and SEC staff for the
11 opportunity to present our findings to you today. What
12 you'll hear from our commentary at a high level is
13 probably consistent with what you heard from the
14 corporate bond subcommittee, one that is focused on the
15 resiliency of the ecosystem that has been built since
16 the financial crisis, which helps muni markets recover
17 quicker in spite of unprecedented spikes in volatility.

18 An interesting parallel here is that the
19 activity in the muni markets is not that dissimilar to
20 what we saw in the U.S. equity markets. And that's
21 interesting, particularly given the presence of retail
22 in this market. This is a -- best characterized as one
23 of short-term panic, is what we saw. The panic fueled
24 an unprecedented spike in volatility starting with the
25 end of the first week in March that most acutely

1 which we'll also turn to during our conversation today.
2 So let's get to it.

3 Similar to the Corporate Bond Subcommittee,
4 our task was to look back on the last nine months and
5 provide observations and lessons learned. Our
6 presentation is going to examine the muni markets over
7 the last nine months from three perspectives, some of
8 which are unique to the muni market. First area we're
9 going to look at is market fundamentals, such as
10 activity levels, both at MSRB, as well as on ATS's,
11 volatility, liquidity metrics and spreads to other
12 fixed-income markets.

13 The second area -- and again, due to the
14 unique structure of the muni markets, we're going to
15 cover something near and dear to the heart of this
16 subcommittee, which is disclosures, and specifically the
17 amount of COVID-related disclosures that we saw since
18 the crisis. And three, we are going to talk about the
19 amount of new issuance through 2020 and specifically the
20 impact of the Fed's Municipal Liquidity Facility in the
21 new issuance process.

22 Like Gilbert, who is going to be a hard act to
23 follow, I'm going to give my observations with the first
24 couple of slides, and then I am going to, since it's
25 football season, something that we like to pretend is

1 persisted throughout April as many participants were
2 looking to exit positions to keep cash on hand. We
3 believe that this wasn't because the market lacked
4 confidence in the functioning of the muni market. And
5 this is evidenced by the fast recovery which we'll show
6 you today but more so, again, due to the general macro
7 uncertainty, which was most amplified in late March and
8 then, once the regulators had stepped in, had calmed
9 down.

10 We think the underlying confidence in the muni
11 markets and the market structure enhancements that have
12 been made since '08 and '09 as well as a calming of
13 equity and other fixed-income market volatility due to
14 federal stimulus helped abate the volatility that we
15 observed and facilitate a quicker recovery despite the
16 unprecedented spike in volatility.

17 Before we start off, I want to thank some of
18 my fellow subcommittee members, specifically Brad Wings
19 from HilltopSecurities, Suzanne Shank from Siebert,
20 Williams & Shank, and Mark Kim from MSRB who all
21 contributed to this deck. You will find their
22 contributions noted in the footnote and on the material,
23 which I consolidated really for the ease of
24 presentation. Additionally, I would like to thank Lee
25 Olesky from the e-Trading Subcommittee for his deck

1 not happening in New York, quarterback the rest of the
2 presentation and allow my e-trading -- the e-Trading
3 Subcommittee as well as my fellow Municipal Subcommittee
4 participants participate.

5 So let me share the deck. We're all becoming
6 Webex experts. Okay. I want to make sure everyone can
7 see the deck. Can you -- look good? Thumbs up? All
8 right. All right. So let's get to it. So let's move
9 to slide 2. Figure 1, the light blue represents 2019.
10 The dark blue represents 2020. And it is the MSRB trade
11 count, compare 2019 versus 2020.

12 You will see that with the exception of March
13 and April, trade counts are down in muni markets. So we
14 thought it was important to figure out, okay, what area
15 do we see the lower activity. Moving to Figure 2, you
16 see the light blue, which is all trades, and then the
17 dark blue, which represents what I would call dealer
18 size or institutional size trades, trades that are
19 greater than a million dollars notional.

20 What you see here is that the dealer
21 participation has held pretty steady, except August,
22 which is a pretty quiet month with the exception of
23 March, April, June and July. And what I found most
24 interesting was, in June and July, you see the -- all
25 trades in the market decreasing despite the fact that

1 you saw the larger institutional size trade count
2 increasing. So what that really shows is that the
3 smaller trade size, the retail trader, is not
4 participating as much in 2020 with the exception of
5 March and April, and has not come back as robustly as
6 the larger institutional trade sizes since the market.
7 And I think that is something that's really important to
8 highlight, particularly as we start to go through some
9 of this presentation.

10 Slide 3. So we tried to examine the liquidity
11 profile of the market, which is sort of tough to do. So
12 my team and -- here ran one scenario that we thought
13 would be helpful to really illustrate the liquidity in
14 the muni markets, particularly at the time of stress.
15 We took the ICE Bank of America Broad Muni Market Index,
16 which has about 18,000 holdings in it, alongside a
17 product which -- we have it, ICE Data Services, which
18 measures the liquidity of a security and the number of
19 days to liquidate a certain size position.

20 Now, for this example, the portfolio that we
21 looked at had 25 million in notional and allocate based
22 on the weightings of the index, which gives, across
23 those 18,000 securities, an average of just over \$1
24 million per holding. For this exercise, we wanted to
25 have an impact on market price of no more than 50 bps.

1 And what you see from the display is that the percentage
2 portfolio can be liquidated in certain time horizons.
3 And what you see at the end of February as well as early
4 March is that, you know, more than 95 percent of that
5 portfolio could be liquidated in less than or equal to
6 one day.

7 And then the -- towards the end of that first
8 full week in March, you started to see that liquidity
9 significantly deteriorate. And at the worst, by March
10 25th, the peak of the volatility in the market, you had
11 that same portfolio with only 55 percent of it able to
12 be liquidated in less than or equal to a day. And
13 importantly, you saw an increase in the amount that was
14 going to take more than 31 days to liquidate, showing
15 that the liquidity had significantly deteriorated,
16 probably unsurprisingly to anyone who was active in the
17 muni markets back then.

18 Towards the end of the month, though, I found
19 this quite interesting that as soon as you saw the Fed
20 come in, as soon as you saw the macro effects of the
21 stimulus start to come in, it eased the market. It
22 calmed down the market. So you saw the amount of
23 liquidity actually significantly improve by the end of
24 the month. And then it was okay, I would say, through
25 the end of -- through the middle of April. Subsequent

1 analysis we did here shows that it got back to these
2 levels by the end of April, which is pretty impressive
3 considering what had occurred towards the middle,
4 towards end of March. And actually, that is one month
5 faster than similar analysis we did for the corporate
6 bond market.

7 Slide 4 is going to talk about yields and
8 bid-ask spreads. So Figure 4, you see the average yield
9 to worst really start to converge towards 2016, across
10 taxable, tax-exempt and treasuries, particularly
11 treasuries and the broad index, the broad muni index I
12 mentioned earlier. In late 2015 through February 2020,
13 you saw pretty good convergence there.

14 But then, as a result of volatility, you saw
15 that convergence blow out. And that divergence hasn't
16 -- has persisted, as we talked today. In terms of
17 volatility, slide 5 shows historical annualized
18 volatility spikes across tax-exempt and taxable
19 municipal bonds. In 2008, you see a fatter spike,
20 meaning it was not as severe. But it persisted for
21 longer, reflective, perhaps, of a time when Fed support
22 mechanisms for the market was less understood relative
23 to today. And you see a spike in May of 2013, which was
24 the taper tantrum, and then a record spike in March and
25 April. Again, look at the -- the relative spikes that

1 occurred in March and April, much more pronounced but
2 much shorter in duration than what you had seen
3 historically.

4 Finally, Figure 6 shows muni bonds also had
5 dramatic changes in bid-ask spreads. And this is
6 reflective from our own e-trading venues, specifically
7 BondPoint and TMC. Pre-crisis, January and February,
8 the average bid-ask spread was about 20 cents and then
9 spiked up to 50 cents during the -- during mid-March.

10 Bid-ask spreads are still at about 35 cents,
11 which is still high compared to pre-crisis levels, but
12 they have significantly improved since where they were
13 during the crisis. With that, I think this is a really
14 good time to turn it over to Lee, who will share some of
15 the observations that he saw on his trading platform.

16 Lee?

17 MR. OLESKY: Thanks, Lynn, and thanks for
18 quarterbacking the effort for the subcommittee. And
19 thank you to the rest of the subcommittee for asking me,
20 inviting me to join in this section. Let me just say a
21 few things before we get into this page. You know, as I
22 noted in the earlier session from an e-trading
23 perspective, we've already been seeing growth in
24 electronification of trading, digitization of risk
25 workflows. But the crisis, as I -- we all said before,

1 has really been amplifying the importance of this
 2 connection electronically and the data that's available
 3 to clients.
 4 Clients need to find the other side of the
 5 trade. They need the data. Since colleagues were no
 6 longer facing each other, sitting next to each other,
 7 they were remote and working from home. On this slide,
 8 we have the MSRB ATS reported trades. And this
 9 particular slide, you can see the ATS notional and trade
 10 volume surged, you know, along with the overall markets
 11 to record levels, actually record levels since the
 12 implementation of ATS flag in 2016.
 13 When we go to the next slide, however, what
 14 you see is ATS notional and trade volume as a percentage
 15 of the market which declined in March. And this is
 16 primarily due to retail desks being the primary
 17 liquidity provider for their clients because dealer
 18 participation in auctions declined. So March actually
 19 represented the lowest ATS notional volume market share
 20 in two years.
 21 ATS share rebounded in April as markets
 22 normalized and both retail and institutional buyers
 23 started returning to the markets, as Lynn alluded to.
 24 If we go to the next slide, please -- and I said this in
 25 the earlier session. You know, we at TradeWeb took our

1 entire company remote within 24 hours. So that was
 2 about a thousand people. What's more important is the
 3 tens of thousands of traders and clients of the
 4 marketplace went remote at the same time.
 5 So you can see in this slide, just as an
 6 example -- what's the top number? The top number is
 7 135,000. So we spiked to 135,000 users of our -- this
 8 is just our retail business, our retail platform in the
 9 month of March. March 20th was the high number. So key
 10 is we were able to get people home and safe, from our
 11 perspective, and the rest of the market was following
 12 suit. And all of the clients were able to switch to
 13 this work-from-home environment rather seamlessly.
 14 We saw an 18 percent surge, as you can see, in
 15 user participation during March crisis versus a typical
 16 month. And this is traders, wealth advisors, retail
 17 investors accessing the market despite being home and
 18 despite all the massive pressure in the marketplace.
 19 I'm really happy to report -- I can report for TradeWeb
 20 we were 100 percent available uptime, handled record
 21 price updates and messages.
 22 And I think that that's largely true for all
 23 of the infrastructure really across the board. I
 24 haven't heard any situations where there was too much of
 25 a wobble in infrastructure. The first few days were a

1 little dicey, I think, in terms of the certainty of
 2 people being from home. But, you know, all in all,
 3 platforms held up incredibly well. If we go to the next
 4 slide, I want to talk just quickly a bit about, you
 5 know, what was happening on the platforms in terms of
 6 the different protocols that clients use. So this is
 7 just the RFQ slice of the world for munis.
 8 And you can see what sort of happened in
 9 March. So you have an explosive growth in the number of
 10 RFQs. But as the crisis evolved, response rates
 11 suffered. I think this is an important point. You see
 12 the dip in the orange line down to -- I think it's about
 13 three in March versus a typical six or more.
 14 So what happened, retail desk stepped in,
 15 providing clients liquidity, relied less on the street,
 16 I would say. But the protocols worked. It raised some
 17 questions if there -- more efficient protocols are
 18 needed maybe. But, you know, by and large, things were
 19 working. All to all, buy side participants took
 20 advantage of bidding bonds, were able to find great
 21 value for customers. Twenty percent of client-to-client
 22 activity on TradeWeb platform during March reported --
 23 performed incredibly well. The other thing I would add
 24 here is that the algo market-making functioned quite
 25 well. So algorithmic firms were incredibly

1 well-prepared to handle this magnitude of sheer trading
 2 volume increase. Those firms who took an aggressive
 3 view stepped in to buy bonds performed very well after
 4 the volatility subsided. Then we saw more of the market
 5 come in. But some firms clearly stepped back from their
 6 risk-taking, I would argue missed a short-term
 7 opportunity and may have upset some of their clients.
 8 But the fact is, you know, overall, the system worked
 9 quite well.
 10 You know, bidding was pretty indiscriminate.
 11 There were some trade issues. But, you know, all in
 12 all, it really -- it went quite well. The next couple
 13 of slides that I wanted to get to quickly are about
 14 retail, institutional, interdealer activities. So this
 15 slide, 6, is using sort of 100,000 under -- as a bucket
 16 for retails, proxy for retail. So we saw record volumes
 17 in March followed by a quick return to normalized
 18 volumes. ATS as a percentage of overall market fell, as
 19 I mentioned before, in March. But when market demand
 20 turned, buying was indiscriminate. So, you know, it was
 21 certainly a challenging environment.
 22 We did see an increase, a 70 percent increase,
 23 in retail volumes in March. So that's the sort of
 24 demonstration of that chart. On slide 7, the next
 25 slide, you see what was happening on the institutional

1 side of the world for TradeWeb. So TradeWeb had a huge
2 surge in institutional. I think Lynn was alluding to
3 this in previous slides. We had a hundred percent
4 increase in buy-side activity on the platform, which is,
5 you know, more than twice the normal volumes from
6 February to March. And volumes since March continue to
7 be at record highs for TradeWeb in this customer
8 segment, this sort of institutional customer segment.

9 Interdealer activity trade count followed
10 retail, institutional trends, but volume decreased
11 obviously substantially in March and has continued to
12 stay muted in the months after sort of on the
13 interdealer side. When we move to slide -- the next
14 slide, please -- this is the muni market weekly buy/sell
15 ratio. So traditionally what you would see in the
16 buy/sell ratio is a heavy weighting towards the buy
17 side. Most individuals are buying. But buy side --
18 buy/sell ratio went negative March 20th, which is a very
19 unusual circumstance where everyone was selling.

20 So this highlights the quickness at which the
21 markets sold off. And then, you know, candidly, how
22 quickly it started to recover back to, you know, now you
23 see a totally different environment. You know, liquid
24 bonds versus illiquid bonds -- the market was in a
25 tremendous amount of turmoil. There was now selling.

1 It was indiscriminate. And taxable versus tax-exempt --
2 taxable volume remained steady through the volatility,
3 steady increase in taxable volume. Since the tax law
4 changed as a result of the tax cuts and the JOBS Act in
5 2017 -- and we've seen an increase in tax-exempt, you
6 know, now the following March trends where we had these
7 record highs.

8 I guess just a quick summary before I hand it
9 over to Brad. I think he's up next. You know, while
10 the short-term volatility was extreme and at times it
11 felt like liquidity was impeded, I'd have so say,
12 overall, the market operated fairly well given the
13 stress it was under and the fact that, you know, so many
14 people were working remotely. I think the electronic
15 trading platforms -- Lynn's platform at ICE, our
16 platform and others were resilient. They were reliable
17 during the crisis and allowed for market participants to
18 do this transition to work from home and maybe, even
19 more importantly, provided new outlets for retail when
20 needed; right?

21 What's most interesting to us was the
22 increased electronic participation of buy-side firms,
23 both as price makers and their reliance on the platform
24 as a price taker. That was the surge in institutional
25 that we highlighted before. So let me stop there and

1 hand it over to you, Brad, for the next step.

2 MR. WINGES: Yeah, thank you, Lee. I would
3 agree the market was definitely more nimble than it was
4 in 2008. And you can see that from the slide. Trading
5 volume was about 9 million trades in 2007 and 2008.
6 Activity was about 6.3 billion, annualized both years.
7 You go to the next slide, you can see what happened in
8 2019, again, about 9.5 million number of trades down
9 slightly to 8.5.

10 The trade count remained consistent, about
11 nine-and-a-half million per year. But except for the
12 muni or the March timeline, you can see the spike there.
13 We've seen a lot of graphs that related to that. Three
14 billion par value or 3 trillion par value trade versus 6
15 trillion back in the '07 and '08. So clearly the March
16 liquidity shock was consistent across all products.

17 If you go to the next slide, drastic
18 difference between '08 and '09 into 2020. All the ratio
19 categories widen, not nearly as long of a timeline as
20 2007 to 2009, as Lynn had indicated. And then you go to
21 the trading spread analysis. Similarly, lower credits
22 widen more. You can see Connecticut, Pennsylvania, New
23 Jersey, Illinois gapped out as the high-yield market was
24 looking for more liquidity across the bond funds. We
25 did see a rise in AAA activity -- escrows were out for

1 the bid. And then the market did quickly return back to
2 normal. And I attribute this mainly to the Fed stepping
3 in and, as Lee indicated, the ability of the market to
4 work remotely and more and more people trading
5 electronically than they had historically back in '08
6 and '09.

7 And, you know, you will typically see in a
8 liquidity environment a rise in AAA bond activity and a
9 rise in escrows and -- and intuitively, you'd wonder why
10 and it's -- that's the most liquid short end of the
11 curve as there -- bond funds are trying to raise cash.
12 And then if they are still in a need for cash, there
13 will be a wave of selling in the high-yield space, which
14 tends to downdraft and cause credits to widen out.

15 So that leads to a widening of transaction
16 costs, which we certainly saw. But that has certainly
17 come back to a great degree, as the traders were all
18 stepping back into the market. And it's more than just
19 credit. It's also the fear of liquidity for the
20 broker-dealer environment. So once the Fed did step in
21 and the balance sheets were comfortable, the traders
22 were given the green light to go back to normal in terms
23 of participating. So you kind of had a cross current.
24 You had a fear of credit. You had a fear of liquidity
25 by the retail investor, by the institutional investor.

1 The retail market started liquidating their bond funds,
2 which caused the institutional space to start to
3 liquidate. And as the balance sheet started getting
4 inflated on the broker-dealer side, there was a fear of
5 liquidity and the ability to fund that.

6 The Fed steps in, gives consistent funding for
7 the broker-dealer community so the trading desks were
8 comfortable bidding the bonds and going along the bonds
9 to the extent that they felt that there was value there.

10 And then we're turning around and reselling them back
11 into the retail and the institutional markets. So very,
12 very surprising to me. You know, lived through '08 and
13 '09 and certainly you saw on all the different graphs
14 that Lee and others have shown that that was a much
15 longer progression. I personally was extremely
16 surprised how quickly the market snapped back after the
17 Fed stepped in.

18 And I want to give the SEC credit for their
19 willingness to allow the broker-dealers to be nimble and
20 allow the traders to access the open markets outside of
21 what I would call the bricks-and-mortar environment.
22 Had they not done that and the Fed had not stepped in to
23 provide liquidity and stability to the funding markets,
24 I think we would have seen a pretty dramatic different
25 outcome. So the speed of the SEC and the speed of the

1 markets. And the municipal market held up okay. Our
2 response -- Lee had a graph earlier that indicated how
3 much the response rates went down. We typically get
4 between six and eight responses for an RFQ. And we got
5 to one or two. And it was stratified by credit to a
6 very large degree. So we got obviously more responses
7 for the higher end credits, as Brad indicated. And
8 there was more or less no market for high-yield.

9 That being said, I can't imagine what the
10 scenario would have been like without access to
11 electronic trading. So I think the institutional
12 increase in electronic trading is a function of
13 investors and dealers preferring speed over execution
14 price. What institutional investors wanted was a price
15 fast. And they wanted to get them access to the most
16 potential sources of liquidity as quickly as they could.
17 And the -- it's been said a lot. And it really can't be
18 overemphasized. The way that the electronic trading
19 platforms held up through this was extraordinary because
20 we would not have been able -- we would not have been
21 able to function as an industry without them. I truly
22 believe that.

23 One other point I would like to make regarding
24 the way that the market developed. So our conversion
25 rate stayed under 50 percent through May. And Larry

1 federal government to step in along with the confidence
2 in the liquidity market, I think we abated a much more
3 significant, longer-lasting credit event.

4 And Horace, maybe you want to step in and give
5 perspective from Raymond James.

6 MR. CARTER: Thank you, Brad. Yes. I just
7 had a couple of observations that I wanted to share.
8 And one of the things that I note about the
9 presentations is that all of the or most of the
10 information looking -- based on trade information. And
11 we don't have a lot of information about the bonds that
12 didn't trade. And so looking at just Raymond James
13 information, we average about 4,000 selling freeze or
14 bid wanteds per month. And in March, we had over
15 14,000. But our conversion rate, which is the bonds
16 that trade, is generally between 65 and 70 percent. And
17 our conversion rate drops to 20 percent.

18 So what we saw there is a lot of bonds that,
19 for whatever reason, we were unable to trade or our
20 clients were unwilling to trade. And my takeaway from
21 that is that Lynn said it earlier. It was -- retail
22 clients were panicking. They were indeed because they
23 weren't selling individual municipal bonds because of an
24 interest in selling that specific credit. They were
25 trying to sell everything. And we saw it in the equity

1 Harris earlier mentioned that the market was beginning
2 to rely on nontraditional market makers and that that
3 was going to continue in the future. He's exactly
4 right. And that's what we saw. The institutions that
5 were providing liquidity out there were not necessarily
6 the traditional market makers that you think of, the big
7 houses in New York and so on.

8 And what I would say is this. The further
9 that the individual investor gets from the market maker
10 by orders of degrees, then the more implicit the cost is
11 to the investor. And the cure for that, it's -- there's
12 inevitability to it, just based on the way the capital
13 structures are set up right now. And so electronic
14 trading is going to become more and more important in
15 those instances because the information flow has to
16 become seamless to keep those costs as low as they can
17 be. And those are my observations.

18 MR. WINGES: Yeah. One other thing. I like
19 to jump in, Lynn, really quick is --

20 MS. MARTIN: Sure.

21 MR. WINGES: -- you know, given our analysis
22 was around the muni market, the municipal market did not
23 perform to similar than the corporate market, the
24 mortgage market and other fixed-income markets. And I
25 think that's an important highlight because oftentimes,

1 the muni market gets viewed as less liquid, less
2 efficient, you know, maybe harder to fund liquidity and
3 the like. And it performed very consistent with its
4 fixed-income peers in terms of products and recovered
5 very, very quickly and was able to continue the
6 new-issue market, certainly not to the extent that the
7 corporate market had new issue volume, you know,
8 beginning in April and May. But, you know, since that
9 time, there has been a lot of new issue municipal
10 activity and taxable municipals being issued. And I
11 don't want to say they're back to normal, but they're
12 certainly very fluid and operating efficiently.

13 MS. MARTIN: Great. We're going to get to
14 that topic in just a little bit. Before we come to new
15 issues, I want to turn it over to Mark Kim to talk about
16 disclosures. Like I said, this is something near and
17 dear to this subcommittee's heart.

18 So, Mark, over to you.

19 MR. KIM: Thank you, Lynn. As part of its
20 response to the pandemic, the MSRB has been focused on
21 bringing greater transparency to the market on the
22 economic dislocation caused by COVID-19. To date, state
23 and local government issuers have filed over 20,000
24 disclosures with the MSRB that have referenced the
25 pandemic. In the chart on this page, it illustrates the

1 total number of disclosures that have been filed that
2 relate to COVID-19 on a weekly basis since the start of
3 the pandemic.

4 I wanted to highlight that on May 4th, there
5 was a public statement issued by Chairman Clayton and
6 Director Olsen of the Office of Municipal Securities
7 that encouraged municipal issuers to provide the market
8 with current information about their financial and
9 operating status. Shortly after that public statement,
10 we hit a high water mark in terms of disclosures being
11 made. And we received over a thousand disclosures that
12 week.

13 And we've -- you can see on this chart that
14 we've hit that same high water mark exceeding a thousand
15 disclosures a couple of times since then. The
16 subcommittee received a question regarding how many
17 issuers have submitted these disclosures. And I wanted
18 to just share information that it's a challenging
19 question to answer, in part, because of the unique
20 nature of the municipal market where, as many of you
21 know, there are conduit issuers that will serve as a
22 pass-through entity for what is ultimately the obligor
23 or credit underlying a particular issue. That said,
24 we've done a preliminary analysis in order to give you a
25 rough order of magnitude to kind of address this

1 question. And based on using CUSIP 6 or the base CUSIP
2 as a proxy, we've identified approximately 12,600
3 issuers that have submitted disclosures that reference
4 COVID to date.

5 I wanted to provide two other perspectives on
6 how comprehensive the disclosures have been in our
7 market during this pandemic. If you take that universe
8 of all of the distinct CUSIP 6's that have traded in
9 2020, approximately 40 percent of those CUSIPs have a
10 COVID-19-related disclosure associated with it. Now,
11 viewed another way, if you look at the total number of
12 trades that have occurred in 2020 using that same data
13 set of unique base CUSIPs, then approximately 73 percent
14 of the trades that have occurred in 2020 have an
15 associated COVID-related disclosure.

16 Let me close by just noting that the MSRB has
17 also received over 1200 disclosures for securities that
18 have not traded at all in 2020, which highlights another
19 unique aspect of our market. And that's namely the buy
20 and hold type of investor who may purchase a security
21 with the intent to hold until maturity. On any given
22 day, there are -- the vast majority of municipal bonds
23 will not trade. And indeed, there are some municipal
24 bonds that will never trade.

25 With that, let me turn the conversation over

1 to Darryl Street, who we're fortunate to have as one of
2 our state and local government issuers that has
3 submitted these types of disclosures and to share the
4 District's experience and the impact of the pandemic on
5 their own capital borrowing plans.

6 Darryl?

7 MS. MARTIN: Darryl, you may be muted. Not
8 yet. Try now. I see you trying to talk.

9 MR. STREET: I unmuted my -- can you hear me
10 now?

11 MS. MARTIN: Yup.

12 MR. HEANY: Yes.

13 MR. STREET: Okay. Perfect. Thank you,
14 everyone, and thank you for the opportunity to give the
15 perspective of a state and local government issuer. Our
16 office, the Office of the Chief Financial Officer, in
17 the District is responsible for producing quarterly
18 revenue estimates that the District's budget has to be
19 balanced against. We had just produced our revenue
20 estimate at the end of February before the full extent
21 of the -- and the severity of the pandemic had been
22 known.

23 Less than two weeks after that, as that
24 information became more clear, Mayor Bowser issued her
25 -- a series of public health -- orders which instituted

1 stay-at-home orders, shutting of non-essential
 2 businesses, banning large gatherings, all of those
 3 things that we are now familiar with. It forced our
 4 office to go back and to revise quickly our revenue
 5 estimate, taking into consideration the shock of the
 6 economy that would happen with all the effect of those
 7 shutting -- that shutting down.

8 So in -- towards the end of April, our office
 9 produced a revised revenue forecast that we made public
 10 that for -- just for fiscal year '20 and '21 alone
 11 reduced our revenues by over \$1.5 billion and over the
 12 course of the four-year budget financial plan that the
 13 District produces reduced revenues over \$3 billion.
 14 Recently, just last week, on September 30th, our office
 15 also produced the most recent of the revenue forecast
 16 that updated/revised that information with the hindsight
 17 of the past quarter and past six months of economic
 18 activity for the District.

19 And just to take a step back, when we reduced
 20 our budget based on the April revenue forecast along
 21 with having to redo the entire budget, it had a drastic
 22 effect on the capital budget as well. We were required
 23 to stay within our statutory debt limits. And to
 24 reflect the amount of revenues that were available, we
 25 had to reduce our capital budget by \$1.2 billion. So

1 there were some pretty significant impacts to the
 2 District.

3 In trying to just quickly summarize what our
 4 most recent revenue estimate said, roughly 75 percent of
 5 the District's economy is holding up pretty strongly. I
 6 think, in large part, that's due to the unprecedented
 7 amount of federal support that was given, as well as the
 8 shift to teleworking by the largely professional
 9 white-collar employment base that is -- the District is
 10 made up of.

11 Where this COVID recession really impacts us
 12 and, I would say, to a large degree other state and
 13 local governments is in our hospitality sector, hotels,
 14 restaurants, in-person retail, real estate-related
 15 services and even higher education. You know, take out
 16 the federal government, the largest employer in the
 17 District is Georgetown University. Three of the top
 18 five largest employers are universities.

19 So just to give a little more color, one data
 20 point, taxes -- sales taxes from our hospitality sector,
 21 hotels and restaurants in fiscal '19, were roughly \$766
 22 million. For fiscal '20, we're estimating less than
 23 half that. So we're down around \$360 million and stay
 24 at a relatively low level, stay relatively flat, given
 25 the sort of prolonged nature of when we get back to a

1 full level of reopening of the District's economy.

2 We're also looking at potentially reduced
 3 property taxes going forward, has increased vacancies
 4 and reduced effective rents for commercial and
 5 multi-family properties start to affect assessed
 6 valuations going forward. So this -- on our -- it's had
 7 a significant impact on the District's budget. I will
 8 add one caveat, that the District probably came into
 9 this COVID recession in better shape than most other
 10 state and local governments in the country. We had
 11 60-plus days cash on hand, fully-funded reserves,
 12 fully-funded pension -- trust, which is not the norm, I
 13 think, for most state and local government issuers
 14 across the country. So we were able to weather it
 15 slightly better at the beginning, but we're not immune
 16 by any means to the ongoing impact of that. And with
 17 that, I'll turn it over, I think, to Amy, who is going
 18 to talk about the impact of rating changes.

19 MS. MARTIN: I think we're actually going to
 20 come to Amy in the next section to --

21 MR. STREET: Oh, okay.

22 MS. MARTIN: -- to try to gather new issues
 23 and this item. So you heard from Brad. You heard from
 24 others. Obviously new issuance is important to the
 25 municipal markets. We wanted to look at it both from

1 how the public markets have gone but also from the MLF
 2 perspective. I'm going to hand it over to Suzanne to
 3 give an update there. And then, Darryl, we're going to
 4 come back to you for some observations having been an
 5 issuer in this market since the spikes.

6 So Suzanne?

7 MS. SHANK: Great. Thanks, Lynn. The
 8 municipal market started the year with very strong
 9 issuance volume in the first two months. I mean, we
 10 were 45 percent higher than in 2019 for the same two
 11 months. And it was really fueled by record low rates
 12 and 50-plus consecutive weeks of positive inflows into
 13 municipal funds.

14 Low rates continued to prevail into late
 15 February and early March, as fears surrounding the
 16 pandemic caused equity weakness and a flight to quality.
 17 However, by mid-March, market dislocations were evident,
 18 as municipal funds began to see widespread redemptions
 19 and were forced to liquidate bonds, leading to higher
 20 rates and soaring ratios to treasuries. And as Lynn and
 21 others have mentioned, we saw liquidity evaporate. The
 22 amount of bonds out for the bid continued to rise. And
 23 the municipal market effectively shut down mid-to-late
 24 March. The market gradually began to stabilize over the
 25 next several weeks as municipal fund outflows slowed,

1 causing secondary bid -- to decline.
 2 And after about six weeks of outflows, the
 3 week of April 13th, we saw inflows, although only
 4 highly-rated credits had market access. In May, the
 5 municipal market rallied to lower yields and started to
 6 open up and to more credits as investor demand for bonds
 7 began to increase. The strong market tone was retained
 8 through June as cash flowing into the market continued
 9 to result in robust demand for primary market issuances.

10 And so what we have seen year-to-date through
 11 September is 23 percent higher issuance than in 2019,
 12 really breaking the all-time nine-month record since
 13 tracking began. And at the first three quarters of the
 14 year, muni volume now stands at a 342 billion as
 15 compared to 281 billion for the same period in 2019.
 16 September, in fact, has been the strongest month for
 17 municipal bond issuance. And as compared to issuance
 18 during the 2018 crisis, we're seeing slightly higher
 19 tax-exempt volume, about 2 billion, but dramatically
 20 higher taxable volume at 118 billion higher than we saw
 21 in 2018.

22 And I think, as Brad mentioned, that's largely
 23 because of the changes in the Tax Act but also really
 24 low taxable rates. We're actually expecting our
 25 projection for this year's volume of total issuance to

1 be about 482 billion. And that would be 116 billion
 2 higher than in 2018.

3 Going to the next page, we show the historical
 4 issuance of municipal bonds by tax status since 2009.
 5 The municipal market, as you all know, has been
 6 dominated by tax-exempt issuance, usually hovers around
 7 the 90 percent mark. But here we see that 2020 has been
 8 the highest percentage of taxable muni since 2010. And
 9 in 2010, we had seen the issuance of Build America
 10 Bonds, which were a taxable vehicle that allowed
 11 municipalities to access the taxable markets.

12 In July of this year, 35 percent of municipal
 13 issuances was taxable. And again, this is fueled by low
 14 taxable rates as well as desired municipalities to
 15 advance refund their debt, a mechanism that's no longer
 16 permissible on a tax-exempt basis under the 2017 Tax
 17 Act. Page 17, you can see taxable municipal bonds
 18 totaled 98 billion in total for the first nine months
 19 and account for about 30 percent of total issuance in
 20 2020.

21 On the top of 18, we can see that issuances
 22 have been higher in every month this year other than
 23 March when we saw the severity of fund outflows, you
 24 know, that you see in the bottom chart, which really
 25 dominated the landscape for the municipal market. I'm

1 going to turn now to the Municipal Liquidity Facility.
 2 On April 9th, the Federal Reserve announced the MLF as
 3 part of a new series of facilities to support the
 4 economy.

5 The facility aimed to ease cash flow pressures
 6 on state and local governments as they adjusted to
 7 declines in municipal and state revenues and faced
 8 greater than expected public health costs due to the
 9 pandemic. The MLF was capped at 500 billion for loans
 10 up to three years. It was open to counties with
 11 populations of 500,000 or more and cities of 250,000 or
 12 more.

13 And in June, the Central Bank allowed U.S.
 14 states to be able to have at least two cities or
 15 counties eligible to directly issue notes through the
 16 MFL -- MLF regardless of population. Going to the next
 17 page, on page 20, we can see that there have only been
 18 two municipal issuers who have taken advantage of this
 19 facility. In June, the State of Illinois, the
 20 lowest-rated state at Baa2, BBB- issued 1.2 billion of
 21 one-year general obligation-backed notes, which were
 22 priced at 366 basis points over the AAA index.

23 Just as a point of reference, last year, one
 24 of the services had the one-year spread for Illinois
 25 notes at plus 95, but that does not account for the

1 size, you know, of this borrowing. So you can see the
 2 dramatic difference that the year has made. In August,
 3 New York MTA actually solicited bids in the primary
 4 market for its 465 million bond anticipation notes and
 5 received 20 bids from 10 banks with an average clearing
 6 cost of 2.79 percent. But they ultimately rejected
 7 those bids and instead accessed the MLF at 1.93 percent.

8 So what we've seen is the MLF has really -- it
 9 was structured as a last resort. And that's exactly the
 10 way it's been utilized. The Fed has said the program is
 11 meant to be a backstop to help the market function
 12 properly. I will say that some issuers would like to
 13 see the program extended into next year, perhaps a look
 14 at the final maturity being extended and reconsidering
 15 the pricing and access parameters, given how low overall
 16 interest rates are. Thank you.

17 MS. MARTIN: Great. Great. Thanks, Suzanne.
 18 So, Darryl, you've been in the market. Can you give us
 19 just a flavor for what you've seen as an issuer?

20 MR. STREET: Sure. Happy to do so, Lynn. So
 21 the District had the good fortune of timing that we were
 22 in the market just prior to a lot of the economic
 23 shutdown that happened due to COVID in late February.
 24 We came to market with our income tax revenue bond
 25 credit. The District is a highly-rated issuer. We have

1 a AAA rating on our GO bonds from Moody's. And so at
2 that time in late February, we were able to sell 25-year
3 debt, tax-exempt, at the lowest all-in borrowing cost I
4 think the District had ever achieved.

5 Shortly thereafter, though, as Suzanne went
6 through in her remarks, the markets basically froze from
7 mid-March on into April and then slowly started to work
8 themselves out where high-grade issuers such as the
9 District could access the market in April, albeit
10 probably at wider spreads than what we could have done
11 before. The market then continued to work itself out, I
12 believe through the rest of April into May. We then
13 came back into the market with another sale of income
14 tax revenue bonds at roughly \$670 million. And at that
15 point, the market had basically come back to normal for
16 high-grade issuers like the District. We sold basically
17 almost on top of in terms of all-in borrowing costs
18 where we were pre-COVID pandemic.

19 So at that point, we felt that, you know, the
20 District and other high-grade issuers had pretty good
21 access to the market and almost as if everything that
22 happened before didn't exist. I don't think that's
23 necessarily the case. So for some of the lower rated
24 issuers, certain specific credits that might be related
25 to areas that have concerns going forward with revenue

1 pressures such as transit, airports, things of that
2 nature, which I think we can touch on a little bit later
3 if that's what you'd like to do. Thank you.

4 MS. MARTIN: Amy, so you've heard a couple
5 times us -- around rating agencies and the impact of
6 rating agencies. What's been your experience from the
7 data that you've looked at, both new issuance,
8 disclosures, whatever the case may be with rating
9 agencies.

10 MS. McGARRITY: Sure. Thanks, Lynn. I just
11 -- I wanted to just highlight a couple of observations
12 that the Credit Rating Subcommittee has surrounding the
13 municipal markets. Suzanne touched on it a minute ago.
14 But the Municipal Liquidity Facility or MLF was put in
15 place by the Federal Reserve to provide liquidity and
16 funding for essential public services by providing a
17 liquidity backstop to eligible issuers.

18 In order to be eligible to use the MLF,
19 issuers must have a specified credit rating within a
20 defined range. The rating must be given by two or more
21 eligible NRSROs. As we discussed previously at prior
22 FIMSAC meetings, a component of Dodd-Frank legislation
23 intended to remove references to specific ratings from
24 regulation, though some remain. While I recognize there
25 may not be clear alternatives, especially using the time

1 frame the Fed operated in during this extraordinary
2 period, the Credit Rating Subcommittee wanted to really
3 underscore this point. We believe a more market-based
4 measure should be incorporated when evaluating the
5 credit risk of an issuer and the resulting funding costs
6 and, in this case, their cost of funding using the MLF.

7 This is especially relevant during
8 extraordinary macro events, such as the current global
9 pandemic, which will require time for NRSROs to fully
10 understand the ramifications on issuers. And the credit
11 ratings will likely lag market sentiment on credit risk.
12 Scott discussed earlier how the credit market investors
13 favored certain issuers which are less harmed by the
14 pandemic despite their ratings. In the muni market, we
15 have seen some notable issuers downgraded thus far into
16 the pandemic, including a high-profile issuer just last
17 week. The issuer's spreads remain close to where they
18 were prior to the downgrade, indicating that the ratings
19 lagged the market's recognition of the risk in that
20 issuer. Lynn, I'll turn it back to you.

21 MS. MARTIN: Great. So going forward is
22 clearly a topic we wanted to talk about, particularly
23 since -- given the macroenvironment that we're entering
24 into with Q4, there could be additional volatility. So
25 first, Lee, maybe you could share your observations a

1 bit further. I know you've talked about the importance
2 of electronic trading. And the fact that you were able
3 to transition folks from an in-office to an electronic
4 trading or an at-home environment really helped
5 facilitate further electronic trading. Is there
6 anything that you'd like to share about what worked well
7 but also if there is anything that didn't work well
8 first?

9 MR. OLESKY: Yeah. I think -- look. Overall,
10 it went pretty well. I think the infrastructure and the
11 platforms and the getting to work from home functioned
12 incredibly well. I guess maybe a little side point --
13 which Horace mentioned this. I think it's a really,
14 really good point. And it came up in the credit
15 conversation. Because we have so many more folks
16 connected with each other, it's allowed for new forms of
17 liquidity to reach the end user.

18 So with respect to the muni markets, we saw,
19 you know, algorithmic firms raising their profile in the
20 crisis period, you know, largely because of their
21 ability to respond to the sheer volume of RFQs because
22 they are willing to warehouse the risk when the market
23 direction quickly turned. And they became a -- you
24 know, a source of -- a great source of liquidity for
25 retail and the buy side. So I think that that was a --

1 you know, that was a real positive. I -- you know,
2 there was some challenges. And I think that this goes
3 back to what we were saying in the last committee. My
4 only point here would be -- and to the SEC is just to
5 continue to invest in the space because I think it could
6 be made more robust. It will continue to evolve. And I
7 think, you know, it's going to require a kind of
8 constant investment and attention.

9 But, you know, overall, we thought electronic
10 markets performed incredibly well. They served as a
11 critical forum for liquidity during March and April, you
12 know, despite this unprecedented situation and
13 volatility and work from home.

14 MS. MARTIN: Yeah, I would agree with that
15 from the ICE bonds perspective as well. The transition
16 from fully in-office environment to work from home and
17 working with our customers was something that was not
18 short of extraordinary. And given the investments in
19 technology, it really facilitated that kind of
20 transition seamlessly.

21 Suzanne, I know you had some thoughts just
22 about, you know, as we think about the volatility that
23 may occur in the fall as well as, as we -- essentially
24 the move through 2021. What are things that we should
25 be thinking about?

1 MS. SHANK: Thanks, Lynn. Yes. We anticipate
2 volatility to continue in the fall as municipal issuers
3 really grapple with budgetary distress, which will hinge
4 on news around vaccine developments and other stimulus
5 package passage if there is one with aid to state and
6 local governments.

7 And of course, if there is any disruption
8 surrounding the election results, we would obviously
9 expect that to contribute to volatility. On page 22,
10 S&P identified some of the key credit drivers for their
11 analysis. The rating agencies have been, you know,
12 pretty active in putting out, you know, their views of
13 what's happening. And they have included as key factors
14 pandemic response, federal stimulus, uneven economic
15 recovery, social unrest, natural disasters, cyber risk,
16 revenue volatility and really municipalities' ability to
17 deal with their fixed costs such as pensions and OPABs.

18 You know, another issue that we think will
19 continue to get a lot of dialogue in the municipal space
20 will be the increased disclosure vulnerability for
21 issuers because, you know, they are dealing with a lot
22 of unknowns and, as Mark mentioned, there were a lot of
23 disclosures. There were many voluntary disclosures. I
24 think issuers are still grappling with when to disclose,
25 how much to disclose, you know, etc. So Chairman

1 Clayton's, you know, announcement earlier in the year, I
2 think, prompted issuers to take their disclosure
3 requirements much more seriously.

4 Another thing that I think we are going to see
5 is really a difference between the haves and the
6 have-nots. Issuers like the District, you know, where
7 Darryl is, you know, are very well-positioned for this.
8 And in general, issuers, you know, were well-positioned
9 going into this, better positioned in 2020 than in 2008.
10 But still those challenged credits that hinge on
11 hospitality and, you know, those more challenged
12 industries we think will continue to, you know,
13 struggle. And that's all I have.

14 MS. MARTIN: Thanks so much. So that brings
15 to the end of our presentation. But before we turn it
16 back to Michael and the rest of FIMSAC to ask questions,
17 Elisse, we'd love your perspective on, you know, what
18 should we be thinking about since the 2008/2009 crisis
19 that we should keep in mind as we really move through
20 uncharted territories here. Any best practices that we
21 should be keeping in mind particularly for the muni
22 markets would be quite welcome.

23 MS. WALTER: Well, I must say that -- thank
24 you, Lynn, for the opportunity to give my views. I
25 really believe that all of us who touch this market in

1 one way, shape or form should be proud of the extent to
2 which the market continues to function smoothly. I do
3 think that we need to continue to keep an eye on market
4 structure to see if there are any changes that should be
5 made in order to have it function even better.

6 I also think that, in the longer term -- and
7 these are not things that are going to happen overnight
8 -- we need to continue to have an eye on transparency
9 and whether or not there are further routes that should
10 be taken in my mind, particularly with respect to
11 pre-trade transparency to help investors in this market.
12 And I also think -- and, you know, Michael, you can take
13 me off of the comment list because I will say this now
14 rather than later on -- that as we are looking at -- and
15 this is not just with respect to munis. But any kind of
16 fixed income, we're looking at certain types of
17 regulatory disparities between broker-dealers and ATS's.

18 I think that needs to be expanded because for
19 a long time, I felt that we should really take a careful
20 look at the lines that we're drawing between ATS's and
21 exchanges. And that is obviously more of a long-term
22 project. But I do think that what has happened in the
23 last few years, which is very, very welcome, is a
24 heightened attentiveness by all market participants,
25 including regulators, to things that have happened in

1 the marketplace that are unanticipated. And we all know
2 that, regardless of the fact that this crisis is being
3 met in this particular respect quite well, we need to
4 anticipate the unanticipated. Thanks, Lynn.

5 MS. MARTIN: Anticipate the unanticipated.
6 That's the theme for 2020, I think.

7 So, Michael, I'm going to turn it back over to
8 you. That concludes our subcommittee's run-through of
9 what's happened and what we should be thinking about.

10 MR. HEANEY: Thank you, Lynn. And thank you
11 to all the presenters and the entire subcommittee.
12 Excellent presentation. Important information for both
13 the public and for the rest of FIMSAC. So let me stop
14 here and reach out to FIMSAC members first. Any
15 questions or comments?

16 I'll open it up to Chairman Clayton and Brett
17 and the commissioners. Questions or comments for Lynn
18 and/or the subcommittee?

19 MR. REDFEARN: Michael, let me just say once
20 again thank you for another great discussion. Really
21 appreciate all the materials that were put together and
22 all of the input that was provided today. Again, very
23 helpful. I have no questions, but I just wanted to
24 thank the committee.

25 MR. HEANEY: Thank you, Brett.

1 Ananth, over to you.

2 MR. MADHAVAN: Thank you, Michael. So once
3 again, we're going to have all of our subcommittee
4 members presenting. I think the order of that will be
5 Rachel Wilson will kick us off. Then we'll turn to an
6 analysis of bond ETF behavior in the crisis, which I
7 will deliver, sharing some of my empirical work. Then
8 we'll turn it over to Kumar Venkataraman for an academic
9 perspective. And Kumar will walk us through some of the
10 academic thinking about funds in general, ETFs and
11 mutual funds. At that point, we'll turn to Robin Foley,
12 who will give us her perspectives from her seat. And
13 then finally we'll close with Amy McGarrity and Lynn
14 Martin concluding this subcommittee's findings. Okay?

15 So Robin, over to you.

16 MS. WILSON: I think Rachel; right? So
17 I'll --

18 MR. MADHAVAN: Oh, sorry. Rachel.

19 MS. WILSON: That's okay. We've got too many
20 R's now on the subcommittee. It's confusing.

21 MR. MADHAVAN: Yeah, it was.

22 MS. WILSON: So, you know, look. Last year,
23 our ETF and Bond Subcommittee did produce a stress
24 market report. And we noted that while bond funds and
25 ETF had generally performed well in stress markets, you

1 Others before we pause?

2 Okay. Terrific. Thank you, Lynn, again for
3 leading the panel. Thank you to the subcommittee for
4 all the work. It was an important discussion, as I
5 mentioned. And I echo Brett's comments. It's -- we're
6 basically right on time. 12:45 was the intended lunch
7 break. So why don't we break now? I'd ask that all
8 FIMSAC members please stay connected but just mute your
9 audio lines. And we will begin the afternoon session at
10 1:30. Thank you very much.

11 (Whereupon, at 12:38 p.m., the meeting was
12 recessed.)

13 AFTERNOON SESSION

14 MR. HEANEY: Okay. Welcome back, everybody.
15 I'd like to call the meeting to order. I thought it was
16 an excellent morning session, extremely informative, a
17 lot of very useful content. Thanks again to all those
18 involved.

19 BOND FUND AND ETF MARKET OBSERVATIONS AND LESSONS 20 LEARNED

21 MR. HEANEY: We'll now turn to the bond fund
22 and ETF market and have them share the analysis of the
23 market volatility and dislocations that they saw in this
24 sector. Ananth Madhavan, chair of the subcommittee,
25 will be leading the discussion.

1 know, we did have to caveat our conclusion because we
2 hadn't yet seen a period of volatility akin to 2009.
3 And at that point, the ETF market was obviously much
4 smaller.

5 So the COVID crisis in March 2020, it has
6 offered us a unique opportunity to revisit some of this
7 analysis and discussion from last year's report. Some
8 of the stress market ETF risk that we considered
9 included the ability to fund -- excuse me -- the ability
10 of mutual funds to meet redemptions, step away risk from
11 AP and apparent deep discounts to NAV, amongst others.

12 So today we're going to be re-examining some
13 of these ETF risk themes given the COVID-related stress
14 market experience. Specifically, as Ananth mentioned,
15 we're going to review how the bond ETF market behaved
16 under stress through analysis produced by BlackRock with
17 Ananth and their experience in comparative analysis
18 across some of their flagship funds.

19 Kumar is going to then present emerging
20 academic themes with a focus on systematic risk. And
21 Robin will discuss anecdotal evidence about the
22 experience of mutual fund managers and investors.
23 Finally, Amy and Lynn are going to summarize our overall
24 assessment and initial conclusion. And with that, I'll
25 turn it back to Ananth to present the BlackRock

1 analysis.

2 MR. MADHAVAN: Okay. Thanks so much, Rachel.

3 So let me show -- let me share with you a presentation

4 that is based on some work that we did. And this is

5 forthcoming in the Journal of Index Investing. So

6 without further ado, I would just also want to point out

7 that this is work that was done by BlackRock. It has

8 nothing to do with the subcommittee or with the

9 Commission or with any of the commissioners.

10 Okay. So what do we find? As Rachel pointed

11 out, the stress period is of considerable interest given

12 we haven't really seen anything like that in the last 10

13 years. So how did fixed-income ETFs do? Well, they

14 actually did -- they did pretty well. And this is

15 calling on some of the themes we heard from the earlier

16 sessions about the muni market and Rick McVey's session

17 general resiliency of the corporate bond market, the

18 muni markets, shift to electronic trading. Some of

19 these themes we'll see in this presentation.

20 So the first point I want to make is we're

21 going to look at three things. We're going to look at

22 the pricing of fixed-income ETFs, the liquidity of those

23 ETFs, and then the functioning of the arbitrage

24 mechanism. What you'll see on this page on the bottom

25 right is a chart which shows the secondary market volume

1 in our flagship high-yield bond ETF. And you'll see

2 it's very closely tied to the VIX, volatility index. So

3 there is clearly a relationship between the volumes of

4 these ETFs and volatilities. And that's in keeping with

5 some of the findings earlier today that were reported.

6 Moving forward a slide -- there we go. Okay.

7 So in terms of price discovery, one of the things that

8 we noted was that during the height of the volatility

9 crisis in March of 2020, there was some pretty severe

10 deviations of price from NAV. And the real question is

11 what's driving those things. There are a few

12 institutional features with NAV that we want to be aware

13 of.

14 One is that the actual bond NAVs are struck at

15 3 p.m., not at 4 p.m. when the market closes. So if

16 there is a large price movement in the last hour, as we

17 saw a lot of in those days in March, that could be

18 premiums or discounts to NAV just as a result of the

19 timing differences. NAV is also struck based on

20 previous prices. Some of these bonds that you'll see

21 shortly trade quite infrequently. And as a result, the

22 prices that were recorded may be, in some sense, not

23 actionable. Okay? So were the prices of the bond ETFs

24 -- these are prices that are struck between buyers and

25 sellers on a transparent exchange. These are marketable

1 prices. These are prices that you can transact at.

2 So shown on this, we see some of the large

3 absolute deviations in March and April on the bottom

4 left table compared to January and February, the more,

5 quote/unquote, normal period which had much tighter

6 relationship between price and NAV. And these are for

7 the three flagship funds covering the Treasury market,

8 the investment grade market and the high-yield market,

9 respectively.

10 So on the chart on the right, we see, you

11 know, how that ETF prices actually trapped the most

12 liquid bonds. And again, this is in keeping what we've

13 heard earlier today. Trading gravitates toward the more

14 liquid bonds. And here you see the flagship

15 investment-grade fund, LQD, whose price is shown in red,

16 and then the five largest holdings of LQD, the five

17 bonds, and their prices. And you see that actually the

18 prices of the ETF are right in the middle of the prices

19 of the five top holdings.

20 So these holdings are trading quite actively.

21 ETF is tracking them quite closely. What explains the

22 large deviations? Well, if we think about the points I

23 made earlier, the ETF prices reflect an actionable trade

24 on the exchange but the NAVs may not. You may not be

25 able to -- for the reasons I just pointed out, be able

1 to trade at NAV.

2 And you see here again this -- the top left

3 chart shows you the volatility of prices. And again, we

4 saw this earlier so I won't dwell on it. But I do want

5 to highlight the -- sort of the lack of liquidity in the

6 underlying constituents. And we'll talk about liquidity

7 mismatch in a second. Commissioner Crenshaw referred to

8 that. But you see here the -- a large fraction of the

9 constituents of this ETF do not trade very often. They

10 trade quite infrequently.

11 So one of the reasons we selected these three

12 ETFs to focus on is because we actually have a better

13 intraday indication from a proprietary model that we've

14 built. And while it's proprietary, we did publish the

15 methodology in the Journal of Trading a few years ago.

16 And so essentially this model takes into account the

17 yield curve, bond-specific yield curve and makes a

18 credit adjustment as well. And though -- and then we

19 adjust the last transaction price or last quote for

20 yield curve movements over the period of time since that

21 last trade occurred. And that's our intrinsic value

22 estimated.

23 And it's shown in these charts as the -- you

24 know, the top right. You'll see the chart shows you the

25 red line is the intrinsic value or the high-yield fund.

1 The green line is the NAV, and you can see that's a step
2 function because you get it once a day at the end of the
3 day and usually after the market closes. The point is
4 that the traders and investors don't actually see in
5 real time an intrinsic value because the NAV is only
6 published after trading.

7 What we see, though, is that the price of the
8 ETF, which is shown in yellow there, tracks the
9 intrinsic value very, very closely. But there are some
10 deviations that are quite sizable from NAV, which is,
11 again -- the better point is that the ETF price reflects
12 more closely the intrinsic value estimator.

13 Moving ahead, another perspective that we have
14 on NAV is really that, you know, if NAV returns were
15 reflective of actionable prices, then they shouldn't be
16 a serial correlation between today's NAV return and
17 yesterday's NAV return. There is actually that serial
18 dependency, as shown on these charts, which shows that,
19 actually, the past is predicting the future in some
20 sense for NAV. Basically NAV is playing catch-up to the
21 ETF price.

22 And so we see this in this chart where the ETF
23 price, as I said, is actionable. The price innovation
24 leads to lag. Essentially the ETF is the vehicle of
25 price discovery. NAV eventually converts. And we see

1 Treasury numbers look large. And that's because,
2 actually, the data for this is very long duration
3 off-the-run Treasury bond. So those are actually
4 correct figures but obviously on-the-run shorter
5 duration treasuries have much tighter spreads than shown
6 there.

7 So is there a liquidity mismatch when you look
8 at the yellow bars versus the red bars? This is what
9 some analysts and some commentators have alluded to. I
10 don't think so. I think the bond ETFs are portfolios of
11 bonds. And because they are portfolios, they are
12 diversified. They are easier to hedge for market maker.
13 And there is no asymmetric information risk, no adverse
14 selection cost with a big portfolio. Therefore, it's
15 quite logical they trade at a tight bid-offer spread.

16 How has the ETF arbitrage mechanism worked?
17 Well, basically, again, the idea of the authorized
18 participants and other players in the market will buy
19 the undervalued security and sell the overvalued one and
20 thereby self-correcting any deviation of price from an
21 actionable net asset value or action traded. And then
22 this example, I won't go through it, but it's easy to
23 see how the mechanism is self-correcting. Now, there
24 have been a couple of academic theories which suggest
25 that there might be wrong-way arbitrage. And the notion

1 here how that takes place over several days in March.

2 Let's turn now to liquidity. This is Item No.
3 2 of our discussion. The average daily volume, you
4 know, in Q1 of 2020 were much greater than the average
5 daily volumes in 2019. Again, that's in keeping with
6 what we've seen earlier today. And you see that also
7 the average primary/secondary volume percentages -- but
8 range from like 9 to 14 percent, you know, in this
9 period, first four months of the year.

10 Again, what's happening is the majority of
11 trading volume in the secondary market does not spill
12 over to the primary market. So this is a very important
13 point. It means that when there is ETF volume in the
14 secondary market, all that is happening is that
15 ownership of ETF is changing hands, and we're not
16 necessarily seeing that spill over into trading in the
17 underlying bonds themselves.

18 So -- okay. Then in terms of the liquidity
19 mismatch, let's address that right -- directly. So
20 shown on the left of the chart, which plots the
21 bid-offer spreads in basis points for a number of
22 sub-asset classes of the fixed-income market. And you
23 see that the ETF bid-offer spread's typically one to two
24 basis points. The underlying bids and offers are much
25 larger. I just want to point out on this that the U.S.

1 for this is that in a time of market stress, an
2 authorized participant gets large numbers of sell orders
3 into individual bonds. They have all this inventory on
4 their books, which is toxic. They are willing to unload
5 it. And therefore, they go to an ETF issuer like --
6 basically dump the bonds into the ETF, get the ETF and
7 sell it in the secondary market, worsening any deviation
8 of price from NAV.

9 I won't go through the details here. It's in
10 the paper. But we will say that we didn't find any
11 evidence of wrong-way arbitrage. If anything, our
12 arbitrage activity in the crisis was quite muted because
13 transaction costs were so large, again, consistent with
14 everything we've heard earlier today. So in conclusion,
15 three takeaways. One, the bond ETFs serve as vehicles
16 for price discovery. The seemingly large deviations of
17 price from NAV are not actionable, reflected some of the
18 institutional details around NAV with NAV playing
19 catch-up to prices of ETFs.

20 We secondly note that bonds were -- bond ETFs
21 were more efficient to trade than the underlying bonds.
22 The spreads are much tighter, and there is a logical
23 reason for that. And we saw the secondary market
24 volumes spike up, again, consistent with the resiliency
25 notes from earlier today. And then thirdly, there is no

1 evidence that the primary market actually failed in some
2 way and there was wrong-way arbitrage. If anything, the
3 primary market functioned just fine. And the shares of
4 ETF adjusted as they are supposed to in line with the
5 desired exposure of investors. So with that, I will
6 stop sharing the screen, turn this over to Kumar
7 Venkataraman, who will summarize some of the academic
8 evidence.

9 Kumar, over to you.

10 MR. VENKATARAMAN: Thanks, Ananth. Ananth,
11 can you see the screen?

12 PARTICIPANT: Yes.

13 MR. MADHAVAN: No, I can't.

14 MR. VENKATARAMAN: Thank you. Thank you.
15 Good afternoon, everyone. Thank you, Rachel, for
16 introducing our subcommittee and Ananth for the
17 interesting results on ETFs. It is my pleasure to talk
18 about the emerging academic work on bond funds during
19 the COVID stress period. I would like to highlight a
20 few important predictions from finance theory and then
21 share empirical evidence on how these predictions have
22 played out during the March 2020 event.

23 So first, in line with the SEC's concern,
24 there has been a lot of discussion in the academic
25 literature on the possibility that bond funds

1 potentially pose a risk to the financial stability of
2 fixed-income markets for the following reasons. The --
3 there is a significant growth in assets under management
4 by bond mutual funds and ETFs in the last decade, as we
5 know. We -- in a period of low interest rate
6 environment, and research suggests that bond funds have
7 been trying to reach for yields by holding less liquid
8 assets.

9 Subsequent to the financial crisis, we had
10 post-crisis banking regulation, which reduced the
11 capital by dealers, in particular, bank-affiliated
12 dealers for market-making activities and fixed-income
13 markets. So this leads to the following concern that
14 when there is a large negative shock and investors flee
15 the bond market, it can result in funds selling
16 relatively illiquid assets to meet their redemption
17 needs. And to the extent that their trading happens in
18 a correlated manner, the correlated selling will be
19 disruptive. And it can destabilize markets.

20 So there is evidence coming from academic
21 research on many of these bullet points highlighted
22 here. And there is also evidence from finance theory
23 that the way in which the bond funds currently are
24 structured, it might have a structural weakness because
25 they are holding illiquid assets, but they promise daily

1 liquidity to bond investors. So in times of market
2 stress, finance theory predicts that this promise for
3 daily liquidity increases the risk of a run, similar to
4 the more familiar bank run on mutual funds for the
5 following reason.

6 In the case of bond funds, there is a policy
7 to redeem investors at the end of the day net asset
8 value. But the funds itself do not transact on these
9 redemptions until subsequent days. So the NAVs do not
10 capture the cost of liquidation. Further, funds usually
11 sell their most liquid assets first, making the funds
12 holding less liquid over periods of persistent
13 redemption.

14 So when you have a shock that persists for a
15 period of time, the risk -- the liquidity risk as -- the
16 liquidation costs get transferred from the redeeming
17 investors to other investors who keep their money in the
18 fund. So in other words, theory predicts that there is
19 a first mover advantage for investors in funds holding
20 illiquid assets. And, therefore, this leads people to
21 exit the fund to avoid being the last set of investors
22 to keep money in the fund. And this potentially
23 amplifies the withdrawal from illiquid funds during
24 periods of stress.

25 And there is some empirical evidence

1 suggesting that poor performance of these bond funds
2 leads to large outflows, particularly for funds with
3 illiquid holdings. So the March 2020 period promises to
4 be an interesting event where one can test these
5 theories. Bond funds experienced unprecedented outflows
6 during the period. So the chart on the left-hand side
7 shows the outflows between 2010 and 2020 on a monthly
8 basis.

9 And in February and March of 2020, the
10 cumulative outflows were about 9 percent of NAV for the
11 average fund. And so a large traction of funds
12 experienced extreme and persistent outflows. And in
13 comparison, during the taper tantrum, June and July of
14 2013, the cumulative outflows were only 2.2 percent of
15 NAV. So clearly this is a very large shock where bond
16 funds phased outflows. And the chart on the right-hand
17 side shows that there were large outflows in the week
18 prior to March 23rd when the Fed came in with their
19 announcement to support the market.

20 And subsequent to that, we can see that there
21 is a reversal in the flow. So the study here that I
22 referenced below has looked at the impact of the
23 relationship between these large investor fund outflows
24 and the illiquidity of funds. And it finds that fund
25 illiquidity amplifies fragility, as predicted by theory.

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1 In particular, funds with lower levels of liquidity in
 2 their holdings suffered more severe outflows during the
 3 COVID-19 crisis than funds with liquid holdings.
 4 Further, investors started to panic earlier in
 5 these illiquid funds. And the Fed's announcement of the
 6 corporate bond purchases stopped the outflows by calming
 7 the market. And in our conversations this morning,
 8 Director Redfean had asked whether there are any
 9 important lessons for regulators coming out of the COVID
 10 pandemic. In my mind, one lesson that is seen in data
 11 is that the fund structure where bond funds promise
 12 daily liquidity by holding illiquid assets is prone to
 13 investor runs.
 14 The solution to the problem is swing pricing,
 15 which mitigates the run dynamics. Swing pricing allows
 16 the fund to adjust its NAV to pass on to purchasing or
 17 redeeming shareholders the cost incurred from their
 18 purchases or sales. And there is academic research
 19 using U.K. data that implementing swing pricing helps
 20 mitigate redemptions during stress periods.
 21 In the U.S., the SEC amended Rule 22c-1 in
 22 2018, which allowed the fund to -- whose fund is
 23 permitted to implement swing pricing. But they are not
 24 required to. And I think one piece of evidence coming
 25 out of the COVID pandemic is that perhaps swing pricing

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1 might warrant a more careful examination.
 2 The other piece of evidence that has come out
 3 of academic research is that safer assets faced larger
 4 price disruptions during the March and April pandemic.
 5 And the interpretation of this study is that there is a
 6 large and persistent selling pressure from bond
 7 investors trying to obtain cash. And they do so by
 8 selling the safer and more liquid securities, which
 9 results in the larger disruption. And prices recover
 10 after the Fed announcement to purchase assets.
 11 Following this team of liquid assets facing
 12 larger price dislocation, the study shows that
 13 investment-grade ETFs are traded at larger discounts to
 14 NAV than high-yield ETFs. Some bond ETFs have identical
 15 twin mutual funds and similar discounts were absorbed
 16 between ETF price and the nearly identical mutual fund
 17 NAV.
 18 So this points to a problem where retail
 19 investors were transacting nearly identical assets at
 20 different prices at the same time, depending on whether
 21 they were using a bond ETF or a bond mutual fund to gain
 22 exposure. There is also some work asking whether the
 23 price patterns that you see in the ETFs represent
 24 information or selling pressure. So fundamentals or
 25 fundamental information is measured by looking at the

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1 pricing in the CDS market.
 2 And this figure here shows that the -- for
 3 investment-grade bonds, movements in bond spreads, as
 4 measured in ETF prices, are poorly related to movements
 5 in CDS spreads while they are much more aligned across
 6 high-yield bonds. So this evidence, as well as other
 7 tests, leads the authors to conclude that the large and
 8 persistent selling pressure from bond investors trying
 9 to obtain cash explains the price patterns that we see
 10 in these liquid ETFs.
 11 So with this, I conclude the summary of the
 12 academic evidence. It's emerging because more work
 13 remains to be done, and academic data sets typically are
 14 updated with the delay. So I'm sure that there is going
 15 to be more work ahead looking at the event. I have a
 16 few questions that came to my mind that I have listed
 17 here, first, the new Fed policy.
 18 As a financial stability tool, what are the
 19 long-term implications? Secondly, who drove the selling
 20 pressure in the bond market? Are these bond funds,
 21 insurance companies, etc.? What are the different
 22 sources of structural fragilities in the market and how
 23 do we fix them? And one of the items that I identified
 24 is swing pricing.
 25 And then finally, as Ananth talked about, I

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1 think it's important for us to understand the price
 2 discovery in this market, ETFs versus NAVs versus CDS
 3 prices and exactly where price discovery occurs across
 4 these various asset classes. I think these are all
 5 promising areas for future research. Thank you. And
 6 with that, I turn it over to Robin, who is going to
 7 share her experiences from observations in the mutual
 8 fund industry. Thank you.
 9 MS. FOLEY: Thanks very much, Kumar. I
 10 unfortunately don't have slides to present but happy to
 11 share the actual perspective that we had to complement
 12 his academic perspective. So I'm Robin Foley. I'm one
 13 of the two bond chief investment officers in the
 14 Investment Grade Division at Fidelity. And just as a
 15 reminder, these remarks are my own personal opinion and
 16 don't reflect the views of the firm. You know, they
 17 reflect my -- also views of my participation in the
 18 committee, but not on the committee as a whole. You
 19 know, I would agree with the prior speakers in terms of,
 20 you know, the volatility that we experienced was
 21 unprecedented.
 22 And I think our sense was that, you know, the
 23 Fed really jumping in to soothe and calm the markets
 24 across all asset classes -- as folks will recall, you
 25 know, when you have a top-to-bottom downdraft in equity

1 markets of call it 30 or 35 percent, you know, in fixed
2 income and particularly investment grade headed into a
3 quarter end, we expect flows. And so we were already
4 really expecting that before and headed into sort of
5 this quarter.

6 You know, the rapidly shifting expectations
7 that we had with the global pandemic, I think that just
8 added kind of dislocation in addition to everybody going
9 from home. It just made price discovery that much more
10 challenging. You know, I think as most people are
11 aware, we serve as advisor for not only ETFs but also
12 for mutual funds, in fact, probably better known for
13 mutual funds. And I guess just to jump right to the
14 punchline, you know, in regards to the redemptions that
15 we saw in mutual funds and specifically in
16 investment-grade space, they were very consistent with
17 what the ETF market experienced. You know, it was
18 really a challenging time, again, as I said, to find
19 price discovery that -- price discovery, as Kumar just
20 alluded to.

21 It actually started in the liquid markets. It
22 started in -- you know, kind of happened all at once but
23 was happening in the most liquid markets, which was
24 really a surprise. And if you put together the mosaic,
25 I think it's a combination of everybody having to be

1 remote. You know, the DR situation that most were
2 prepared for on the street was kind of New York and New
3 Jersey. And obviously that didn't work.

4 So started with the liquid markets, moved to
5 agency mortgages, moved to high-quality corporate bonds.
6 You know, as we heard this morning, the -- we're sort of
7 trying to figure out what the pricing impact is of this
8 global pandemic. There was also a dramatic repricing in
9 the energy sector. So you had the second order effect,
10 volatility delivered to us through other markets.

11 But, you know, mutual funds, we're able to
12 meet the redemptions, you know, that were asked of us
13 even through the quarter end. And as that, you know,
14 backstop liquidity, that was broadcast by the Fed but
15 not really taken up, made its way through the pricing
16 mechanisms of both securities and ETFs. The market has
17 rallied quite a bit and has, you know, equilibrated
18 quite a bit.

19 You know, for us, I think -- and for this
20 discussion about sort of the functioning of the
21 fixed-income market, we spend a lot of time thinking
22 about what the investment objective and what the
23 expectations are of the shareholders and of the users of
24 these vehicles. One of the things that has changed in
25 the last several years is that bond mutual funds and, I

1 think, ETFs are experiencing this to some extent, but
2 I'm most familiar with bonds, having been a fund manager
3 for over 25 years, is that the use of funds has grown
4 dramatically to enter, you know, a target date, a
5 multi-asset class or an advisor situation.

6 So, you know, back -- for those of us who have
7 been in the market for a long time, back when I started,
8 people didn't really understand bonds. I spent many
9 times trying to explain to people the difference between
10 a bond and a bond fund. Now, you know, you
11 fast-forward. I think the thought is that, you know,
12 fixed-income funds are in much stronger hands by being
13 controlled by some of these asset allocators, some of
14 these target date funds and so forth. But it does
15 subject you to larger movements. It's a larger market,
16 but you have larger movements headed into a major
17 rebalancing event.

18 And so that had a lot to do with, you know,
19 the liquidity we experienced in addition to a flight to
20 quality across all asset classes. You know, tapping of
21 bank lines for companies, people just wanted to have
22 cash on hand just because. And I think shareholders to
23 institutions alike were no different. Everybody just
24 sort of wanted to have that.

25 You know, in terms of the, you know,

1 additional opportunity to take advantage of valuations,
2 once, I think, the calm started to settle through, you
3 see it in the new issuance volumes in the corporate bond
4 market. You see it in the flows. Money started to flow
5 back because I think that people understood that, okay,
6 you know, the short-term emergency as we sort of worked
7 our way out of that, you know, it quickly equilibrated.
8 But, you know, in terms of the pricing and the
9 performance, if you look at it relative to ETFs, it was
10 a very similar experience from the bond fund
11 perspective. So I'll just pause there. Happy to take
12 questions at the end of our session. I suspect there
13 will be some. Who do we have next?

14 MR. HEANEY: Ananth, are you still with us?

15 Or -- and I do see there Amy --

16 MR. MADHAVAN: Yeah, no.

17 MR. HEANEY: -- and then you were next. Oh,
18 apologies.

19 MR. MADHAVAN: I think I was on mute. Turn it
20 over to Amy and Lynn to close then.

21 MS. MARTIN: Sure. Maybe I'll kick off. So
22 this is a topic that we actually spent a lot of time at
23 ICE Data Services looking at, particularly in the March
24 time frame. Discount and premium to NAV is really a
25 function of differences in the products, the ETF

1 products versus the bond fund products. ETFs have been
2 a fantastic innovation in that they allow a participant
3 to get immediate exposure to a broad range of securities
4 with lower transaction costs. But they function
5 differently than the bond funds do. They are listed on
6 equities platforms. They trade like equities, whereas
7 bond funds don't have the same complexion.

8 So anytime you can trade a package of
9 securities as a single instrument, that's very different
10 than trading thousands of underlying securities,
11 particularly in a less liquid market like fixed income
12 tends to be. But importantly, as Ananth said, this
13 phenomenon is a function of the underlying markets that
14 they track. In normal markets, you see a pretty tight
15 correlation. But in volatility and volatile markets,
16 you see this difference exacerbated, as you did in
17 March. And this actually is to be expected and
18 something that follows on the liquidity spectrum.

19 While there has been a variety of topics
20 covered on bond funds, NAV versus ETF NAVs, it is worth
21 noting that one of the most liquid ETF, the S&P 500
22 SPDRs, also had a 1 percent difference between its NAV
23 and what it was trading at. So, in general, as you
24 progressed through the liquid -- liquidity spectrum, you
25 saw the -- that 1 percent become more pronounced when

1 off, our subcommittee created a stress market report
2 which was very detailed and offered some thoughts on
3 what we felt were areas of the market that needed
4 further exploration. Fortunately, we have had the
5 opportunity to explore some of that, unfortunately,
6 through a global pandemic. But it did offer us the
7 opportunity to review some of this. And as you heard
8 from Ananth, Kumar and Robin, we have some real-world
9 experience that we can leverage going forward.

10 I think Kumar makes some relevant points,
11 especially surrounding additional areas for further
12 research that I think the subcommittee would promote as
13 a likely positive outcome that we would like to see
14 additional research done. I think another topic that
15 has also come up on a variety of subcommittee calls that
16 I have participated in is the caveat, the overall caveat
17 that a lot of our conclusions, if you can call them
18 that, are really dependent on the role of the Fed in
19 stabilizing markets.

20 And the bond and ETF success, so to speak,
21 during this period, I think, was not necessarily
22 predicated on that, but it was definitely influenced by
23 the Fed's actions. And the subcommittee wanted to, I
24 think, reiterate that while we are presenting some, we
25 think, positive conclusions based on the performance of

1 you looked at Treasury funds. And then that got more
2 pronounced when you looked at some of the corporate bond
3 funds. And then, in general, the muni funds where it
4 was even more pronounced, again, a function of the
5 underlying markets that they are trading in.

6 So while exchange-traded securities like
7 equities experienced these dislocations, price
8 transparency results in very fast correction. In fixed
9 income, you have much more complexity, much more complex
10 universe of securities and a more complex market
11 structure. And as you heard this morning, the rise of
12 electronic marketplaces and their associated speed and
13 transparency benefits -- it means that the gulf between
14 the equity and fixed-income ETF will probably shrink
15 long-term, and you will see this phenomena, particularly
16 for funds with the more liquid fixed-income security
17 start to converge even further.

18 MS. MCGARRITY: And I'll just take over from
19 there. Thanks, Lynn, for that. And thanks to my fellow
20 subcommittee members. This has been a really
21 enlightening presentation for me as well. I don't have
22 a lot more to add. I think that my esteemed colleagues
23 have really the market expertise and have really
24 contributed to the conversation.

25 Just two points I wanted to reiterate. First

1 these products in this market volatility, there is a
2 caveat surrounding the Fed's actions, and we wanted to
3 underscore that. And with that, I will turn it back
4 over to Ananth. Thanks.

5 MR. MADHAVAN: Thanks, Amy. I'm going to turn
6 it back to Michael to moderate the questions for this --

7 MR. HEANEY: Thank you.

8 MR. MADHAVAN: -- subcommittee.

9 MR. HEANEY: Thank you, Ananth, and thank you
10 all who participated on this panel, and this
11 presentation, again, a very informative presentation for
12 all of us. I will start and open it up broadly. I have
13 not received too many on the question or comments front.
14 So let me just open it up broadly to FIMSAC members for
15 questions or comments.

16 Let me include Chair Clayton, the
17 commissioners. Any thoughts or questions for the panel
18 members?

19 MS. THEISEN: Michael, could I ask a question?
20 It's Sonali.

21 MR. HEANEY: Absolutely, please.

22 MS. THEISEN: Sorry. I was on mute.
23 Apologies. I think I was on mute. I'd love to ask a
24 question to Ananth or really any of the subcommittee
25 members. That was a really informative presentation.

1 Thank you so much.

2 Ananth, I was curious as to your views on sort

3 of how the market -- and I think I mentioned it during

4 our part of the presentation as well, that one week

5 where sort of, you know, the NAV, like discount to

6 premium were like -- about, you know, 10 percent or so

7 on LQD. What was the -- what was sort of the market,

8 like, primary versus secondary complexion? Like what

9 were your observations in terms of how the market traded

10 and what -- you know, what people were looking to do in

11 the market and how that works.

12 MR. MADHAVAN: Yeah. Great question, Sonali,

13 and let me take that, and then obviously the

14 subcommittee, feel free to jump in to elaborate. So

15 some of the additional color didn't make it into the

16 deck. It's in the white paper, which, as I mentioned,

17 is coming out in the Journal of Index Investing. What

18 we found there was obviously extreme elevation in terms

19 of secondary market trading. The ratio of

20 primary/secondary market trading was obviously, you

21 know, quite -- you know, a fraction. And therefore,

22 most of the secondary market trading was netting off

23 changes in ownership. And some secondary markets served

24 as a safety valve. So if, for example, Larry felt the

25 high-yield market was undervalued and I felt it was

1 overvalued, I would be selling an ETF, and he might be

2 buying one.

3 And all of this happening, we're changing

4 ownership of the ETF, but we're not actually trading the

5 physical bonds. And in fact, the physical bonds -- the

6 less liquid bonds sort of locked up. That's what we

7 found in terms of that. And then in terms of your

8 questions about the deep discounts, I do think that, you

9 know, some of the institutional details around NAV are

10 relevant. So the 3 p.m. strike is quite important when

11 prices are moving so much. And that also informs some

12 of the academic research that Kumar cited where, you

13 know, some of those results need to be sort of put into

14 context of some of these 3 p.m. snaps and some of the

15 difficulty in pricing bonds for the pricing providers

16 when these bonds don't trade or trade at sort of

17 seemingly odd prices.

18 That's why we focused in on the intrinsic

19 volume and generally found that the price -- the ETF

20 price was close to our intrinsic value estimates

21 intraday, which is what ultimately matters for

22 arbitrage. I think if these deviations -- the last

23 point was if these deviations were actionable, then

24 authorized participants and market makers would take

25 advantage of them. And what we actually saw was the

1 flows tended to go in the right direction, so they

2 tended to respond to the -- positively to the deviation

3 between price and intrinsic value, which is actionable

4 and -- but in a much more muted way.

5 So I did skip over that one part in the

6 presentation in the interest of time. But it's there in

7 gory detail in the white paper. So the -- that made me

8 conclude that actually the arbitrage mechanism is

9 functional, but the seemingly large opportunities really

10 weren't there, either because the liquidity wasn't there

11 or the transaction costs were too large. So let me stop

12 there and see if the subcommittee has anything else to

13 say on this.

14 MS. FOLEY: We actually had a similar question

15 at our firm about what constituted primary activity

16 because that primary activity does serve as the

17 arbitrage that equilibrates those two prices, you know,

18 between the NAV of the fund and the share price of the

19 ETF. So that's a great question. But I think the other

20 thing I would say, just unrelated to that, is that I

21 think somebody made the point earlier these are two

22 different instruments. So the ETF instrument and that

23 share, it does trade much more liquid, you know, much

24 more frequently for different reasons. For example, I

25 think that there is a fair amount of the market. And

1 Ananth, you could jump in here. But I think people use

2 ETFs to transfer risk. Clearly that had to be part of

3 what was happening in March and April where, you know,

4 people are seeking whatever they can to move risk around

5 as valuations are moving very, very quickly.

6 I don't know that people are -- market makers

7 in particular are going to use shares of mutual funds to

8 transfer risk. It's not an instrument that's easily

9 shorted and things like that because it's not

10 exchange-traded. That's just a small example, that they

11 are, you know, two different instruments that might

12 operate in two different ways.

13 So, you know, the reasons for the difference

14 between a stated share price and a NAV, the answer is

15 probably something in the middle of diligence on the

16 underlying and liquidity of this vehicle versus the

17 liquidity of the underlying here, which if people

18 actually don't need to tap liquidity for the underlying

19 bonds, they probably, in that kind of a market, would

20 not choose to do so.

21 MR. VENKATARAMAN: Ananth, if I may add to

22 that -- Sonali, I also think that it will be interesting

23 to further understand what happens in the cross-section

24 of ETFs as well because, you know, we have some ETFs

25 which are extremely liquid where the price impact of

1 trading is very low and clearly they would lead in the
2 price discovery, and they would play an important role
3 in terms of the risk transfer.

4 But then in the cross-section of ETFs, we also
5 have ETFs which are less actively traded. And those
6 prices, comparing those with the NAVs of equivalent bond
7 funds, I would -- at least my guess would be that an
8 evaluated pricing model that is used by bond funds to
9 come up with the NAV, it's possible that the NAVs of
10 bond funds are perhaps a more efficient price discovery
11 mechanism than the prices of the illiquid ETF. So I
12 think more research needs to be -- I think we need to do
13 more research to understand that further in the case of
14 liquid versus illiquid ETFs as well as the liquidity of
15 the underlying holdings. Thank you.

16 MS. FOLEY: Well -- and to the extent that
17 ETFs and funds are registered vehicles, they have
18 pricing mechanisms. For example, most fund firms who
19 manage both have a fair value committee. And those
20 types of mechanisms or those types of models, it could
21 be intrinsic value. Could -- you know, there is all
22 number of ways to try to get at that. But we do that
23 every night. So that could be something of researched
24 note.

25 MR. MADHAVAN: And Michael, back to you.

1 the Commission should be aware of and monitor going
2 forward. Each member that's interested in sharing their
3 thoughts would please be limited to five minutes.

4 Previously, I received several member requests
5 to speak during this section and we'll begin with those
6 members in alphabetical order. If you had not offered
7 up, emailed, originally to do this, please just send me
8 an email, and we will definitely add you to the list.
9 Before we kick off, Chairman Clayton, any thoughts that
10 you would like to share with the group?

11 CHAIRMAN CLAYTON: Well, thank you, Michael.
12 Two. One is I'm very much looking forward to hearing
13 from the committee members on anything that we here at
14 the Commission should be paying attention to. Also
15 willing to respond to the best of my ability, of course,
16 speaking for myself, any questions that the committee
17 members may have in that regard. So very much look
18 forward to this session and thank you all.

19 MR. HEANEY: Thank you, Chairman Clayton.
20 With that, may I move to the first FIMSAC member, Dan
21 Allen?

22 MR. ALLEN: Thanks, Michael. I thought I'd
23 share some of my FIMSAC observations and then a few
24 areas of focus, perhaps, as we look forward. But let me
25 start by thanking Chairman Clayton, Michael, yourself,

1 MR. HEANEY: Thank you, Ananth.
2 Anyone else, questions or comments? I don't
3 have any incoming currently.

4 Okay. Ananth, thank you again for leading the
5 panel and to all those who participated on the
6 subcommittee. Very informative. We are --

7 MR. MADHAVAN: Thank you.

8 MR. HEANEY: -- scheduled and are right on
9 time at 2:15 to take a break from 2:15 to 2:30 where
10 we'll do our last segment of the day, which is the
11 FIMSAC member observations. I will tell you for just
12 planning purposes, this will not take us an hour and a
13 half, given there is a subset of FIMSAC members who are
14 -- have emailed or been put on the schedule. If you
15 have not done that and care to make observations, please
16 just shoot me an email. But I would offer up that we'll
17 probably be able to adjourn this meeting a little early.
18 All right. We'll meet back at 2:30. I would ask
19 everybody to please stay on the line and just mute.

20 (A brief recess was taken.)

21 FIMSAC MEMBER OBSERVATIONS

22 MR. HEANEY: Okay. Welcome back. We're
23 headed into the final session today which gives members
24 the opportunity to speak about their views regarding the
25 fixed-income markets with a focus on future risks that

1 and Brett, the SEC staff, the commissioners, as well as
2 my fellow Fixed Income Market Structure Advisory
3 Committee members for their dedication, focus and
4 support in making the last two-and-three-quarters years
5 a success, including a series of some really excellent
6 presentations today.

7 As been noted several times in the past at our
8 meetings, the U.S. fixed-income markets are unparalleled
9 in their size, importance. And they tend to function
10 extremely well. Our committee and subcommittees have
11 drawn comments and feedback from experts from many
12 disciplines and agendas with an emphasis on identifying
13 opportunities for regulatory improvements, improvements
14 that would lead to increased transparency, efficiency
15 and confidence, which generally correlates as liquidity.

16 We've discussed and evaluated dozens of
17 potential areas of improvement. And in many cases, we
18 are centered around updating antiquated regulation. In
19 other cases, we are focused on encouraging increased
20 access and transparency of data or to attempt to create
21 a level playing field, as we talked about today, with
22 consistent regulatory oversight. And of course, we have
23 discussed many potential conflicts of interest and
24 offered solutions around potentially how to deal with
25 those. Earlier this year, the financial markets were

1 tested in many ways. And as you saw from today's
2 presentation, there were pockets of dislocation and
3 liquidity, as you would expect. But for the most part
4 -- and, yes, partially as a result of -- as invention,
5 the markets continued to function, and risk continued to
6 transfer. This was particularly encouraging as the
7 world faced extreme uncertainty and transitioned to a
8 work-from-home model where technology and e-trading
9 responded well.

10 I suspect that we'll reflect in the months and
11 years to come. As we reflect, we'll find that the U.S.
12 fixed-income market structure will have emerged stronger
13 from this unprecedented period. As you heard earlier
14 today, FIMSAC -- we've put forth 16 recommendations to
15 date, more than any of us would have expected for the
16 launch of FIMSAC more than three years ago.

17 And as we look forward, there is always going
18 to be opportunities for market structure improvement,
19 especially considering the complexity and growth that
20 the fixed-income markets have experienced in recent
21 years. I'm confident that the FIMSAC will continue to
22 find opportunities to make suggestions for regular
23 improvements, increased transparency and disclosures
24 that will ultimately encourage new participants, new
25 sources and mechanisms for risk transfer and increased

1 liquidity.

2 I suspect the opportunities for further
3 discussions around many topics that have been raised and
4 some, perhaps, that have not been as we go into the end
5 of the year in Q1 of next year for the committee. Some
6 of those conversations may be around the LIBOR --
7 transition. It could be around interest rate duration
8 -- interest rate and duration risk. It could be
9 identifying asset/liability mismatches, maybe a result
10 of the quest for yield and a push into less liquid
11 assets in an unprecedented interest rate environment.

12 It could be around the potential need and role
13 of increased access to real-time data to making strong
14 decisions and perhaps evaluating how regulatory bodies
15 could collaborate on topics such as high-yield
16 investment-grade cash bonds, structured credit, credit
17 indices, credit derivatives, and leveraged bank loans as
18 these instruments and asset classes are increasingly
19 intertwined. I look forward to our future conversations
20 and thank you again.

21 MR. HEANEY: Thank you very much, Dan.

22 Larry Harris?

23 MR. HARRIS: Thank you, Michael.

24 Thank you, Chairman Clayton, for my
25 appointment to FIMSAC. It's been a very rewarding

1 assignment. I feel that I've had an opportunity to
2 contribute. And I think that we've done pretty good
3 work.

4 FIMSAC has done good work, but it hasn't
5 addressed many of the most important current issues
6 concerning secondary trading in the bond markets.
7 Markets are becoming increasing electronic. Electronic
8 exchange systems, brokerage systems, dealing systems are
9 changing how we now trade bonds. And they are also
10 changing how we will trade bonds.

11 These electronic systems have reduced
12 operational costs for everyone. They reduce the cost of
13 accessing the markets, the costs of managing
14 counterparty risk and of managing inventory risk. These
15 cost reductions, of course, allow business to be done in
16 different ways from the past. And I think it's very
17 important that we make sure that the opportunities that
18 electronic trading can bring to the markets are fully
19 exploited.

20 So to that end, I have six points that I want
21 to bring to the attention of the Commission and others.
22 I think that there should be some sort of trade-through
23 protection for electronically-accessible quotes. So the
24 benefit of that is twofold. First of all, it gives
25 people a reward for offering liquidity. If you put out

1 a quote but people ignore you and trade through you on a
2 regular basis, you're not going to do that in the
3 future.

4 But if you put out the best price out there
5 and people hit it, then that gives a lot of
6 encouragement to other people to do the same. It also
7 ensures that there is best execution for clients.
8 Everybody I've met through FIMSAC are super honorable
9 people who I believe work very hard to provide best
10 execution for their clients. But my experience from the
11 time I served at the SEC as chief economist from before
12 and, unfortunately, often after is that not everybody is
13 actually looking out for their clients.

14 Unfortunately, requires that somebody do so
15 because the information requirements are looking out for
16 yourself, especially among people who are
17 unsophisticated or just too difficult for people to
18 manage. And so we look to the SEC for that. The second
19 thing I would suggest is that riskless principal trades
20 should be regulated as the agency trades that they are.
21 Historically, our markets have developed around
22 principal trading. But now, increasingly, there is a
23 lot of trading is being done on agency basis. Agency
24 brokers should obtain best execution, as we expect them
25 to, for an upfront stated price. We currently have

1 markups instead of commissions. And those markups are
2 not displayed upfront so people can't shop on price.
3 And service, as I mentioned before, is very hard for
4 them to evaluate in the absence of ex-ante information,
5 which is my next point.

6 So better ex-ante transparency would improve
7 the markets. An NBBO that would allow best execution --
8 would allow best execution to be regulated. Best
9 execution, especially for small trades, can't
10 effectively be regulated without some reference to
11 price. So without knowing what the prices are, we just
12 have to sort of take it at faith that people are making
13 strong efforts to get best execution. And I believe
14 that most people are. But I'm also aware that, too
15 often, people don't. And it's the too often that people
16 don't that is what ultimately established the SEC on its
17 mission.

18 Also, best ex-ante prices will allow the buy
19 side to negotiate better prices on a more even footing.
20 That's well understood. It's unclear to me why we
21 wouldn't allow people to know prices in the same way as
22 we do in our other markets. So, for instance, option
23 markets or currencies or the treasuries or, of course,
24 the equities as well.

25 And finally, best -- better ex-ante prices

1 will allow bond funds to be priced more accurately,
2 which is really important for investment management and
3 investment management companies. Last three points.
4 Reference data is a -- is, frankly, a corporate finance
5 issue, not a FIMSAC issue. It should be addressed
6 through EDGAR. EDGAR is a system that we use to
7 display, make more transparent, all sorts of information
8 about issuers.

9 You cannot value the equity of an issuer
10 without knowing the -- its liabilities. And to know its
11 liabilities, you have to have reference data about the
12 bonds that they've issued. So this is not really a
13 trading issue. We addressed it as a trading issue. But
14 it's really a disclosure issue. And it should be taken
15 up by corporate finance.

16 Next two points, these are very, very
17 important but perhaps the most difficult. We need to
18 figure out how to encourage municipalities to deliver
19 timely financials. We don't regulate that area, but we
20 do regulate entities that they interact with. And
21 perhaps by squeezing those entities or focusing their
22 attention in some way, we can get more timely
23 financials. That will be good for the secondary trading
24 of municipalities, municipal bonds, and also for primary
25 trading in those securities. Frankly, it will also be

1 extraordinarily good for the citizens of those
2 municipalities.

3 And finally, I'd like us to think carefully
4 about how to encourage issuers to issue fewer
5 securities. There are an awful lot of bonds in the
6 market. And because there are so many bonds, it
7 complicates how we trade them. Fortunately, electronic
8 systems greatly ease those complications. And we should
9 exploit those electronic systems. Things that seemed
10 like they were impossible before are now possible
11 because we have electronic systems.

12 But all that said, all issues would trade
13 better if they were larger issues in which interest was
14 more concentrated. So it would be useful for FIMSAC or
15 for the Commission or others to think carefully about
16 what are the impediments to reopening a bond issue or to
17 simply making the bond ladder a little more discreet
18 with the hope the bond issues would be bigger. So bond
19 markets in the United States now operate very well. But
20 they could operate better. The fact that they operate
21 very well should not keep us from trying to make them
22 operate better.

23 Final comment. Dealers and others resist
24 changes often because they fear that they are going to
25 lose business. And of course not all dealers resist

1 changes. But history consistently shows that when --
2 the volumes expand considerably when costs fall. And in
3 particular, the price times fee basically or the price
4 times transaction cost is roughly constant through time,
5 which suggests that people are willing to spend a
6 certain amount for transaction services.

7 The greater volumes imply greater liquidity.
8 And that's good for economy and it's good for issuers.
9 So I strongly encourage us and the Commission to get
10 down to work on these issues. Thanks so much.

11 MR. HEANEY: Thank you, Larry.
12 Mark Kim?

13 MR. KIM: Thank you. Good afternoon, Chairman
14 Clayton, SEC commissioners, Commission staff, FIMSAC
15 Chair Heaney and fellow FIMSAC colleagues. On behalf of
16 the MSRB, I thank you for this opportunity to share the
17 views of the board on risks in the municipal securities
18 market. As we have seen from the panel presentations
19 this morning, the pandemic caused a significant
20 dislocation in the municipal securities market. During
21 this past March and early April, many state and local
22 government issuers did not have access to the primary
23 market. And liquidity was scarce due primarily to
24 mutual fund outflows.

25 Secondary market trading in March spiked to

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1 levels not seen since the financial crisis of '08 and
 2 '09. Fortunately, the dislocation was relatively
 3 shortly and the muni market showed its resilience in the
 4 following months. Liquidity from mutual fund inflows
 5 returned to the primary market with issuance volumes and
 6 secondary market trading in the months of May and June
 7 returning to closer to historical levels.

8 However, there is one significant risk that
 9 the board would like to take this opportunity to share
 10 with the Commission. And that is the risk of credit
 11 quality in the municipal securities market. With the
 12 pandemic continuing to dampen economic activity across
 13 the country, state and local governments are facing
 14 increasing financial pressure and reduced tax revenues.
 15 As we all know, these are the very same tax revenues
 16 that support the repayment of most municipal bonds.

17 The board is monitoring the ongoing impact of
 18 the pandemic on state and local governments' revenues
 19 and their continued ability to make timely payments of
 20 principal and interest on their muni bond issues. In
 21 our current low interest rate environment and subsequent
 22 spread compression across all rating categories of
 23 bonds, it remains challenging for investors to fully
 24 evaluate and price credit risk in the municipal
 25 securities market. This is especially true for Main

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1 Street or retail investors who remained an important
 2 part of the buyer base for municipal bonds. The board's
 3 response to this risk has been to provide the market and
 4 investors with greater transparency.

5 We are leveraging technology to analyze the
 6 continuing disclosures and event notices submitted by
 7 issuers that disclose material information about the
 8 impacts of the pandemic on their operations and
 9 finances. We applaud your efforts, Chair Clayton, and
 10 the efforts of the Office of Municipal Securities to
 11 draw attention to the broader issue of disclosure in the
 12 municipal securities market. And we applaud the efforts
 13 of state and local government issuers to address this
 14 risk by providing the market with more timely and more
 15 complete information about the impacts of this pandemic
 16 on their finances and operations.

17 In conclusion, the municipal securities market
 18 has proven itself to be resilient in the face of
 19 external shocks. But as we all know, markets don't like
 20 surprises. And as this pandemic continues to add
 21 complexity and uncertainty to the economic outlook of
 22 state and local economies, the risk of an unexpected or
 23 a sudden deterioration in credit quality in the
 24 municipal securities market could undermine investor
 25 confidence. Again, thank you for this opportunity to

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1 share the views of the MSRB with you.

2 MR. HEANEY: Thank you, Mark.

3 CHAIRMAN CLAYTON: Michael, if I could jump
 4 in, I just --

5 MR. HEANEY: Yes, please.

6 CHAIRMAN CLAYTON: Yeah. I just want to say,
 7 Mark, I couldn't agree more. I think this goes to the
 8 point -- one of the points Larry was making, the need
 9 for transparency here and the recognition that municipal
 10 credit is probably going to have a greater dispersion,
 11 nonuniformity, whatever you want to call it that it has
 12 at any time in the past. We should recognize that.
 13 Investors should recognize that. Financial
 14 intermediaries should recognize that and do their
 15 homework, particularly in the retail space. But it all
 16 starts with good disclosure. So to the extent you can
 17 continue to emphasize that message, please do, and we'll
 18 try to do so here.

19 MR. KIM: Thank you.

20 MR. HEANEY: Thank you, Chairman Clayton.
 21 Lynn Martin?

22 MS. MARTIN: Thank you again to Chair Clayton,
 23 SEC commissioners and staff, Michael and my fellow
 24 subcommittee and committee members for the opportunity
 25 to participate in today's FIMSAC meeting. I

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1 particularly appreciate this opportunity to share ICE
 2 Data Services' views on fixed-income markets.

3 I'd like to focus my remarks on a few themes
 4 that, as I see it, traverse the range of issues that
 5 we've covered today. The events of 2020 highlight the
 6 need for a fixed-income market structure that, one,
 7 supports liquidity provisions during times of stress;
 8 two, provides flexibility for contending with extreme
 9 volatility in those markets; and, three, preferences a
 10 transparent and competitive landscape. These three
 11 elements are critical to achieving high market quality
 12 by bringing together committed liquidity providers with
 13 a variety of liquidity-seeking investors that have
 14 diverse investment goals and time horizons.

15 This becomes increasingly important but
 16 unfortunately increasingly challenging in today's
 17 fixed-income marketplace where traditional trading
 18 venues are not always subject to the same regulatory
 19 regime as other venues. In March, mid-March, 2020 as
 20 both the scope of the COVID-19 pandemic and the duration
 21 of its effects became apparent, the fixed-income markets
 22 around the world entered a period of turmoil, as we
 23 heard today. Despite relatively stable trading volumes,
 24 a sharp widening of bid-ask spreads along with a
 25 significant uptick in volatility evidenced a notable

1 deterioration in market quality conditions for U.S.
 2 corporate and muni bonds, especially during the latter
 3 three-quarters of March 2020.
 4 As we showed during our presentation on the
 5 Muni Bond Subcommittee, we at ICE Data Services
 6 regularly look at liquidity performance of portfolios,
 7 such as our index constituents over time using constant
 8 assumptions. Virtually all asset classes across all
 9 regions that we observe show degradation in liquidity
 10 throughout the pandemic. Interestingly, notwithstanding
 11 that most asset classes started that degradation at the
 12 same time in the second week of March, we observed
 13 different time frames for recovery.
 14 For example, we observed decreased liquidity
 15 ranging from the end of March for certain asset classes
 16 and regions to other asset classes, for example,
 17 high-yield corporate bonds with degradation lasting
 18 through April. Many asset classes saw their worst
 19 liquidation between March 23rd and March 25th. We
 20 believe the Fed's purchase program's facilities help to
 21 stabilize the markets quite rapidly relative to prior
 22 instances of market stress.
 23 The Fed and SEC's intervention to stabilize
 24 markets generally has the desired effect coming into the
 25 last week of March and early April as liquidity

1 conditions eased considerably, though at a different
 2 pace for different sectors, understandably. Our
 3 indicators pointed to a somewhat accelerated reduction
 4 in both transaction costs and market volatility in
 5 municipal bonds compared to these same metrics for
 6 corporate bonds.
 7 The ability to guard against volatility
 8 extends to all parts of the fixed-income ecosystem. In
 9 addition to the support provided by regulators over the
 10 last three months, it's important to recognize the
 11 efforts of all parts of the market in seeking to limit
 12 the contagion effect of COVID-19 on the markets.
 13 A good example of this is the instance of
 14 which the index providers decided to postpone
 15 rebalancing of fixed-income and later equity indices so
 16 as not to exacerbate the effects of an already stressed
 17 market following market consultation. In March, ICE
 18 Data Indices made the decision, after an extensive
 19 consultation with stakeholders, pursuant to our
 20 consultation policy, to postpone the rebalancing of our
 21 own indices for bond, preferred and convertible
 22 securities that were due to rebalance on March 31, 2020.
 23 Our decision and those of other index
 24 providers helped investors to avoid potential losses
 25 during the extreme periods of market stress. As the

1 FIMSAC and the Commission consider market quality and
 2 market structure in the fixed-income markets, promoting
 3 a transparent and competitive landscape must be a
 4 primary focus. An example that I'd like to use to
 5 emphasize this point has little to do with the market
 6 events of 2020 but is representative of a fixed-income
 7 market structure dynamic that is ripe for change and one
 8 that Larry just briefly touched on.
 9 Today, the corporate bond market lacks
 10 consolidated new issuer reference data that's made
 11 available to all market participants on fair and equal
 12 terms. Without this data, market participants are
 13 limited in their ability to trade clear and settle
 14 corporate bonds when those bonds first come to market.
 15 Today, the private data vendors that provide corporate
 16 bond new issue reference data are free of any obligation
 17 to justify their pricing and are free to reuse -- to
 18 refuse to license or withhold it for any reason.
 19 To address this, in 2019, FIMSAC unanimously
 20 recommended that FINRA provide a centralized regulated
 21 corporate bond new issue reference data service.
 22 Following FIMSAC's recommendation, FINRA filed a
 23 proposed rule with the Commission to provide a corporate
 24 bond new issue reference data service as a public
 25 utility subject to SRO obligations. After a lengthy

1 rule-making process, the Commission approved FINRA's
 2 proposal. That was promptly appealed. And the decision
 3 -- and seeks -- the decision is currently further to --
 4 subject to further delay. Sorry. It's been a long day.
 5 Accordingly, the SEC has stayed the approval
 6 of FINRA's new issue reference data service.
 7 Centralized data reporting system for new issues will
 8 benefit the industry and investors by enhancing market
 9 transparency, potentially aiding liquidity, reducing
 10 transaction costs and lowering the cost of capital for
 11 issuers.
 12 In addition, timely dissemination of reference
 13 data will help improve the timeliness and accuracy of
 14 benchmark indices that seek to measure these markets and
 15 improve consistency across different market indices.
 16 ICE Data Services continues to strongly support FINRA's
 17 proposed rule to establish uniform reporting and
 18 dissemination.
 19 A key catchphrase of 2020, as you heard
 20 earlier, is that we are living in unprecedented times.
 21 That phrase holds true for our fixed-income markets
 22 where we have experienced unprecedented volatility
 23 swings, liquidity stress and day-to-day political
 24 uncertainty. I urge my fellow committee members and the
 25 Commission to take the lessons learned from 2020 to

1 heart and to use them to guide future policy-making
 2 that's grounded in transparency, competition and
 3 protecting our fixed-income markets from the next
 4 crisis. Thank you.

5 MR. HEANEY: Thank you, Lynn.
 6 Lee Olesky?

7 MR. OLESKY: Thanks. Thank you, Chairman
 8 Clayton, commissioners, the Commission, FIMSAC committee
 9 members and Mike, our chair. The pandemic forced the
 10 marketplace to react and disperse quickly and all at
 11 once. At TradeWeb, we focused on keeping our people
 12 safe, first and foremost, helping our clients find
 13 liquidity and move risk and get set up to work from
 14 home.

15 We were able to get our own people and systems
 16 switched online very quickly and immediately help
 17 clients with their own challenges. As TradeWeb moved
 18 virtual in a matter of days in March and market
 19 participants all went home or to their remote business
 20 sites, in March, we had well over 100,000 users log on
 21 to TradeWeb to trade. That's an all-time high for us
 22 and pretty extraordinary testament to the importance of
 23 electronic trading and networks such as TradeWeb's. The
 24 priorities for our clients evolved from ensuring
 25 reliable connectivity as client operations dispersed to

1 work from home to making sure they had access to data,
 2 obviously execution and post-trade workflows.

3 We think the marketplace, on the whole,
 4 responded well and quickly and that electronic trading
 5 played a meaningful part in helping the markets respond.
 6 This all does highlight the importance of e-trading at a
 7 time when e-trading was accelerating on its own. That
 8 really was clear even before the pandemic hit. The
 9 volatility, though, that we saw in March that drove
 10 volumes through the roof, I mean, we were averaging over
 11 a trillion per day in volumes plus the work-from-home
 12 situation, I think, just further accentuates this point.

13 A couple of interesting trends in
 14 work from home. You know, today's -- today we talked
 15 about corporates. We talked about munis. But at
 16 TradeWeb, we set volumes in -- volume records in every
 17 single asset class that we're in, even those that
 18 typically don't trade a lot electronically. So some
 19 markets are close to being fully electronic. Others are
 20 -- trades occur on the phone and get digitized. Others
 21 are using machine learning to identify the right
 22 counterparty or digitizing the post-trade workflow. But
 23 we do think everything is moving digital. And we think
 24 the -- it's increasingly clear that clients need links
 25 across markets so to Treasury markets, to ETF markets,

1 to OTC derivative markets in order to have a complete
 2 set of tools to trade in times of stress.

3 Work from home highlighted the need of all the
 4 trade lifecycle personnel needing access to this. It's
 5 not just about working the traders. It was also about
 6 clients, compliance, risk officers, a variety of
 7 different participants in the market. In terms of the
 8 depth of engagement, clients really did deepen their use
 9 of technology, the things that they might not have used
 10 before, tools that are new to the marketplace like
 11 portfolio trading where you can trade up to 800 bonds in
 12 one shot or net spotting that links a live Treasury
 13 market to the credit markets.

14 These things started to really take hold in
 15 the real crucible of the crisis in March and now have
 16 accelerated. So in terms of, you know, sort of final
 17 observation, as we learned today, the market disruption
 18 was brutal, but it was relatively brief given the scope
 19 and length of the pandemic. A few reasons for that. I
 20 think the most obvious one everyone acknowledges was the
 21 Fed's quick action and intervention which was really
 22 essential to stabilizing the markets in the middle of
 23 March. I think the second is advancements in electronic
 24 trading and connectivity and video conferencing. You
 25 know, a disruption like this would not have been

1 possible to deal with 10, 15 years ago, maybe even five
 2 years ago.

3 And what we saw in this moment of most stress
 4 was the technology was up for it. We really had no
 5 systemic issues. And the whole infrastructure worked
 6 incredibly well. So from a connectivity and workflow
 7 solution perspective, today's marketplace has much more
 8 at their disposal than they've had previously. And I
 9 think market participants are leveraging it.

10 Connectivity, business continuity really are
 11 quite robust. The proof is in the pudding here. Market
 12 participants availed themselves of data that they didn't
 13 have access to before, a number of tech solutions,
 14 innovative solutions, all-to-all trading, portfolio
 15 trading, spotting trading, and in some areas, the muni
 16 market in particular, I was a bit surprised at the
 17 amount of algo trading for purposes of liquidity that
 18 actually occurred.

19 So, you know, this is the first time you saw
 20 algo trading really providing a tremendous amount of
 21 liquidity to the market right to retail, which I thought
 22 was very interesting. So work from home was challenging
 23 but, so far, it's gone well. I think that the
 24 marketplace responded quite well to the crisis.

25 But it does remain critical for market

1 participants to continue to invest in workflow solutions
2 to mitigate operational risks, particularly given the
3 fact that we are not out of 2020 yet, nor are we out of
4 the scope of the entire pandemic. So I think there is
5 still a ways to go here, as we would all acknowledge.
6 So we need to continue to invest in this type of
7 technology, in this type of connectivity and the types
8 of tools that are available to the market today. That's
9 all I have on that.

10 MR. HEANEY: Thank you, Lee.

11 MR. OLESKY: Yup.

12 CHAIRMAN CLAYTON: Michael, could I jump in
13 there, just --

14 MR. HEANEY: Of course.

15 CHAIRMAN CLAYTON: Let me jump in and also say
16 I welcome Brett's comments in this regard. First, Lee,
17 I think that was a nice summary of the various elements
18 of the response from the official sector. On the Fed
19 action and the -- as people have said that, I think that
20 something that is not often said that needs to be
21 recognized is the Fed's action was multifaceted, many
22 points in the marketplace, not just a -- not just the
23 Treasury market but across the board. And I think that
24 that was prescient and quite effective.

25 On the connectivity, I could not agree more.

1 I often say if this happened a decade ago, we would be
2 in a much, much different place. What we at the
3 Commission greatly appreciate is that private sector was
4 very candid with us on their connectivity capabilities,
5 on the risks they saw and how they overcame them, which
6 gave us what I would say is the confidence to continue
7 to monitor and take more targeted action than we might
8 otherwise have done. And that dialogue around systems
9 integrity, systems resilience was quite helpful.

10 You know, my job is not fiscal policy, but I
11 will also note, in addition to the Fed action, we do
12 believe that stabilizing the consumer, stabilizing
13 housing prices, gave confidence to the market as well.
14 And I'd be happy to comment further on this, but, Brett,
15 you were right there at the tip of the spear as we were
16 working through operational issues. Maybe you have
17 something to add.

18 MR. REDFEARN: Trying to unmute. Can you hear
19 me?

20 MR. HEANEY: Yes.

21 MR. REDFEARN: Okay. No. I think that's
22 right. And I think -- I really appreciate this
23 discussion and those comments as well. And it really
24 has been a testament to the resiliency of our
25 marketplace and, in particular, you know, the way that

1 electronic markets stood up and met the need during that
2 challenging time is pretty remarkable. I think I would
3 just simply echo something that the chairman pointed out
4 earlier, which is this -- you know, along with, you
5 know, the recent proposal to extend Reg ATS and SCI to
6 treasuries and government securities, this concept
7 release. So we did issue a concept release on the
8 electronic corporate bond and municipal securities
9 market.

10 This is a way for us to get additional
11 information about these sorts of issues. And so I would
12 just echo that, Chairman, and suggests that, you know,
13 people -- to the extent that you can engage in that,
14 that would be very helpful for us taking this to the
15 next level.

16 CHAIRMAN CLAYTON: Great.

17 MR. HEANEY: Thank you, Chairman Clayton.

18 Thank you, Brett.

19 Ola Persson?

20 MR. PERSSON: Thank you, Michael. And before
21 I start, I'd just like to briefly acknowledge that I'm
22 filling -- today after -- summer. I obviously wish the
23 circumstances were very different but I'm honored to
24 fill in and to contribute to the committee in any which
25 way I can. First I just want to start by commending the

1 SEC for convening FIMSAC to review the structural
2 elements in the bond market and the issues that are
3 unique to the fixed-income markets and the implications
4 of those developments for participants and regulators.

5 FINRA's TRACE initiative was launched in 2002.
6 Since then, obviously major effects on the corporate
7 bond market, structure and trading have changed
8 dramatically. Those changes affect existing
9 infrastructure like TRACE. But they also do prompt
10 questions around potentially new regulatory framework
11 that we should consider.

12 It is imperative that the regulatory structure
13 -- while still allowing for continued development and
14 innovation where it's appropriate. The SEC has convened
15 FIMSAC at a time that allows for these changes to be
16 assessed and discussed at a critical juncture. And the
17 committee and the various subcommittees have very
18 effectively highlighted areas and proposed either
19 solutions or suggestions for further research and
20 analysis to help consider ways that the regulatory
21 framework can better match today's market.

22 As to the focus going forward, the discussions
23 at FIMSAC and the proposals that have been presented
24 have provided us in the regulatory community with a
25 roadmap. Practices in electronic trading have evolved

1 significantly, as was discussed this morning. And the
 2 SEC also, as you mentioned, just published a concept
 3 release to further explore this topic.

4 Technology and product innovation has enabled
 5 market practices that may benefit from further analysis
 6 and review and potentially regulation. And transparency
 7 is an integral part of the market and could be further
 8 enhanced to provide additional granularity and to
 9 potentially expand in areas beyond traditional
 10 transaction information.

11 Before I finish up, I just want to return to
 12 TRACE for a brief second. There were really three main
 13 reasons why TRACE was established now almost two decades
 14 ago. The first was to provide a foundation for an audit
 15 trail that regulators could use for market surveillance
 16 to detect fraud or manipulation or other behaviors that
 17 was causing customer harm.

18 The second was to provide a foundation of
 19 knowledge about market function to inform policy
 20 decisions. And the third was to make the information
 21 available to all participants to level the playing
 22 field, enhance price discovery and allow investors to
 23 judge the quality of the execution. It's great to see
 24 that almost two decades later, it's -- however, as been
 25 highlighted by the discussions and all the proposals

1 from FIMSAC, much still remains to be done. As we
 2 discussed this morning and in prior FIMSAC meeting,
 3 enhancements are needed to ensure that the data that's
 4 being captured provide an accurate and complete picture
 5 of the market function. We still need to keep enhancing
 6 the regulatory audit trail. And we need to keep
 7 enhancing the transparency that is available to market
 8 participants.

9 With that, I want to again thank the
 10 Commission for underscoring the importance of the
 11 fixed-income markets by convening FIMSAC. And I want to
 12 sincerely thank all the FIMSAC members who dedicated
 13 their time and expertise to provide direction and
 14 suggestions to us in the regulatory community. And this
 15 will allow for continuing market development and further
 16 innovation while, at the same time, protect investors
 17 and ensure the integrity of the markets. Thank you,
 18 Michael.

19 MR. HEANEY: Thank you very much, Ola.
 20 Sonali Theisen?

21 MS. THEISEN: Great. Thank you very much.
 22 First, I want to echo my sincere gratitude to Chairman
 23 Clayton and the Commission and to you, Michael, for
 24 selecting me to participate in FIMSAC. It's really been
 25 an honor. And I've just -- I've learned such a

1 phenomenal amount from my fellow FIMSAC committee
 2 members and subject matter experts and from the SEC
 3 staff. So thank you again for this opportunity.

4 I'm really astonished by the breadth and depth
 5 of the recommendations that the subcommittee prepared
 6 and voted on during, you know, the last
 7 two-and-three-quarter years. I really think that every
 8 single topic that we unpacked was worthy of examination
 9 and deliberation. And whether or not every single
 10 recommendation ultimately is, you know, enacted right
 11 now or has sowed the seeds for revisiting and discussion
 12 and debate in the marketplace, I think it's been such a
 13 great process.

14 And having been involved in, you know, many of
 15 the deliberations, I think it was so healthy to have
 16 really vigorous debate and also draft of each of these
 17 things before, you know, most of these recommendations
 18 came to vote. I think that was very forward-thinking
 19 and really important for the future of this changing
 20 landscape of fixed-income markets.

21 When I kind of think about the recommendations
 22 that we've put forward, I would loosely bucket them into
 23 sort of three buckets. You know, some were, I would
 24 say, more reasonably straightforward, being like, you
 25 know, just good practices, good hygiene such as, you

1 know, e-trading best practices and ETF disclosures.
 2 Some tackled, you know, fairly complex issues that were,
 3 you know, worthy of considering and deliberating that
 4 could directly impact market behavior such as the first,
 5 you know, trade transparency rules as well as the rating
 6 agency framework.

7 And then some, I think, tackled, you know,
 8 topics that were easier conceptually but had, perhaps,
 9 existing regulatory or practical complexities such as
 10 the municipal disclosures of recommendation and also,
 11 you know, today's e-trading -- recommendation. So I
 12 think, you know, all of those three buckets are very
 13 important. And I'm really glad that we were able to,
 14 you know, delve into all of these areas and not just
 15 stick with what was, you know, really, really easy to
 16 tackle.

17 I want to take a few minutes just to talk
 18 about TRACE, as we obviously spent, you know, a lot of
 19 time on the topic in both subcommittees that I was
 20 involved in. And I think one of the, you know -- we've
 21 even seen in today's presentations but ongoing since the
 22 inception of TRACE, I think one of the most important
 23 things to recognize is that market conditions do and
 24 will change over time. Sometimes, you know, it's
 25 episodic. And then sometimes it's longer and more

1 structural.

2 And I hope that the SEC's work around TRACE as
3 well as FINRA's work will continue to examine, you know,
4 the role of TRACE going forward and think about, you
5 know, transparency regimes that are flexible to
6 accommodate the structural changes and dynamics in the
7 market while being, you know, responsive to more
8 episodic issues. And I would note that I think, you
9 know, there will never be market consensus, I don't
10 think, on, you know, one proposal framework but I think
11 a guiding principle for evaluation of transparency, I
12 think one would be that -- you know, that any
13 recommendations are supported by data.

14 Two would be that they have, you know, clear
15 relevance and importance to the market to address. And
16 three is simply, you know, that it makes the market
17 easier to understand for anyone. And in that vein, on
18 that last point, I think, you know, some of the more
19 recent recommendations that we've had around, you know,
20 tagging 3 p.m. spot trades and identifying portfolios as
21 well as today's recommendation around harmonizing, you
22 know, e-trading oversight so that electronic trades
23 could be better understood, I view those types of
24 improvements as foundational sort of low-hanging fruit.
25 And I would encourage the SEC to continue to deliberate

1 the Fed and the OTC.

2 But I think that this would be an important
3 topic for us to consider examining as a follow-on to the
4 last LIBOR panel that we had at one of our prior
5 meetings. And just as a wrap-up, I guess, I would come
6 back to some of my first comments in my first FIMSAC
7 presentation when I was invited as a guest speaker
8 before coming -- becoming a member. And in that
9 presentation, you know, I noted some of the key
10 structural differences between equities and corporate
11 bond markets and specifically, you know, characteristics
12 of liquid order-driven markets versus negotiated
13 markets.

14 And I think fundamentally it behooves us to
15 always remember that corporate bond markets are not
16 structurally conducive today to continue its liquidity
17 in any meaningful size because of the market structure
18 that I had spoken about in that presentation. And I
19 certainly respect it and enjoy working with Larry, Larry
20 Harris. I think it's tons and tons of great points.

21 But I personally think that concepts such as, you know,
22 NBBO and trade -- that are more suited towards the
23 equity market that the corporate bond markets are really
24 not there yet and don't have the continuous liquidity
25 that would support those types of rules. And I do think

1 on these proposals and see that they are implemented in
2 a logical and cost-effective way to the market because I
3 do think that they would benefit the entire industry.

4 I know that, you know, the charter for FIMSAC
5 is coming to a close. But I recognize that, you know,
6 we do still have one meeting. And as Dan mentioned, I
7 think one of the topics that is very important and
8 upcoming for the market, the entire market, is LIBOR
9 transition. You know, I also wear that hat for my firm
10 and serve, you know, on the -- on Fed's ARRC Committee.
11 And I think, you know, as this massive industry change
12 approaches, the impact is not solely on rates or
13 consumer products. You know, there is implications
14 across the board or derivative. There is implications
15 across the board, including for credit.

16 You know, this will impact borrowers, lenders,
17 investors. And I think that it's -- you know, it's very
18 important for us to think about, you know, what role --
19 this is a markets issue that will be occurring. And I
20 think it's important for us to really consider
21 particularly the credit-sensitive component to an
22 adjustment to SOFR and how the FIMSAC Committee could
23 sort of help guide this. There is obviously a lot of
24 work being done on this topic already by the Credit
25 Sensitive Group that -- you know, that's being run by

1 that the focus should remain, as Lee alluded to, on
2 creating robust, you know, frameworks, you know, making
3 sure that the market, you know, safety and soundness
4 works and then also having, you know, transparency
5 improvements to TRACE that allow for liquidity provision
6 and continued evolution. So thank you.

7 MR. HEANEY: Thank you, Sonali.

8 CHAIRMAN CLAYTON: Michael, do you mind if I
9 just make one comment there?

10 MR. HEANEY: Yes, please.

11 CHAIRMAN CLAYTON: We talked about measuring
12 the effectiveness of this group in terms of number of
13 proposals. But there has been many other areas of
14 effectiveness. And I want to note that the meeting you
15 had regarding LIBOR, issues around legacy LIBOR and
16 credit-sensitive rates -- I think it must have been 18
17 months ago -- was -- certainly affected my thinking, but
18 I think it affected thinking across various participants
19 in this issue. And thank you for that. You should feel
20 good about that. And I think you should think about
21 having a follow-up for certainly your last scheduled
22 meeting. So I agree with that.

23 MR. HEANEY: Thank you, Chairman Clayton.

24 Kumar Venkataraman?

25 MR. VENKATARAMAN: Good afternoon, Chairman

1 Clayton, SEC commissioners. Thank you, Michael, and SEC
 2 staff for giving me this opportunity to share my idea.
 3 I'd like to focus on one idea that I believe has the
 4 potential to improve the liquidity and resiliency of
 5 bond markets. As we know, the majority of transactions
 6 in the fixed-income market, particularly the corporate
 7 bond market, are intermediated by bank-affiliated
 8 dealers. This is true both in OTC transactions as well
 9 as electronic transactions in RFQ platforms where,
 10 again, dealers tend to be the counterparties who
 11 participate and provide liquidity.

12 And in the last decade, in response to
 13 banking-related regulation, that forced banks to reduce
 14 balance sheet risk. The bank-affiliated dealers have
 15 reduced the capital that they can commit to
 16 market-making activities. And so there is dependence on
 17 bank capital for trade intermediation services,
 18 increases the fragility risk of the bond markets. And
 19 so the bond market will benefit from liquidity supplied
 20 from nontraditional participants. This is an idea that
 21 Larry briefly touched on earlier this morning. And I
 22 was very glad to hear similar empirical support for it
 23 from Brad and Horace when they talked about the
 24 municipal market as well as from Sonali, Rick and Lee
 25 when we talked about the corporate bond trading during

1 the COVID pandemic.

2 There is new academic research looking at a
 3 longer time period, including a co-authored study that I
 4 have recently published which suggests that buy-side
 5 institutions are just mutual funds representing
 6 potential liquidity source in bond markets. These
 7 mutual funds view liquidity supply as a strategic
 8 strategy to own portfolio alpha. And funds that invest
 9 in liquidity-supplying strategies tend to outperform
 10 their competitor funds.

11 However, unlike equities which trade on
 12 exchanges, the OTC structure of bond markets makes it
 13 challenging for institutions to efficiently supply
 14 liquidity. And as institutions represent the
 15 predominant share of bond investor base, the economic
 16 importance of buy-side liquidity provision cannot be
 17 overstated. So to tap into and further encourage this
 18 channel of liquidity supply, we need to further examine
 19 the current market structure and remove frictions that
 20 impede broad participation and liquidity provision.

21 Improvements and protocols that offer
 22 investors with direct access to trading platforms and
 23 the ability of institutions and retail investors to post
 24 limit orders are examples of design changes that have
 25 the ability to increase supply from nontraditional

1 market participants and reduce the fragility risk of
 2 bond markets. Thank you.

3 MR. HEANEY: Thank you, Kumar.
 4 Gilbert Garcia?

5 MR. GARCIA: Thank you. First of all, let me
 6 just say I've had a blast. I've had an absolute blast
 7 being part of this committee. And I just got to say I
 8 cannot stress how big an honor it is for a boutique firm
 9 like ours, a Hispanic-owned firm like ours, to really be
 10 part of this whole effort. And hopefully in some small
 11 way, we've done our part to demonstrate that
 12 minority-owned firms, they can hold their own and, in
 13 fact, they have a lot to offer in all these important
 14 discussions.

15 And during a crisis, government policy and
 16 intervention seems to focus on speed. And I get it.
 17 Speed is important. But I urge the commissioners to
 18 also look at other things and some unintended
 19 consequences because big firms in these times could
 20 beget even bigger firms. And I think in today's
 21 society, it behooves us all that more than ever, we need
 22 to be sure that smaller firms, boutique firms,
 23 minority-owned firms survive, they participate and they
 24 even thrive.

25 And so that's what I want to leave everyone

1 here. I just cannot thank Chairman Clayton enough for
 2 believing in me, all the commissioners, of course,
 3 Michael Heaney, all the staff. And I cannot forget my
 4 original champion, which was Commissioner Kara Stein,
 5 who really brought me here to this FIMSAC Committee. So
 6 I thank you all. And I know I made my dad proud.

7 MR. HEANEY: Thank you very much, Gilbert.
 8 Did I inadvertently omit anybody who was looking to --

9 CHAIRMAN CLAYTON: While you're looking,
 10 Michael, I just want to thank Gilbert for everything,
 11 all the substance and all of the enthusiasm. Thank you,
 12 Gilbert.

13 MR. TABB: Michael, can I add something?

14 MR. HEANEY: Sure. Larry Tabb and then
 15 Elisse.

16 MR. TABB: Yeah. Brett, can you talk for a
 17 minute about how we can help you with this concept
 18 release and a little bit about the concept release?

19 MR. HEANEY: Who was that targeted to? I'm
 20 sorry, Larry. I missed it.

21 MR. TABB: Brett Redfeam or anyone at the
 22 Commission, the new concept release on ATS's and
 23 government and corporate and securities. I think --

24 MR. HEANEY: Brett, are you --

25 MR. TABB: Do you want to go ahead, Brett?

1 I think we lost him maybe.
 2 MR. HEANEY: He's just texted me. System
 3 issue. He's having trouble unmuting at this moment. So
 4 why don't -- can I do this? Let's go to Elisse. And
 5 then we'll come back to that when Brett is back, able to
 6 unmute.
 7 CHAIRMAN CLAYTON: Yeah, and if he's not back,
 8 I'll take it, then. But let's go to Elisse.
 9 MR. HEANEY: Okay. Thank you. Elisse?
 10 MS. WALTER: I just want to echo a lot of
 11 what's already been said. First, I think that this
 12 committee has really accomplished a lot. I've learned a
 13 lot from the participants. There is an extraordinary
 14 amount of expertise when all of these folks get
 15 together. And I think Chairman Clayton and the
 16 Commission staff should be congratulated for beginning
 17 -- and I do want to stress beginning to give the
 18 fixed-income markets the attention that they deserve. I
 19 know that whenever it is, this committee is going to
 20 draw to a close. But I think it's quite important that
 21 the Commission continue to apply its focus to the
 22 fixed-income markets.
 23 I agree with a lot of my colleagues on the
 24 committee about issues that have yet to be discussed. I
 25 also do think we need to come back once again to the

1 conundrum of credit ratings, particularly in connection
 2 with what they mean in the municipal securities markets
 3 and how they bridge/actually don't bridge the distance
 4 between corporate fixed-income and municipal markets.
 5 And I think fixing that may do a great deal
 6 for transparency within the municipal markets. So as I
 7 said before a little bit earlier, I do think
 8 transparency needs to be on the agenda, as other folks
 9 have said. And I think regulatory disparities including
 10 but not limiting to the ones that we focused on today
 11 need to be there. So congratulations and kudos to
 12 everyone and pressure to really keep going in the years
 13 to come. Thanks, Michael.
 14 MR. HEANEY: Thank you, Elisse.
 15 Chairman Clayton, Brett is still trying to be
 16 reconnected by the team. So --
 17 CHAIRMAN CLAYTON: That's okay.
 18 MR. HEANEY: -- if I can turn to you first --
 19 CHAIRMAN CLAYTON: Sure. Look. Anything in
 20 the Treasury and government securities space, it is
 21 really up for grabs. One of the issues for me, Larry,
 22 is clearance settlement and how we should be looking at
 23 that, whether we should go to some kind of mandated or
 24 encouraged central clearing and how that would work. I
 25 think Treasury came out with a very good report on all

1 the different ways that clearing takes place in that
 2 market, those types of issues. I think that the events
 3 of -- in March demonstrated that we do need to pay more
 4 attention to how that market operates -- and I welcome
 5 your views. I think it's -- let's put it this way. It
 6 is the most important credit market in the world.
 7 MR. TABB: Are there specific ways how we can
 8 get involved as a group or committee besides just kind
 9 of opining on, you know, the regulation or the proposal?
 10 CHAIRMAN CLAYTON: Let me say this. Look. I
 11 think it's no secret that after the election, I plan to
 12 move on. That was always my plan. I would encourage
 13 this committee to take up these issues. I think this
 14 committee is well-followed, well-respected. And there
 15 is no prohibition, in fact, encouragement for a
 16 committee like this to be commenting on an open
 17 rulemaking and concept release. So in addition to maybe
 18 a LIBOR refresher as respected -- as suggested by
 19 Sonali, engaging on this topic is something that I would
 20 encourage this committee to do.
 21 MR. HEANEY: Thank you, Chairman Clayton.
 22 So not surprisingly, what I had viewed and
 23 jotted down as most important topics have been largely
 24 raised by my esteemed colleagues. I will say this. The
 25 corporate and municipal issues that we have evaluated

1 and analyzed during FIMSAC over largely the past three
 2 years, from my vantage point, topics were raised.
 3 Topics progressed or were debated. And if they didn't
 4 move forward, it was not because they weren't
 5 significant. It was perhaps they were just viewed as
 6 less significant in the waterfall of the topics that was
 7 discussed, which leads the reason why Chairman Clayton
 8 had encouraged this session, which is there is more to
 9 do. There will always be more to do. This is an
 10 ongoing opportunity for us to continue to improve the
 11 transparency in fixed-income markets.
 12 My three that I had thrown out there, I
 13 believe it was Lee who raised one earlier. It's not in
 14 the domain of FIMSAC necessarily. But it talks more
 15 about benchmarks. So off-the-run treasuries and a lack
 16 of liquidity, well, it's not under the domain,
 17 necessarily, of FIMSAC or perhaps what we were tasked to
 18 do. It certainly has ramifications with respect to
 19 corporate and municipal securities that may be priced
 20 off this curve.
 21 Similarly, and the chairman just reemphasized
 22 it, the concerns that FIMSAC raised with LIBOR
 23 transition to SOFR and potential issues of utilizing a
 24 benchmark that perhaps should be further enhanced, that,
 25 too, is critical when you think about a benchmark for

1 U.S. securities that are priced off of that and what
2 that means for not only pricing but volatility of those
3 securities. So I do think this is something that FIMSAC
4 should revisit as we move forward.

5 The last two that I have jotted down, and
6 they've both been mentioned, is the muni issuer
7 disclosure, improved timing and enhancement of that. I
8 think there is many issues that can be solved or
9 improved with respect to retail investing. And then I
10 think it was Dan who brought up the coordination of
11 various regulators with respect to and certainly within
12 the U.S. credit complex and how we have different
13 regulators within these different portions of the
14 market.

15 That's a little bit 5,000 feet but -- in
16 altitude, but I think these are all certainly relevant
17 as we think about possibilities of things to work on
18 going forward. So at this point, I will open it up
19 broadly. Chairman Clayton, you have asked along the
20 way. But to yourself, the commissioners or Brett, if
21 there is any other questions or comments -- okay.

22 CHAIRMAN CLAYTON: Well, Michael, I'm happy to
23 take the questions in the remaining time. And I also
24 respect the value of this time. I'll make two follow-up
25 comments, one on Elisse's comment about the conundrum of

1 rating agencies.

2 It has been my experience that approaching
3 rating agencies or the ratings process with a
4 one-size-fits-all solution is really not the way to go.
5 I do believe that we need to recognize that there is a
6 significant difference between investment-grade ratings,
7 sub-investment-grade ratings, ratings of products and
8 ratings of municipal securities. And breaking out our
9 review and analysis of the performance of the ratings
10 process and the value it brings to the market with
11 investors along those lines or other lines that this
12 committee might suggest I think is a possible framework
13 for moving forward in improvement.

14 And then on your comment about coordination
15 among regulators, I couldn't agree more. But I also
16 have to put a plug in for my fellow financial regulators
17 during this period of stress. I have rarely seen -- and
18 I've had the privilege of working on a number of
19 projects. But I've rarely seen people work more
20 seamlessly and more substantively and more efficiently
21 than we worked in March and April. And I would add that
22 work was only possible -- and this is really important
23 -- because we had good information, not just good
24 information that we generated internally but as we
25 reached out to market participants, including some of

1 the people looking at me here today.

2 We were confident that the information we were
3 receiving was accurate. And we were confident that when
4 people told us they didn't know that they were being
5 candid. That was both extremely helpful. So, you know,
6 there is always room for improvement. We've learned a
7 lot in 2008 about how to coordinate and how to take
8 action. I think we put some of that to work this time.
9 But I was very pleased with the seamless nature of
10 working with my colleagues at the Fed, the CFTC, the
11 Treasury and the other federal financial --

12 MR. HEANEY: Thank you, Chairman Clayton.

13 I want to thank all the members who
14 participated in this session as well. The observations
15 and the insights are valuable, both to the Commission
16 and certainly to FIMSAC as we are -- go forward. And as
17 I said in my opening remarks, this dialogue will
18 continue. I'm going to briefly go off script one more
19 time.

20 As we conclude our third year, I just want to
21 thank all the FIMSAC members again for hard work and
22 dedication. I've said it in previous FIMSAC meetings.
23 Juggling full-time jobs during normal times but
24 certainly during these volatile and challenging times
25 past six months and over the past several years along

1 with the demanding time commitments required by FIMSAC
2 and the subcommittee work where so much of the work is
3 actually done is challenging. Your efforts are nothing
4 short of remarkable. And I feel very strongly about
5 that.

6 The work performed by FIMSAC will make a
7 difference in fixed-income markets in the future. An
8 additional thank you to the subcommittee chairs, Ananth
9 Madhavan, Lynn Martin, Amy McGarrity, Rick McVey,
10 Gilbert Garcia and Past Chairman Mihir Worah. Time,
11 your leadership, your energy and, many times, your
12 perseverance has been incredible. And we've got many of
13 the things across the line. So I look forward to our
14 ongoing dialogue and our ongoing work, as I said just
15 before. But it has been certainly a productive and an
16 inspiring past three years.

17 So again, I want to thank everybody for
18 participating in this meeting. It -- despite having to
19 do it virtually, I think it was quite successful. And
20 as I said in my opening comments, I look forward to the
21 next one being back in Washington, D.C. I'm certainly
22 pleased that we're able to put forth our 16th
23 recommendation to the SEC on matters that this group
24 feels as -- are the most important and most critical.

25 MR. HEANEY: So unless there is any other

1 comments, at this point, I'll entertain a motion to
 2 adjourn. Anyone --
 3 MR. STREET: So moved.
 4 MR. HEANEY: Thank you. Thank you again and
 5 stay safe, and we look forward to continuing the
 6 dialogue.
 7 (Whereupon, at 3:35 p.m., the meeting was
 8 adjourned.)
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