

U.S. SECURITIES AND EXCHANGE COMMISSION

ROUNDTABLE ON TRADE THROUGH PROHIBITIONS

Thursday, September 18th, 2025

9:15 a.m.

U.S. Securities and Exchange Commission

100 F Street, N.E., Washington, D.C.

Page 2

1	APPEARANCES:
2	
3	Paul Atkins, SEC Commissioner, Chairman
4	Hester Peirce, SEC Commissioner
5	Caroline Crenshaw, SEC Commissioner
6	
7	SEC Staff
8	Jesse Brady, SEC Office of Analytics and Research
9	Arun Manoharan, SEC Office of Analytics and Research
10	Dan Mathison, SEC Office of Analytics and Research
11	Jamie Selway, SEC Division of Trading and Markets
12	
13	Moderators
14	Andre Owens, WilmerHale
15	Michael Piwowar, Milken Institute
16	Elad Roisman, Cravath, Swaine and Moore
17	
18	Panelists
19	Julie Andress, Securities Traders Association and
20	KeyBanc Capital Markets
21	Jim Angel, Georgetown University
22	Robert Battalio, University of Notre Dame
23	Matt Billings, Robinhood
24	Allison Bishop, Proof Trading
25	Ari Burstein, IntelligentCross

Page 4

1	APPEARANCES (Cont.):
2	
3	Panelists (Cont.)
4	Joe Saluzzi, Themis Trading
5	Andrew Smith, Virtu Financial
6	Cameron Smith, Texas Stock Exchange
7	Chris Solgan, MIAX Exchange Group
8	Jeff Starr, Schwab
9	Debbie Toennies, J.P.Morgan
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

Page 3

1	APPEARANCES (Cont.):
2	
3	Panelists (Cont.)
4	Robert Colby, FINRA
5	Hubert De Jesus, BlackRock
6	Armando Diaz, PureStream
7	Daniel Gerhardstein, FIA Principal Traders Group and
8	Jump Trading Group
9	Peter Haynes, TD Securities
10	Jon Herrick, New York Stock Exchange
11	Chris Isaacson, Cboe Global Markets, Inc.
12	Jonathan Kellner, MEMX
13	Kevin Kennedy, NASDAQ
14	Vlad Khandros, OneChronos
15	Mehmet Kinak, T. Rowe Price
16	Katie Kolchin, Securities Industry and Financial Markets
17	Association
18	Dave Lauer, Urvin Finance and We the Investors
19	Matt MacKenzie, Optiver
20	Joe Mecane, Citadel Securities
21	Chris Nagy, Healthy Markets Association
22	Adam Nunes, Hudson River Trading
23	Maureen O'Hara, Cornell, SC Johnson Graduate School of
24	Management
25	Pankil Patel, Bank of America

Page 5

1	CONTENTS	
2		PAGE
3	Opening Remarks	6
4		
5	Data Presentation	18
6		
7	Panel One: Market Participants' Experience with	33
8	Trade-Through Prohibitions	
9		
10	Panel Two: A Trade-Through Prohibition's Role	121
11	in Today's Market Structure	
12		
13	Remarks from SEC Chairman	198
14		
15	Panel Three: Forward Thinking	205
16		
17	Closing Remarks	293
18		
19		
20		
21		
22		
23		
24		
25		

Page 6

1 PROCEEDINGS

2 MR. SELWAY: Good morning. Welcome to

3 everyone here to our Roundtable on Trade-Through

4 Prohibitions, including those watching online. My

5 name is Jamie Selway. I am the Director of the

6 Division of Trading and Markets. We are pleased to

7 host you today.

8 I would also like to thank Chairman Atkins

9 for his leadership on these issues. We look forward

10 to his remarks later today.

11 I would also like to welcome our

12 commissioners and ask Commissioner Peirce, followed by

13 Commissioner Crenshaw who will join us via video, to

14 offer their remarks on today's roundtable.

15 Commissioner Peirce.

16 There will be no trading through on this

17 roundtable.

18 (Laughter.)

19 COMMISSIONER PEIRCE: Good morning. And

20 thank you all for being here. I've been really

21 looking forward to this roundtable, so I'm going to

22 keep my statement short, because I think there are

23 more important people to hear from. And I touched

24 recently on the Trade-Through Rule in a speech that I

25 gave. So I want to hear from today's panelists, and

Page 7

1 we have a lot of great panelists and great moderators,

2 and fantastic issues for discussion.

3 Today's focus, as you all know, is on Rule

4 611 of Reg NMS, also known as the Trade-Through Rule,

5 the Order Protection Rule, or simply OPR. It's not

6 only that it has -- it's not only a rule of many

7 names, but it's also a rule that inspires many

8 different opinions. The rule was controversial enough

9 when it was adopted in 2005 to prompt a lengthy, 44-

10 page dissent from Commissioners Cynthia Glassman and

11 Paul Atkins. I had a small role then in cite checking

12 the footnotes, which is a bad thing to give me,

13 because I've never been good at blue booking. But

14 anyway, that was the extent of my role.

15 Ten years later, in 2015, Rule 611 was the

16 subject of the very first meeting of the Commission's

17 Equity Market Structure Advisory Committee, which

18 featured some of the panelists and moderators that we

19 have here today.

20 Ten years later, here we are again. Rule

21 611 remains in our rulebook, remains controversial,

22 and remains a hot topic in Commission corridors.

23 By now, the top line arguments are familiar.

24 Critics of the rule blame it for increasing

25 complexity, fragmentation, and costs. While defenders

Page 8

1 credit it for increasing competition and protecting

2 investors. I am eager to hear more in-depth

3 discussion from our panelists, many of whom have spent

4 their careers working in a marketplace shaped by Rule

5 611.

6 The insights gained from today's discussions

7 should help the Commission determine whether to move

8 forward with amendments to the rule and if so, what

9 form those amendments should take. Should the rule be

10 retained, repealed outright, or amended so as to apply

11 only to exchanges above a certain volume threshold?

12 If a volume threshold is appropriate, what should that

13 threshold be? And if the rule is amended or repealed,

14 should other NMS rules such as the access fee cap and

15 Rule 610, or the minimum tick size in Rule 612 also be

16 changed? Should our thinking on the trade-through

17 rule apply equally with respect to the joint industry

18 plan equivalent in the options market? Does that

19 market's experience with its trade-through rule inform

20 or mirror the experience of -- should it inform the

21 experience in the equity markets? And is it different

22 in the options markets? On these matters, we will

23 benefit greatly from the wisdom of the panelists.

24 Even with the wisdom of our panelists and

25 the expertise and diligence of our Staff, changing

Page 9

1 these rules will be no easy task. Our markets are

2 dynamic systems made up of, among others, investors,

3 exchanges, ATSS, broker-dealers, proprietary trading

4 firms, and technology providers, each of whom operates

5 with different incentives, business models, technical

6 and operational capabilities, and risk tolerances.

7 This complexity is wonderful and keeps our markets

8 vibrant and competitive, but it makes the task of

9 writing, amending, or repealing rules that regulate

10 this market structure challenging.

11 Compounding this challenge is the rapid pace

12 of technological innovation which alters the markets

13 in ways that we cannot foresee. Any amendments we

14 undertake must try to account for technological

15 changes that we can anticipate, such as currently

16 ongoing efforts regarding tokenization, as well as

17 changes that we can't anticipate. That the task is a

18 hard one should not foreclose the Commission from

19 taking action, but it does underscore the need for us

20 to be careful, deliberate, and collaborative in any

21 changes that we make. Only then can we create durable

22 change and beneficial change in our markets.

23 Thank you again. I am looking forward to

24 productive discussion. And I just hope that we don't

25 have to be here in another 10 years talking about the

Page 10

1 same topic. Thank you.
 2 MR. SELWAY: Amen to that.
 3 Commissioner Crenshaw? Do we have
 4 Commissioner Crenshaw by way of video?
 5 COMMISSIONER CRENSHAW: Can you hear me?
 6 MR. SELWAY: Yes, we can. Please go ahead,
 7 Commissioner.
 8 COMMISSIONER CRENSHAW: All right. And I
 9 apologize if there was other noise around me. I was
 10 unable to make it today in person.
 11 But good morning, everyone. And I am
 12 pleased to welcome you to today's roundtable on Rule
 13 611, to discuss the ins and outs of trade-through
 14 prohibitions. I am aware of the vast amount of work
 15 that goes into planning and executing roundtables. So
 16 I would like to start by thanking Director Selway, the
 17 Division of Trading and Markets Staff, and everyone
 18 else who was involved in putting this together. I
 19 would also like to thank our moderators and panelists
 20 for joining us today. I look forward to hearing wide-
 21 ranging perspectives on the role of trade-through
 22 prohibitions in our market structure from this
 23 impressive group of experts.
 24 Everyone here knows that the equity markets
 25 are complex and interconnected. Over time, new

Page 11

1 technologies, regulations, and other developments have
 2 caused the markets to change and evolve, sometimes in
 3 unanticipated ways that merit discussion.
 4 In order for the SEC to fulfill its three-
 5 part mission to protect investors, maintain fair,
 6 orderly, and efficient markets, and facilitate capital
 7 formation, we must continually reevaluate our approach
 8 to market regulation, making adjustments as needed to
 9 respond to changes.
 10 I hope today's roundtable can contribute to
 11 our efforts to improve outcomes for investors in this
 12 space, and for retail investors in particular, while
 13 also strengthening our equity markets --
 14 On the topic of retail investors, the
 15 Commission discussed in the adopting release for Rule
 16 611 that many of the investors whose market orders are
 17 executed at inferior prices may not, in fact, be aware
 18 that they received an inferior price from their broker
 19 or executing market. The release elaborated that
 20 protecting the interests of such investors in
 21 obtaining best execution on an order-by-order basis is
 22 a vitally important objective that warranted adopting
 23 the Order Protection Rule.
 24 Given the important role that the Order
 25 Protection Rule has been playing as a backstop for

Page 12

1 broker-dealers' duty of best execution, I am
 2 particularly interested in hearing more from today's
 3 panelists about how trade-through prohibitions
 4 intersect with the fulfillment of best execution
 5 obligations. I believe that a market intermediary's
 6 duty of best execution is a cornerstone of our
 7 investor protection regime. The idea that a market
 8 intermediary must seek the best deal for its customers
 9 is fundamental to ensuring that investors can have
 10 confidence when they engage in the markets.
 11 And as I've said before, without investor
 12 confidence, the markets cannot serve their purpose as
 13 a place for investors to grow their savings while
 14 providing companies with needed capital. However, I
 15 also understand the reality of the proliferation of
 16 execution venues has increased market complexity,
 17 which may make things more complicated for market
 18 participants.
 19 As we move through today's roundtable
 20 sessions, I urge you to keep in mind the important
 21 role of the equity markets as a place where Americans
 22 can invest and grow their savings from everything from
 23 retirement, their child's education, buying a new
 24 home, or taking a well-earned vacation. In order for
 25 the markets to serve this purpose, investors must have

Page 13

1 confidence in trading venues and market
 2 intermediaries, and this requires well regulated,
 3 well-functioning markets that are efficient,
 4 competitive, and transparent. As I am sure our
 5 experts here today will attest, market structure is
 6 critically important.
 7 I hope today's roundtable will yield
 8 thoughtful discussions regarding the role of trade-
 9 through prohibitions in today's market structure, as
 10 well as creative solutions that consider improving
 11 both market efficiencies and outcomes for investors.
 12 Thank you again for being here today.
 13 MR. SELWAY: Thank you, Commissioner
 14 Crenshaw.
 15 Thank you both Commissioners for your
 16 remarks, your valuable input on this event. I would
 17 also like to thank my capable division teammates who
 18 worked diligently on today's program, in particular
 19 Ted Venuti, Theresa Kettig, David Liu, and Kevin
 20 Brennan.
 21 Most importantly, we thank our moderators
 22 and panelists who will contribute a variety of
 23 expertise and experiences today to benefit the
 24 Commission and the investing public we serve. We are
 25 confident that your contributions will meaningfully

Page 14

1 inform the Commission's next step with respect to
 2 trade-through prohibitions.

3 Before I begin, I must remind you all that
 4 my remarks today are provided in my official capacity
 5 as the Commission's Director of the Division of
 6 Trading and Markets, but do not necessarily reflect
 7 the views of the Commission, the Commissioners, or the
 8 members of the Staff.

9 Our division was the Commission's first and
 10 was initially known as the Division of Trading and
 11 Exchange. Our first director, David Saperstein, was
 12 appointed by Joseph Kennedy on August 1, 1934.
 13 Speaking to the National Traders Association on August
 14 4, 1936, in Los Angeles, Director Saperstein asked the
 15 following regarding the two year old Securities and
 16 Exchange Act of 1934. "In what direction has it
 17 moved? What progress has it made toward the goal of
 18 protecting the investor? These questions ought to be
 19 answered frequently, honestly, without heat and
 20 without dogma. The answers are of paramount
 21 importance to you in the securities business, to us in
 22 the business of government, and to the great,
 23 amorphous myriad-minded entity that we designate the
 24 public."
 25 Seventy years later, Reg NMS was adopted.

Page 15

1 The Division of Trading and Exchange was now called
 2 Market Regulation. And the National Securities
 3 Traders Association had dropped its descriptor.

4 Speaking to this group, the STA, in New York
 5 on April 19, 2007, then-Commissioner Paul Atkins said
 6 the following of Reg NMS. "The trouble is that the
 7 real consequences for our markets will not be known
 8 for years, after the damage has been done and after
 9 trading patterns have shifted in unpredictable ways
 10 and perhaps to other venues."

11 Today's roundtable is an important marker
 12 along the path that markets have taken since
 13 Regulation NMS was adopted some 20 years ago. Our
 14 national market system has seen substantial change
 15 since that time. We have gone from markets dominated
 16 by a small number of venues to trading dispersed
 17 across many registered exchanges and for equities,
 18 off-exchange venues. Indeed, we have seen a
 19 proliferation in the number of registered equities and
 20 options exchanges over the last 20 years. And over
 21 this time, trading volumes have increased manifold,
 22 and latencies have become ever smaller.

23 As Chairman Atkins foretold, many of these
 24 changes have been unpredictable, and the consequences
 25 and costs have been hard to discern. But as Director

Page 16

1 Saperstein urged, the Commission has a duty to
 2 evaluate its handiwork frequently and honestly.

3 For example, Rule 611 focuses on price
 4 priority, but also includes a number of exceptions
 5 that recognize market participants may have other
 6 priorities when executing orders. Have trade-through
 7 prohibitions, with their numerous exceptions and
 8 exemptions, made our markets more competitive to the
 9 benefit of investors? Are there more efficient, less
 10 prescriptive means to enable competition and foster
 11 innovation in our markets? As a means to protect
 12 investors, how do trade-through prohibitions compare
 13 to the duty of best execution?

14 Trade-through prohibitions necessitate
 15 additional policy choices such as access fee
 16 restrictions and market data standardization. We
 17 appreciate that Rule 611 cannot be analyzed in a
 18 vacuum and we look forward to exploring related
 19 questions with the benefit of public comment and
 20 possibly additional roundtables.

21 To borrow from another Kennedy, we begin
 22 today with Rule 611 not because it is easy, but
 23 because it is hard.

24 Your input is valuable, and we thank those
 25 who have already submitted comments. We hope to hear

Page 17

1 from you and as many market participants as possible.

2 Our goal is to ensure that we continue to have the
 3 best securities markets possible, competitive, fair,
 4 efficient, the model for the world.

5 Today, we will hear first the division's
 6 Office of Analytics and Research, which will present
 7 highlights from recently published data intended to
 8 support today's discussion. This work is available on
 9 the roundtable website and on the Commission's Market
 10 Structure Analytics page.

11 For NMS stocks, the data describes trade-
 12 through rates, the number of broker-dealers trading
 13 directly on exchanges compared with those that route
 14 via other brokers, and changes in displayed liquidity
 15 over the past 10 years. For listed options, the data
 16 describes trade-through rates, as well as related
 17 changes in options market structure over the last
 18 several decades.

19 Following the presentation, the first panel
 20 will focus on market participants' experience with
 21 trade-through prohibitions over the past 20 years.

22 After a break for lunch, the second panel
 23 will discuss the trade-through prohibition's role in
 24 today's highly automated and connected market
 25 structure.

Page 18

1 Next, the Chairman will give his remarks.
 2 And then finally, the third panel will
 3 consider potential paths forward for trade-through
 4 prohibitions.
 5 Again, we thank you all for participating in
 6 today's roundtable. We look forward to hearing
 7 everyone's views on how to ensure our markets remain
 8 the envy of the world, for the benefit of the great,
 9 amorphous, myriad-minded investing public.

DATA PRESENTATION

10
 11 MR. SELWAY: So I will now bring up Dan
 12 Mathisson, Arun Manoharan, and Jesse Brady for more.
 13 Dan.
 14 MR. MATHISSON: All right, thank you,
 15 Director Selway. My name is Dan Mathisson. I am a
 16 senior policy adviser here at the SEC. The last time
 17 I was at one of these roundtables was the one after
 18 the flash crash, where I was an industry panelist.
 19 And now, up here as Staff, it is my distinct honor and
 20 privilege to get to read the SEC disclaimer.
 21 This presentation has been prepared in our
 22 official capacity as Staff of the Division of Trading
 23 and Markets but does not necessarily reflect the views
 24 of the Commission, the Commissioners, or other members
 25 of the Staff. All right, another ambition realized.

Page 20

1 are. When this rule was passed with the rest of the
 2 rules in Reg NMS back in 2005, supporters hoped that
 3 it would give people a strong incentive to post limit
 4 orders, which would therefore lead to tighter bid-ask
 5 spreads, good market depth, reduced trading costs, and
 6 ultimately better capital markets.
 7 But like with all rules, benefits always
 8 come paired with costs. There is no such thing as a
 9 free lunch of regulations. So what are these costs?
 10 Well, strong arguments could be made against
 11 Rule 611 on a philosophical basis. You know, should
 12 the government be dictating where and how private
 13 individuals execute trades? But putting that aside,
 14 we're going to talk about on a practical basis, there
 15 have been two major concerns raised. One is does Rule
 16 611 lead to a proliferation of exchanges that have
 17 caused fragmentation of liquidity, and therefore
 18 increased the complexity of execution? And, two, has
 19 Rule 611 directly driven up costs for broker-dealers,
 20 causing them to have to connect to numerous small
 21 exchanges, which leads to increased servers, increased
 22 hardware and multiple data centers, expensive data
 23 fees and port fees, higher compliance costs, costs of
 24 coding all this stuff into their smart order routers,
 25 and more.

Page 19

1 Let's go.
 2 (Laughter.)
 3 MR. MATHISSON: All right. So all day
 4 today, our panelists will be discussing and debating
 5 the costs and benefits of Rule 611. But before we get
 6 to the main event, we thought it would be helpful to
 7 take a look at what's hopefully some highly relevant
 8 data.
 9 In this presentation, we are going to look
 10 at how broker-dealers deal with the proliferation of
 11 exchanges, trade-through rates with and without Rule
 12 611 in place, some measures of displayed liquidity,
 13 again, with and without Rule 611. And we will also
 14 take a peek at some similar data from the options
 15 market.
 16 So Rule 611 says simply that exchanges
 17 cannot ignore displayed bids and offers from other
 18 exchanges and trade outside of them. Simply put, if
 19 there is a 32-cent bid somewhere, no broker-dealer and
 20 no exchange can trade at 31 cents without first going
 21 out and whacking that 32-cent bid.
 22 It is arguably the crux of the national
 23 market system, which is a bunch of rules that stitch
 24 together the exchanges, in that they require trading
 25 venues to honor better displayed prices wherever they

Page 21

1 So let's dive into some of the and see what
 2 we can learn.
 3 To start with, for our viewers at home who
 4 don't eat and drink equity market structure every day
 5 like our panelists and like most of the people in this
 6 room here, how many exchanges are there? Well,
 7 currently, in the second quarter of 2005, and as of
 8 today as well, there were 16 exchanges that traded
 9 equities. These 16 combined did exactly half of the
 10 total trading volume, with the other half of the
 11 volume trading off exchange. The top five exchanges
 12 combined for 41 percent of equity volume, which leaves
 13 11 exchanges that had less than 3 percent market
 14 share, and eight exchanges that had less than 1
 15 percent market share. So we do see a proliferation of
 16 small exchanges that have very low market share. And,
 17 guess what? Several more are on the way, including
 18 the new 24 Exchange, which will go live within two
 19 weeks.
 20 On the broker-dealer side, there were over
 21 3,000 registered brokers in the second quarter. But
 22 only about one-third of them trade stocks. So we saw
 23 1,124 broker-dealers who executed at least one share
 24 of equities in the second quarter. And now if all
 25 1,124 of these broker-dealers had to connect to all 16

Page 22

1 exchanges, that would be 17,984 connections.
 2 So is that what we see in the real world?
 3 No, that is not what we see.
 4 In this complicated routing ecosystem, the
 5 vast, vast majority of broker-dealers choose not to
 6 deal with any of this and outsource all of their
 7 trading. Of the 1,124 broker-dealers that traded
 8 stocks in the second quarter, 762 of these broker-
 9 dealers completely outsourced 100 percent of their
 10 execution to other broker-dealers. They just passed
 11 the order along and let somebody else deal with
 12 complying with Rule 611 and the rest of Reg NMS.
 13 So there were only 362 broker-dealers who
 14 actually executed trades. Of these 362, 40 percent of
 15 them did all their trading off exchange, which left
 16 223 brokers who traded at least one share on an
 17 exchange.
 18 So skipping to the punchline, there were 44
 19 brokers that executed on more than 10 exchanges, and
 20 only 22 broker-dealers that executed on all 16
 21 exchanges. And that represents even fewer than 22
 22 organizations, because some of those have multiple
 23 broker-dealers where it's under one parent firm. So
 24 there are fewer than 20 organizations out there that
 25 actually connect to every single exchange, defining a

Page 23

1 connection as they traded at least one share from
 2 April 1 all the way through June 30. Now, these 20-
 3 ish organizations include bulge brackets, market
 4 making shops, the exchange routing broker-dealers, and
 5 a few prop shops that are out there, proprietary
 6 trading shops.
 7 So what does this tell us? In the wake of
 8 Rule 611, the vast, vast majority of broker-dealers
 9 have found it's no longer economically feasible for
 10 them to do what was once the essential function of a
 11 stock broker, execute their clients' orders.
 12 Outsourcing execution reduces or eliminates the cost
 13 of complying with Rule 611. But on the other hand, it
 14 means that the broker-dealers who are closest to the
 15 end client are giving up control of their orders,
 16 potentially suffering delays and possibly lower fill
 17 rates, and potentially experiencing information
 18 leakage as more parties are touching the order flow.
 19 Now, slicing the data in a different way,
 20 how many broker-dealers connect to each exchange?
 21 Well, here we aggregated the 16 exchanges into four
 22 tiers based on their number of executing BDs. Now,
 23 importantly, the tiers are not the same as just a
 24 straight measure of volume. This is based on the
 25 number of broker-dealers an exchange has, not their

Page 24

1 market share. And so those two are not synonymous.
 2 You cannot just assume you can just back into which
 3 exchanges are in which firms. There are some fairly
 4 large ones that have a fairly small number of BDs on
 5 them, and there are also -- as well as the opposite.
 6 We also report on how many member broker-
 7 dealers each exchange has. Consistently, there are a
 8 lot more member firms than there are firms who
 9 actually trade there. American Express used to say
 10 that membership has its privileges. The main
 11 privilege of membership on some of these exchanges
 12 appears to be to say you're a member.
 13 Now, the most connected exchange, which
 14 again is not necessarily the largest exchange but
 15 rather the one with the most broker-dealers, had 172
 16 firms that executed trades on it, while the least
 17 connected only had 24 broker-dealers that actually
 18 traded on it.
 19 Next, we take a peek at the number of
 20 broker-dealers who add versus take. Adding means
 21 posting a displayed limit order, while taking for
 22 those who don't know means hitting bids or taking
 23 offers.
 24 Now, rule 611 requires you to take liquidity
 25 on any exchange, but it doesn't require you to add

Page 25

1 liquidity anywhere. So we wanted to see if there were
 2 a large number of broker-dealers who only take at the
 3 smaller exchanges. This does turn out to be the case.
 4 Consistently, there are more taking BDs on almost
 5 every exchange than there are adding BDs. And it is
 6 particularly true at the smaller ones.
 7 For example, the least connected exchange,
 8 which again is not necessarily the smallest exchange,
 9 which only had 24 broker-dealers that took liquidity
 10 on it, only had 10 broker-dealers who voluntarily
 11 provided liquidity.
 12 Now, the previous slides looked at the
 13 number of broker-dealers who go directly to exchanges.
 14 And we saw the vast majority of broker-dealers
 15 outsource their trading. But when you look by share
 16 volume, it's the opposite. The vast majority of
 17 shares are executed by broker-dealers who originated
 18 the order. Only 28 percent of shares and 18 percent
 19 of total dollar value traded was outsourced to other
 20 BDs.
 21 So how could this be the case that almost
 22 all broker-dealers are outsourcing and yet 72 percent
 23 of flow is executed by the same broker who originated
 24 the order? Well, this speaks to the concentration of
 25 trading that we have seen in the wake of Reg NMS and

Page 26

1 over the last 20 years. While only 22 broker-dealers
 2 connect to all 16 exchanges, the vast majority of flow
 3 is originated by these 22 broker-dealers.
 4 Did Rule 611 make routing more complex and
 5 costly? Did that lead to smaller broker-dealers
 6 throwing in the towel on the execution game, while the
 7 bigger broker-dealers realized greater economies of
 8 scale, and is that a factor that led to this highly
 9 concentrated broker-dealer landscape that we see
 10 today? Well, I will leave that to the panels to
 11 discuss and debate.
 12 And with that, I will pass the baton to Arun
 13 Manoharan, the Assistant Director of the Office of
 14 Applied Research, who is now going to review some very
 15 interesting trade-through data.
 16 Arun.
 17 MR. MANOHARAN: Thank you, Dan.
 18 I see a lot of familiar faces. But for
 19 those who don't know me, my name is Arun Manoharan.
 20 Any attempt to pronounce my last name is much
 21 appreciated. I have been at the SEC for 12 years.
 22 And with that, again, to facilitate today's
 23 discussion on Rule 611, we produced analysis that
 24 looks at trade-through rates. To accomplish this, we
 25 examined all regular weight trades for the second

Page 27

1 quarter of 2025. Our intention was to look at
 2 situations when Rule 611 applied and when it did not,
 3 thereby answering the question do trade-throughs
 4 increase when Rule 611 is not in effect.
 5 To answer this question, we separated these
 6 trades between three sessions, the premarket, regular,
 7 and after hours. We also separated trades between
 8 round lots and odd lots. We then counted the number
 9 of trade-throughs that occurred during the different
 10 sessions and separated them by odd lots and round
 11 lots.
 12 Rule 611 also has a provision that allows
 13 for a one-second lookback, letting one compare the
 14 execution price of a trade by the lowest bid or the
 15 highest offer that occurred one second prior to the
 16 trade taking place, to determine if a trade-through
 17 has actually occurred. We also counted the number of
 18 trade-throughs after applying a one-second lookback.
 19 We divided our analysis between corporate stocks and
 20 ETPs.
 21 For corporates, trade-through rates without
 22 the lookback for all sessions for both round lots and
 23 odd lots was 2.4 percent or less. When we applied the
 24 lookback, trade-through rates dropped to less than
 25 0.55 percent for all size trades. Looking more

Page 28

1 closely, trade-through rates for round lots during
 2 regular trading hours dropped to 0.06 percent but
 3 remained at similar levels for odd lots when compared
 4 to other trading sessions.
 5 For ETPs, trade-through rates without the
 6 lookback for both round lots and odd lots was less
 7 than 2.1 percent. But after applying the lookback,
 8 trade-through rates dropped to 0.6 percent or less.
 9 Trade-through rates for round lots during regular
 10 trading hours was 0.08 percent, and increases to 0.25
 11 percent for odd lots.
 12 When the SEC adopted Reg NMS, it stated that
 13 one of the primary goals of intermarket price
 14 protection was to promote displayed liquidity. We're
 15 going to visually inspect a daily empirical cumulative
 16 distribution function time series from 2015 to 2025
 17 for two time-weighted liquidity measures. Those two
 18 measures are the number of round lots at the national
 19 best bid and the number of best bids at the national
 20 best bid. These data were derived from quote messages
 21 and NBBO appendages that were in force during regular
 22 market hours. The ECDF is used to show the percent of
 23 NMS stocks at or below a particular value of liquidity
 24 measures. And I used a lot of acronyms, but we have
 25 so many experts here, I'm sure you know what they all

Page 29

1 mean.
 2 Here, we're looking at the daily ECDF for
 3 the first liquidity measure. The number of round lots
 4 at the national best bid. The X axis is time, the Y
 5 axis is the percent of NMS stocks, and the Z axis
 6 represented by the color gradient is the liquidity
 7 measure.
 8 Looking at the ECDF, there are several
 9 observations that stand out. The percent of NMS
 10 stocks having over 25 round lots at the national bid
 11 increased from 15 percent to 25 percent since 2015,
 12 while at the same time, the percent of NMS stocks
 13 having three or fewer round lots at the national best
 14 bid remained relatively constant at 20 percent.
 15 Here, we're looking at the daily ECDF with a
 16 second liquidity measure, the number of best bids at
 17 the national best bid. Once again, there are several
 18 observations that stand out. The percent of NMS
 19 stocks having two or fewer best bids at the national
 20 best bid remained at approximately 40 percent from
 21 2015 to 2025. Over that same period, the percent of
 22 NMS stocks having over six best bids at the national
 23 best bid increased from 5 percent in 2015 to 20
 24 percent. During this time, the number of exchanges
 25 increased from 11 to 16.

Page 30

1 And with that, I will hand it over to my
 2 colleague Jesse Brady to talk about options.
 3 MR. BRADY: Thank you, Arun. My name is
 4 Jesse Brady, and I am also in the Office of Applied
 5 Research.
 6 Now we would like to switch gears and
 7 discuss the options market.
 8 The period included in this study saw
 9 unprecedented growth, both the scale and the
 10 prominence of the options markets in the United
 11 States. As we've shown here, options markets have had
 12 two distinct periods of rapid growth. The first being
 13 from 2000 to 2009, labeled the linkage era here. And
 14 then again from 2019 to present, labeled as the zero
 15 commission era here. In between these two periods was
 16 a period of relatively flat growth in the options
 17 market from 2009 to 2019, labeled here as the
 18 consolidator era.
 19 As shown on the very top of the image, the
 20 options markets are currently operating under what
 21 we've labeled as the options plan, also known as the
 22 options order protection and locked cross-markets
 23 plan, which is the corollary to the equity markets
 24 Rule 611.
 25 Following the options plan approval in 2009,

Page 31

1 the U.S. options market experienced a milder steady
 2 period of growth for nearly a decade before the broad
 3 adoption of zero commissions and a confluence of other
 4 factors amplified the growth of options markets
 5 beginning in around 2020.
 6 For options data, we reviewed the options
 7 trades for a five-year period, from 2020 to 2025, and
 8 compared the trade prices on each trade to the
 9 prevailing NBBO from OPRA, and found that the rate the
 10 trades occur outside the NBBO has remained fairly
 11 steady between 1.1 and 1.6 percent. Of these trades
 12 that happened outside the NBBO, the vast majority,
 13 around 75 percent, included sale condition codes that
 14 help identify the exemptions to the options plan that
 15 they were executed pursuant to. The remaining 25
 16 percent, which represents less than half of 1 percent
 17 of the total trades did not specify an exemption and
 18 may represent trade-throughs and is roughly the same
 19 rate as discussed earlier in equities.
 20 Another material change in the options
 21 market during this period has been an increase in the
 22 fragmentation of trading across options exchanges, as
 23 well as the proliferation of additional exchanges. In
 24 2017, the options trading was concentrated in the top
 25 five exchanges, which collectively held over 70

Page 32

1 percent market share. By 2024, options trading was
 2 more widely dispersed among the exchanges, with no
 3 exchange representing over 20 percent market share,
 4 and 15 venues with greater than 1 percent market
 5 share.
 6 One important difference in the options
 7 market to keep in mind is that Rule 610, which caps
 8 access fees in equities, does not apply to options.
 9 Broadly speaking, these fees are higher for options
 10 than they are in equities. Additionally, this
 11 discrepancy could grow larger if changes to Rule 610
 12 are implemented.
 13 In conclusion, we wanted to add a few pieces
 14 here for further examination. Some of these will be
 15 discussed in the upcoming panels.
 16 The first are the compliance costs, which
 17 are borne by both the industry members as well as
 18 execution venues. Further thought should also be
 19 given to the impact to market structure complexity.
 20 We also need to consider unintended consequences of
 21 trade-through prohibitions. It's good to keep in mind
 22 how any changes may impact the alignment of best
 23 execution obligations throughout the market, and the
 24 impact any changes may have to ongoing automation
 25 efforts, as well as future connectivity decisions

Page 33

1 across this space.
 2 We would like to end by thanking everyone
 3 for the opportunity to discuss this topic. We really
 4 appreciate the engagement and feedback we've received
 5 already on our work, or we may receive in the future.
 6 Thank you all for your time. And Director
 7 Selway, thank you for the opportunity. And I will
 8 turn it back over to you.
 9 MR. SELWAY: Thank you gentlemen. And, Dan,
 10 you win the contest for correct pronunciation of
 11 Arun's last name.
 12 So, Panel One, can we have you up here,
 13 please?
 14 PANEL ONE: MARKET PARTICIPANTS' EXPERIENCE WITH TRADE-
 15 THROUGH PROHIBITIONS
 16 MR. SELWAY: All right. Well, thank you.
 17 My pleasure to introduce an old friend of the agency,
 18 former Commissioner Mike Piwowar. Mike is currently
 19 executive vice president at the Milken Institute
 20 Finance Foundation. He and I will take us through the
 21 first panel today.
 22 So over to you, Mike.
 23 MR. PIWOWAR: Thank you, Jamie. Thank you
 24 for all the panelists for agreeing to be here today.
 25 I am so pleased to be back here in this

1 familiar place, moderating our panel of expert market
2 participants on their experience with trade-through
3 prohibitions over the past 20 years.

4 Before we start our discussion, I would like
5 to take a few seconds to talk about what Chairman
6 Atkins calls a new day at the SEC. For four years,
7 SEC reporting companies, regulated entities, and Staff
8 endured what can accurately be described as the dark
9 ages of the Commission's history.

10 That all changed in January of this year,
11 under Acting Chairman Uyeda's leadership of the
12 Commission, and Commissioner Peirce's leadership of
13 the Crypto Task Force. And now, under Chairman
14 Atkins's leadership, the agency is reaching a full
15 renaissance.

16 Today's public roundtable is just one
17 example of that revival, and I am pleased to play a
18 small part in it. So let's get started.

19 I am going to ask each of our panelists to
20 give a brief, two-minute overview of their overall
21 experience with trade-through prohibitions over the
22 past 20 years. And after that, we are going to drill
23 down on some of the specific areas of discussion, some
24 of which were mentioned by the Commissioners and the
25 Staff when they went through their presentation.

1 We have assembled a great group of experts,
2 representing a diverse set of market participants.
3 And I will note that some of them have held different
4 positions at different firms over the past 20 years,
5 where their experiences may be relevant to our
6 discussion.

7 So let's get started. We'll just go in
8 alphabetical order to get everyone's overall
9 experience, and then we will drill down into some of
10 the specific ones.

11 First, I would like to call on Julie
12 Andress, who is representing the Security Traders
13 Association and KeyBanc Capital Markets.

14 MS. ANDRESS: Good morning and thank you for
15 having me here. It's a pleasure and honor to be here
16 among business and thought leaders in our industry.

17 As you said, I am Julie Andress. I am a
18 managing director at KeyBanc Capital Markets in
19 institutional sales trading. In that role, I'm
20 responsible for best execution from our institutional
21 clients. But I am here today in my role as the Chair
22 of the Security Traders Association, better known as
23 STA. I have been in this role for the past -- I have
24 been on the board for the past six years, and been
25 involved in STA for the last 10 years.

1 The Security Traders Association is a
2 professional group of financial service industry that
3 was established in 1934. We have a diverse
4 membership, both geographically and within roles in
5 the marketplace. Our members include asset managers,
6 RIAs, retail and full-service broker-dealers, vendors,
7 exchanges, and clearinghouses. STA was actively
8 involved in the process of modernization of the U.S.
9 equity markets that culminated in the adoption of the
10 Reg NMS over 20 years ago. And STA believes that
11 regulators need to remain diligent in how roles impact
12 the modern markets and dialogue, such as today,
13 fosters -- events like the roundtable today can create
14 positive change. Given the change in the technology
15 in the marketplace over the last two decades, STA
16 supports the rule of 611.

17 MR. PIWOWAR: All right, thank you, Julie.
18 I would now like to go to Ari Burstein,
19 representing IntelligentCross.

20 MR. BURSTEIN: Thank you, Mike. Good
21 morning and thank you for the opportunity to
22 participate here today. My name is Ari Burstein. I
23 am general counsel and chief policy officer for
24 Imperative Execution, the parent company of the
25 IntelligentCross ATS.

1 Launched in 2018, IntelligentCross is widely
2 used by most major U.S. broker-dealers and electronic
3 trading firms. In August 2025, our average daily
4 market share was 2.1 percent. And IntelligentCross
5 has been consistently listed first since March 2025 in
6 total shares traded by ATSs in the FINRA ATS weekly
7 statistics.

8 More importantly for the discussion today,
9 we operate an ATS that displays its quotes to the
10 public. But these quotes are not readily visible to
11 all investors because they are not protected quotes.
12 The lack of trade-through protection has created a
13 situation that has allowed market participants to miss
14 or effectively, quote, unquote, trade through the
15 IntelligentCross quote, even when it is the best
16 displayed quote in the market.

17 Our experience, therefore, with the trade-
18 through prohibition comes from the perspective of what
19 we have seen as a venue with display liquidity
20 operating without our quotes being subject to such
21 protection. We have seen the concerns raised 20 years
22 ago in dissent, which Commissioner Peirce mentioned
23 this morning. By then, Commissioners Glassman and
24 Atkins on Reg NMS and trade-through prohibitions come
25 to fruition in our case as the continued inability for

1 our quotes to be considered protected quotes has
2 again, at least in our case, stifled the introduction
3 of innovation and competition to displayed markets,
4 and has involved the Commission in the exact types of
5 subjective judgments around protected quotes that the
6 dissent warned about.

7 For these and other reasons,
8 IntelligentCross believes that it is fair for the
9 Commission to consider whether trade-through
10 prohibitions are still needed, whether other
11 obligations such as best-ex may offer a better
12 balancing of the goals of competitive markets,
13 execution quality and customer choice, or if the
14 Commission determines to keep the trade-through
15 prohibitions in place, how to modernize the rule to
16 reflect today's markets.

17 We commend the Chairman and the Commission
18 for organizing today's roundtable, and I look forward
19 to answering any questions you guys have. Thank you.

20 MR. PIWOWAR: Thanks, Ari.

21 Next up is Peter Haynes representing TD
22 Securities.

23 MR. HAYNES: Thanks, Michael. Good morning.
24 My name is Peter Haynes. I am responsible for index
25 and market structure research at TD Securities in

1 names such as StubHub, Klarna, and Figure Technologies
2 going public just in the last week, and I don't think
3 we've had three IPOs in Canada this year.

4 In addition, volume of trade continues to
5 favor the U.S., and this includes the battle for
6 interlisted volume between Canada and the U.S., a
7 battle the U.S. continues to win with now over 70
8 percent of the share of interlisted trading by one
9 metric. This migration of flow to the U.S. from
10 Canada is drawing concern from Canadian participants
11 who are searching for answers to protect the future of
12 Canada's capital markets. Quite simply, the U.S. is
13 winning by any metric. And while it's never a good
14 strategy to rest on success, we believe that material
15 changes to market structure and resulting second
16 derivative effects need to be thought through
17 carefully to avoid unintended consequences.

18 That said, rules do have best-before dates.

19 And for this reason, the discussion on important
20 market structure tenets that have been in place a long
21 time and are taken for granted, such as Rule 611, are
22 worthy of review. And I commend the SEC for gathering
23 such an impressive group of market practitioners to
24 help guide the regulator in determining pros and cons
25 of changing 611.

1 Toronto. Over my 30 years in this role for TD, I've
2 come to a few conclusions with respect to market
3 structure. Number one, it's regional in nature.
4 Number two, every market has its own nuances. And,
5 number three, the U.S. market is on an island all by
6 itself.

7 For this reason, while important lessons can
8 be learned from experiences in other jurisdictions,
9 one should not assume that what works elsewhere will
10 necessarily work in the U.S. equity market.

11 From my perch in Canada, we Canadians look
12 at the U.S. market with envy. And I am sure this is
13 the case for practitioners in other geographies. Here
14 are some pretty impressive stats. The U.S. market is
15 over 63 percent of total world capitalization. In
16 fact, if you remove the S&P 500 stocks from the U.S.
17 market, the residual stocks in U.S. companies would
18 still be 35 percent bigger than any other market in
19 the world.

20 Given this total world domination, it's not
21 surprising that issuers from around the globe are
22 looking to migrate to U.S. capital markets in search
23 of higher valuations and inclusion in the Holy Grail
24 of benchmarks, the S&P 500. Meanwhile, the U.S.
25 continues to win the IPO battle, with high-profile

1 So you have three options. Option one, of
2 course, is leave as is. I believe this is the least
3 appealing of the options. I think if the goal of 611
4 was to ensure competition amongst markets or
5 exchanges, that mission has been accomplished.

6 Option two is the threshold rule, this
7 notion you've heard about from Canada, which I'm sure
8 we'll talk a little bit about later on. Canada
9 instituted a threshold policy in 2016, and proponents
10 of this rule will argue that it did achieve the goal
11 of stopping nondifferentiated markets from launching.

12 It is true, however, I would -- as I am sure we will
13 discuss a little bit later in this panel, the actual
14 goal of Canada's order protection rule and threshold
15 rule was actually to stop the parabolic increase in
16 realtime market data fees that exchanges were
17 charging, because each new marketplace required
18 connectivity and we didn't have a SIP that
19 redistributed fees the way the SIP does in the U.S.

20 Option three, of course, is full elimination
21 of trade-through rules. This idea has merit. I
22 think, obviously, the threshold rule should be
23 considered as well. There's a lot of questions that
24 come, and it should be obviously a hotly contested
25 topic. But at the end of the day, there's not easy

Page 42

1 answers for the implications of relying specific non-
 2 best-ex for routing purposes. It is true that a best-
 3 ex framework works in other geographies across the
 4 Atlantic. However, trading in Europe and the U.K. is
 5 much different than trading in the U.S., and in
 6 particular with respect to the incredible depth and
 7 liquidity that comes from direct retail participation
 8 in the U.S.

9 It is also very important to think about a
 10 no-trade-through rule when considering the possibility
 11 of a whole new avenue of trading equities in token
 12 form outside the current infrastructure might result
 13 in a complete decentralization of trading, making the
 14 task of finding liquidity difficult if not impossible
 15 for institutions.

16 And once again, I thank the Commission for
 17 getting the group together. I look forward to
 18 answering any questions.

19 MR. PIWOWAR: Thank you, Peter. We will
 20 definitely get into discussions of differences in
 21 markets that either have different trade-through
 22 prohibitions or don't have them at all and get the
 23 experience there. So thanks for teeing that up.

24 Next up is Chris Isaacson from Cboe Global
 25 Markets.

Page 43

1 MR. ISAACSON: Thank you, Mike. Thank you,
 2 Jamie. Thanks, Chair Atkins, and fellow Commissioners
 3 for the opportunity to participate today.

4 My name is Chris Isaacson. I am the
 5 executive vice president and chief operating officer
 6 of Cboe Global Markets. We operate 25-plus markets
 7 around the world, including prominent options and
 8 equity markets here in the U.S. as well as an ATS, and
 9 have long served as a steward of innovation in the
 10 U.S. markets. We appreciate the Commission's
 11 thoughtful engagement on trade-through prohibitions
 12 and welcome this dialogue.

13 At Cboe, we believe markets thrive when
 14 innovation and competition, not regulation, are the
 15 primary drivers of change. That said, when regulatory
 16 frameworks become deeply embedded in interconnected
 17 market ecosystems, as the trade-through rule has, it
 18 is important to proceed cautiously and to fully
 19 analyze the potential impacts of any reform.

20 While its original intent can certainly be
 21 debated, and I am sure will be today, its practical
 22 impact is clear. Rule 611 has fundamentally shaped
 23 our market and contributed to the national best bid
 24 and offer, which is foundational to investor
 25 confidence, execution quality, and public price

Page 44

1 formation.

2 We believe a central goal of this discussion
 3 must be to maintain a strong NBBO and public price
 4 formation in order to foster continued trust and
 5 participation in our markets, particularly among
 6 retail investors.

7 Additionally, we urge the Commission to
 8 recognize the fundamental differences between the
 9 equities and options markets and believe these markets
 10 should be reviewed separately. The U.S. options
 11 market is strong, resilient, scalable, and continues
 12 to meaningfully and positively advance and grow
 13 dramatically, as Jesse mentioned earlier, absent
 14 regulatory intervention.

15 If changes to trade-through rules are
 16 pursued, we recommend a measured approach that also
 17 considers other aspects of Reg NMS and market
 18 structure that may need to be revisited in concert to
 19 foster greater innovation and competition, such as
 20 best execution, expectations, the prohibition on
 21 locked markets, and access fee caps in equities.

22 In closing, we thank the Chair for convening
 23 this roundtable and look forward to participating.
 24 Thank you.

25 MR. PIWOWAR: Thank you, Chris. Yes, and we

Page 45

1 will get into differences between the equity markets
 2 and options markets in this discussion.

3 Next up is Katie Kolchin, representing the
 4 Securities Industry and Financial Markets Association,
 5 SIFMA.

6 MS. KOLCHIN: Thank you. Good morning. I
 7 am Katie Kolchin and I am head of equity and options
 8 market structure at SIFMA. Thank you to the SEC for
 9 allowing SIFMA on behalf of its members to join this
 10 important conversation.

11 Market structure can be thought of as an
 12 octopus, with its many tentacles or arms. Its arms
 13 can move in multiple directions, all by changing shape
 14 in a variety of ways. Its arms are incredibly
 15 flexible, enabling infinite and complex, yet precise,
 16 movements. Its arms can move independently yet are
 17 interconnected. In fact, an octopus's nerves do not
 18 just run the length of a single arm but can also
 19 connect to an arm two arms away. Its arms can even
 20 continue to move after death.

21 Like the octopus, market structure involves
 22 many moving, interconnected pieces, and Rule 611
 23 represents the head of this octopus. If you move or
 24 change one piece, other parts could move as well. As
 25 such, before making any changes, it is important to

Page 46

1 identify and analyze interconnected market structure
 2 pieces and study what corresponding changes could stem
 3 from any intentional change, as well as the cumulative
 4 net effect of changes. After all, unlike in economic
 5 studies, all else is not equal. One change will most
 6 likely lead to other changes.

7 When assessing changes, it is important to
 8 ask what is our intent? What harms or harms are we
 9 trying to eliminate? What benefit or benefits do we
 10 expect to stem from the change? And what could be the
 11 unintended consequences of change?

12 It is critical to ask these probing
 13 questions and perform rigorous analyses before making
 14 any changes, particularly to the head of the octopus,
 15 prohibitions on trade-throughs.

16 The U.S. capital markets are the envy of the
 17 world, as Peter just told us. And not only the
 18 largest, but also the deepest, most liquid, and most
 19 efficient. Investors, both retail and institutional,
 20 enjoy narrow spreads, low transaction costs, fast
 21 execution speeds, high levels of pre and post-trade
 22 transparency, and strong investor protections.

23 Moving forward, it remains important to
 24 continue to ask these questions and analyze what
 25 changes could mean for all investors. This is

Page 47

1 particularly true today, as the landscape for modern
 2 securities markets is under consideration in
 3 conjunction with the incorporation of emerging
 4 technology platforms. After all, in 2005, one of the
 5 objectives of Reg NMS was to modernize markets. And
 6 here we are today discussing unintended consequences.

7 We appreciate that the SEC is asking these
 8 questions and we look forward to any resulting
 9 analysis of potential changes today and going forward.

10 Thank you for inviting me today and I look
 11 forward to the conversation.

12 MR. PIWOWAR: Thank you, Katie. I did not
 13 have octopus on my bingo card, so thanks for that.
 14 (Laughter.)

15 MR. PIWOWAR: That's a great analogy.
 16 Next up is Dave Lauer, representing Urvin
 17 Finance and We the Investors.

18 MR. LAUER: Thanks, Mike. And thank you to
 19 the Commissioners and Chair for having me and
 20 convening this roundtable.

21 I'm here representing Irvin Finance, a
 22 company that connects retail investors with public
 23 companies and issuers, as well as We the Investors, a
 24 grassroots campaign to modernize and improve the
 25 fairness of equity market structure and represent

Page 48

1 hundreds of thousands of retail investors who care
 2 about these issues.

3 But my experience spans quite a bit of this
 4 industry. I started in 2005, as Reg NMS was being
 5 implemented. I worked as a high-frequency trader and
 6 quantitative researcher, trying to navigate the new
 7 complexity of modern electronic markets. I've worked
 8 with stock exchanges at various stages, an innovative
 9 exchange that started up and actually benefitted from
 10 Rule 611, IEX, as well as sat on the board of Equitas
 11 Niyo for seven years and watched as the market share
 12 threshold and the intentional delay criteria were put
 13 in place. And one of our venues lost order
 14 protection. And I saw the consequences of that on
 15 execution quality.

16 We've seen a massive increase in
 17 fragmentation, that's for sure. But a big problem
 18 with fragmentation is that it has been fragmentation
 19 without innovation. For the most part, we've had
 20 mostly copycat exchanges approved by regulators that
 21 serve little purpose but to extract rents for data and
 22 connectivity. There has been very little innovation
 23 from the exchange space, and very little benefits from
 24 competition, except for a small handful of venues
 25 across the world that have tried to do something

Page 49

1 different, who have seen better execution quality
 2 results, but who still struggle to gain market share
 3 because of the maker taker model.

4 So the octopus analogy is actually quite
 5 excellent, because everything is interconnected,
 6 everything is enmeshed. And it's very hard to
 7 separate out the effects of a single rule versus the
 8 entirety of Reg NMS.

9 I am happy to be here to discuss what my
 10 experience has been. But I do see it as an important
 11 conversation that we need to have on a broad basis.
 12 We need to be talking about best execution as part of
 13 this conversation. Because if we expect best
 14 execution to take the place of Rule 611, we have to
 15 accept that at this point, Rule 611 has become the
 16 standard for best execution, and that the current
 17 state of best execution is that it is neither enforced
 18 nor enforceable. And so if we are going to make any
 19 changes to order protection, we must consider the
 20 implications on best execution and what the retail
 21 experience will be when they can't be guaranteed that
 22 they are going to get a trade at the price that they
 23 are seeing. So thank you, I look forward to the
 24 conversation.

25 MR. PIWOWAR: Yeah, thank you, Dave. And

1 Commissioner Crenshaw specifically mentioned that,
 2 too, so we will get into that discussion, too.
 3 And next up is Joe Mecane from Citadel
 4 Securities.
 5 MR. MECANE: Thanks, Mike. I'm Joe Mecane,
 6 head of Citadel Execution Services at Citadel
 7 Securities. I also was part of the Equity Market
 8 Structure Advisory Committee for two terms under then-
 9 Commissioner Piwowar, and I will echo -- that was
 10 about 10 years ago, so I will echo Commissioner
 11 Peirce's statement that I hope to not be here in 10
 12 years on the same topic. But I do appreciate the
 13 opportunity to speak today.
 14 I will summarize my points on the trade-
 15 through rule in four primary points to make.
 16 First, while we understand a lot of the
 17 arguments for why people would think that the trade-
 18 through rule is no longer necessary in today's market,
 19 we worry that removing the trade-through rule would be
 20 very complex, potentially disruptive, especially to
 21 retail investors, and the unintended consequences
 22 would not warrant the risk of removing the rule.
 23 We also think it would be very difficult to
 24 try to separate, if not impossible, the positives and
 25 negatives that the trade-through rule has impacted on

1 our markets.
 2 However, we also understand and would agree
 3 that one of the frictions that has developed in the
 4 markets compounded by the trade-through rule has been
 5 the proliferation of venues and exchanges, which has
 6 increased the cost and complexity to investors. In
 7 our estimation, we did a calculation which takes Dan
 8 Mathisson's breakdown a little bit further, and we
 9 estimate that the increased cost to the industry from
 10 small venues, small equity and options venues, is
 11 about \$375 million a year. And we also think that
 12 removing the trade-through rule would not do a lot to
 13 impact that cost. So we believe that any action to
 14 try to reduce those costs and frictions to investors
 15 would require direct action, which we have suggestions
 16 that I'm happy to go into at a later stage.
 17 The third point is we do feel strongly that
 18 under the trade-through rule, protection should be
 19 given to automated quotes, and quotes that introduce
 20 intentional delays should not receive protection.
 21 And the fourth point that we would make is
 22 that, as the SEC and the Commission is thinking about
 23 changes to equity market structure around 611 or other
 24 rules, we should be thoughtful about the compounding
 25 impact of other rules. One that we would highlight is

1 the change to tick sizes and access fees which was
 2 passed by the previous administration. We would
 3 suggest thinking about that rule in the context of
 4 whether we're making counterbalancing changes. At the
 5 same time, we would encourage changes such as along
 6 the lines of that magnitude being conducted along an
 7 EB test and ensuring that the changes that we do
 8 introduce do have the desired effect on our equity
 9 markets. Thank you.
 10 MR. PIWOWAR: All right, thank you, Joe.
 11 Next up is Maureen O'Hara from the SC
 12 Johnson Graduate School of Management at Cornell
 13 University. Maureen has written numerous articles in
 14 market microstructure. Her book, Market
 15 Microstructure Theory, is literally the academic Bible
 16 that every Ph.D. student reads. And she will give the
 17 academic perspective on this. So Maureen.
 18 MS. O'HARA: Well, thank you, Mike. And
 19 thank you, Jamie, and the Commission for inviting me
 20 to be here on this panel and joining my fellow
 21 panelists.
 22 Like Joe, I was on the Equity Market
 23 Structure Advisory Committee in 2015. I was also on
 24 the Flash Crash Commission. And I was chairman of a
 25 broker-dealer firm for many years.

1 I want to talk a bit in my time, when we go
 2 a little later, about the academic research on all of
 3 this. Because one of the things that I think
 4 academics can bring is a bit of an outside
 5 perspective. I will say that using data in 2008,
 6 fragmentation that came, I believe, in part from the
 7 order protection rules actually looked kind of like it
 8 was doing a good thing. Back then, the research
 9 showed that there were lower transactions costs,
 10 faster execution speeds. There was higher volatility
 11 but market prices seemed to be closer to random
 12 blocks. But that was then, and now we're here.
 13 And I think that most of the academic
 14 research that I'm familiar with -- some of it I've
 15 done -- sort of raises serious concerns about where we
 16 are. One of them is simply there's not enough of the
 17 order flow now that's actually covered by order
 18 protection rules. The amount of non-displayed
 19 liquidity is huge, both with respect to the odd lot
 20 quotes, which we can talk about later, but also with
 21 respect to the non-displayed hidden liquidity. And
 22 none of them are protected.
 23 And when we look at sort of what the
 24 protection actually does, it's just not comprehensive
 25 enough. And part of the challenge also lies in the

1 NBBO. Right? The national best bid or offer, I
2 think, is now rather misnamed. It's really the NPGBO,
3 the national pretty good bid or offer.

4 (Laughter.)

5 MS. O'HARA: Right? It's not very good. It
6 isn't very good. Because there are so many odd lot
7 orders that are sitting there. They're unprotected.
8 They're also at better prices. And so when we talk
9 about best execution, it's not happening for a large
10 fraction of trades, particularly for the higher-priced
11 stocks.

12 And again, as we look at these issues, it's
13 very important to realize that back in 2005, there
14 was, I think -- let's not talk about Berkshire
15 Hathaway, but I think there was one stock that was
16 above \$1,000 a share. That's not the case now. And a
17 round lot, even under the new round lot rules, will
18 still essentially be the exception and not the rule
19 for many, many investors.

20 And so there are so many problems currently,
21 I think, with trade-through, that I am of the opinion
22 that we're probably better off without it. But if we
23 can't get there, we definitely have to make dramatic
24 changes. And we'll certainly discuss that more in a
25 few minutes.

1 MR. PIWOWAR: All right, thanks Maureen.
2 Next up is Pankil Patel from Bank of
3 America.

4 MR. PATEL: Good morning and thank you to
5 the SEC for hosting these very important roundtable
6 discussions on Rule 611, and whether it's fit for
7 purpose in our markets.

8 My name is Pankil Patel, and I serve as the
9 global head of equities, electronic trading platform,
10 at Bank of America Securities. The platform my team
11 oversees provides a wide range of execution products,
12 including algorithms, smart order routers, and direct
13 market access across our two client segments we
14 service at Bank of America. First, the high net worth
15 and retail segment, where we facilitate and provide
16 best execution services for over 3 million clients on
17 the Merrill Lynch platform. Second, the institutional
18 and broker-dealer segment, where we facilitate and
19 provide best execution for over 3,000 institutions on
20 the Bank of America securities platform. On any given
21 day, our platform is approximately 14 to 15 percent of
22 U.S. equities volumes and touches one in six trades a
23 day.

24 Over the past 25 years, I've had the
25 privilege of being a practitioner at the forefront of

1 electronic trading. I've designed and developed
2 algorithms and smart order routers, both before and
3 after the implementation of Reg NMS.

4 People often forget that leading up to Reg
5 NMS in 2004, we were experiencing one of the most
6 transformations in the equity market structure. Yet
7 decimalization, technological advances, all of this
8 led to new trading venues, new systematic trading
9 market participants, along with the first generation
10 of execution algorithms and smart order routers, which
11 truly revolutionized the way clients traded, and
12 liquidity was provided.

13 Despite these innovations, challenges
14 persisted at the time. Trying to adapt algos on a
15 slow market that was manually driven proved to be
16 problematic and required regulatory attention.

17 The passage of Reg NMS and 611 really was
18 that watershed moment for us. It was the catalyst to
19 force the floor to finally adapt, and the legacy way
20 of trading as we knew it was finally behind us.

21 While Reg NMS and Rule 611 have provided a
22 framework for modernization, it also triggered an even
23 more sophisticated technology arms race. Participants
24 with superior infrastructure sought to exploit latency
25 in regulatory arbitrage opportunities, and took

1 advantage of exchange proximity, matching speeds, and
2 how fast quotes were being disseminated. Brokers
3 unable to keep up with the infrastructure cost and
4 collocation costs and subscribing to those market data
5 feeds at the time were susceptible to negative
6 outcomes. If you were a broker who wasn't collocated
7 by 2009, you were definitely experiencing some of
8 these subpar outcomes of the market structure.

9 These pains were real for investors, but the
10 industry ultimately adapted at great cost, but by
11 enhancing their technologies they've avoided these
12 negative outcomes.

13 Simultaneously over the years, best
14 execution combined with ongoing innovation and
15 improvements in technology have significantly enhanced
16 execution quality and transparency for both retail and
17 institutional investors alike. Rule 611 in particular
18 has provided an additional level of comfort to our
19 retail customers, knowing that their held limit orders
20 greater than 100 shares would not be traded through.

21 Unfortunately, the comfort level provided
22 has come at some cost to the overall industry. 611
23 has directly led to proliferation of exchanges,
24 fragmentation, and the undue complexity resulting in
25 an expensive tax the Street continues to endure.

1 Additionally, the fundamental market
2 dynamics have substantially changed since 611 was
3 passed. Today, odd lots are 70 percent of the trades.
4 In 2005, they were 20 percent. Today, the median
5 trade size in the continuous session is just 77
6 shares, down 75 percent since 2025. Today, the
7 displayed lit exchange volume is now only at 30
8 percent of the continuous session.

9 In conclusion, there is no doubt that Reg
10 NMS from the outset provided tremendous benefits to
11 equities market structure. But like anything that is
12 20 years old, it is ripe for an upgrade. It is
13 definitely time for us to take a fresh look at 611 and
14 other structural rules, as some of the unintended
15 consequences have led to enormous costs,
16 fragmentation, and unnecessary complexity that
17 continues to balloon. Thank you.

18 MR. PIWOWAR: Thank you, Pankil.
19 And last but not least, with an
20 alphabetically disadvantaged last name, is Chris
21 Solgan from the MIAX Exchange Group.

22 MR. SOLGAN: Thanks. And being last, I'll
23 try to be brief.

24 Good morning and thank you for having me.
25 My name is Chris Solgan and I am senior counsel with

1 the MIAX Exchange Group. MIAX appreciates the
2 opportunity to participate in this very important
3 roundtable to discuss the trade-through rule.

4 MIAX operates multiple markets across a
5 diverse cross section of asset classes, including four
6 fully automated electronic options exchanges and an
7 equities exchange, all impacted by trade-through
8 prohibitions. And just last week, MIAX Sapphire
9 launched an options trading floor in Miami, Florida.

10 MIAX is fully supportive of a healthy review
11 of a rule that is nearly 20 years old. We are in
12 favor of innovation and reviewing older regulations to
13 ensure that they still work for the markets.
14 Continued industry engagement on the trade-through
15 rule and potential changes should continue. In
16 adopting NMS over 20 years ago, the SEC held numerous
17 roundtables, and there was prolonged industry
18 engagement. The Commission reengaging the industry on
19 this important market structure issue is very
20 refreshing.

21 MIAX believes that the trade-through rule
22 has been generally good for the markets and helped to
23 promote displayed liquidity and price protection. It
24 has become engrained in our market structure's DNA.
25 Today's roundtable is to cover the trade-

1 through rule in both equities and options. However,
2 the equities and options markets are fundamentally
3 different, and we agree with Cboe that any
4 consideration of potential changes to their applicable
5 trade-through prohibitions should be reviewed
6 separately.

7 In short, MIAX believes that the trade-
8 through rule should be retained but potentially
9 modernized to reflect changes in the marketplace since
10 it was first adopted over 20 years ago. We encourage
11 that any changes, whether tweaking or possibly
12 repealing, consider the value of a displayed quote in
13 the marketplace, the importance of the NBBO, and the
14 need for on-exchange liquidity.

15 We again applaud the Commission engaging the
16 industry in reviewing this important regulation and
17 look forward to working with the Commission and others
18 in the industry on potential changes to improve the
19 rule to reflect today's market structure. Thank you.

20 MR. PIWOWAR: All right, thank you all.
21 Now what we are going to do is go and look
22 at some of the specific issues that the folks, the
23 panelists mentioned on their opening statements, as
24 well as some of the issues that the Staff highlighted
25 in their report, and some of the issues that the

1 Commissioners mentioned in their opening statement.
2 The first one we want to look at is the
3 costs. When the Commission finalized Regulation NMS
4 20 years ago, like it does with every regulation, it
5 considered the potential cost of the order protection
6 rule. And at the time, they did their best, they used
7 public comments to try to figure that out. But as
8 Jamie mentioned, Chairman Atkins pointed out that it
9 would take years to actually figure out what the
10 realized actual costs were. So let's drill down on
11 that.

12 And so for this discussion, I'd like to
13 include any direct compliance costs, including
14 staffing, training, technology, legal, and accounting.
15 You know, do look at the effects of things like
16 fragmentation people have mentioned. Broader economic
17 costs, such as any reduction in market efficiency or
18 competition. Dan Mathisson had mentioned
19 concentration in the BD landscape. Any unintended
20 consequences that were not foreseen when the rule was
21 promulgated, and any other relevant costs.

22 And for this, I'd like to start off -- let's
23 have Katie, since she specifically mentioned it, had
24 the cool octopus analogy.
25 MS. KOLCHIN: Okay, thank you. I guess I'm

1 the scene setter here.

2 So as I mentioned earlier, our market
3 structure involves many moving, interconnected pieces.

4 And it can often be difficult to identify one piece
5 of market structure as the sole driver of any change
6 or changes over the last 20 years.

7 That said, it's always good to evaluate the
8 evolution of markets. After all, we're on the history
9 panel.

10 So one of the original objectives for NMS
11 was to correct the market inefficiencies from the ITS
12 system, essentially creating the national automated
13 connected market system. Twenty years later, you
14 cannot argue against the fact that we are automated
15 and connected. However, the market landscape has
16 changed significantly, so I'm going to run through
17 some numbers for us, again being cognizant that it's
18 not that just one of these numbers caused these
19 changes. Everything works together.

20 So let's start with volumes. Back in 2004,
21 ADV was just around 4 billion, and now we're over 17
22 billion, and 90 percent of that was traded on exchange
23 back then, where today we're about 50/50 on and off
24 exchange.

25 The total U.S. equity market cap was just 15

1 Speeds of the market have improved greatly. Where we
2 were speaking about milliseconds, then it went to
3 microseconds, now it's nanoseconds and there's this
4 goal of hyposeconds or zero latency.

5 So markets have changed substantially. And
6 with that, order routing complexity has increased, as
7 have compliance costs for brokers. Brokers
8 potentially have to connect to up to 16 exchanges, as
9 well as all the other trading venues offering
10 liquidity, thereby incurring connectivity and market
11 data costs.

12 And I'm going to stop there, because I know
13 the others have some direct numbers for you.

14 MR. PIWOWAR: Ari, do you want to weigh in
15 on this one?

16 MR. BURSTEIN: Sure. Yeah, I don't know
17 that I'll talk directly to cost, but maybe some of the
18 unintended consequences, if that makes sense.

19 So look, I think as I mentioned in my
20 opening statement, our experience with the trade-
21 through prohibitions comes from the fact that our
22 displayed quotes are not subject to the trade-through
23 prohibitions. And so to that end, I guess a couple of
24 points.

25 IntelligentCross runs two books, a mid-book

1 trillion back then and it's over 60 today. And the
2 SPX alone was around 10 trillion back then and is over
3 50 trillion today.

4 When you look at trading venues, back in
5 2004, we were at seven versus 16 today, with more in
6 the pipeline. The number of ATSSs was estimated at
7 around 10 versus, as of 2Q, 33 today. And market
8 participants also have the opportunity to route orders
9 to over 250 OTC venues today.

10 And so what this did then was it also had an
11 impact on average trade size. So if you look at on-
12 exchange average trade size back in 2004, it was about
13 440 versus 140 today. And then when you get to the
14 off-exchange numbers, that was over 1,300 average
15 trade size, versus just over 200 today. And so you
16 can see the differences across the numbers in the
17 volumes and where you trade and how you trade.

18 But I would also like to point out the
19 differences in market participants. So back in 2004,
20 retail investors were under 10 percent of the market,
21 and our market structure survey now regularly shows
22 the retail investor participation rate at around 20 to
23 30 percent.

24 And of course, let's not forget about the
25 technological advancements over the last 20 years.

1 and an Aspen book. The Aspen book is the full limit
2 order book with optional display capability. We
3 improve the NBBO over 4 million times a day. As I
4 said, these prices, however, are not readily visible
5 to all investors because the quotes are not protected
6 quotes.

7 It is also important to note that
8 IntelligentCross provides its full market data feed,
9 IQX, for free out to everybody. However only a small
10 portion of market participants take that in. So we
11 saw some of the statistics of how many broker-dealers
12 execute on exchanges. We have about 36 firms total
13 that are licensed to take in our IQX feed. Of that, a
14 lot of them are data consolidators or the like. So
15 true broker-dealers who are routing are probably in
16 the twenties, give or take.

17 So begs the question, why don't people take
18 in our feed if we have better displayed quotes. Good
19 question. So we have heard from market participants.

20 And part of this is because of Rule 611, if they
21 don't have to configure their routers, and people know
22 this a lot better than me, the routers are configured
23 a lot of times for protected quotes. If they don't
24 need to reconfigure it for a nonprotected quote, they
25 will not. If they are forced to, they will.

1 The second part of that is, and we've heard
2 about best ex, you can argue that trade-through
3 prohibitions have created a landscape where people can
4 take a more conservative approach to best ex, and I'm
5 sure we'll get more into this. So route to a
6 protected quote, if they don't have to route to us,
7 they will not.

8 So this has created a situation, as I
9 mentioned in my opening statement, people are trading
10 through, for lack of a better word, the
11 IntelligentCross quote -- I looked up the stats --
12 it's about 377,000 times per day on average. I think
13 that's year to date numbers, 2025. So it's not
14 insignificant. As I said, we have 2.1 percent of the
15 volume in markets.

16 So in effect, I would argue from an
17 unintended consequences standpoint the trade-through
18 rule has created an environment where market
19 participants have artificially, for lack of a better
20 word, limited order routing.

21 Options, again, we have grown our venue from
22 zero to 2.1 percent in, you know, competing on a level
23 playing field in the non-lit markets. So again, what
24 shall we do here?

25 As most of you know, we have sought a

1 MR. PIWOWAR: All right, thanks.
2 Pankil?

3 MR. PATEL: Yeah, certainly. We as a fairly
4 large institution provide all these routing services
5 we discussed. We have to connect to all the exchanges
6 that come on board. And that, in our own analysis,
7 you know, it kind of manifests itself in two ways.
8 One is obviously the onboarding aspect of bringing
9 these venues onto our platform. And in our case, it's
10 not just our execution platform, it's also our
11 professional clearing platform where we clear for many
12 broker-dealers in the industry.

13 So for us, you know, this onboarding phase,
14 you know, of just not things that you would think
15 about, which are, you know, connectivity, market data,
16 right, taking in the raw data feeds. But we've got
17 other things that we have to consider when integrating
18 into our ecosystem, such as, you know, third party
19 sourcing, procurement, technology, testing, hardware,
20 CAD integration, billing that's required on the back
21 of these exchanges. When we tally all these things
22 up, just on the onboarding side, it roughly costs us,
23 you know, \$1 million, when you add all those things up
24 for execution, and roughly 500,000 on the clearing
25 side. So one and a half million dollars per exchange

1 proposed rule change through FINRA to have our quotes
2 as protected quotes. Let me be clear, it's not
3 because of any particular support for the current
4 trade-through regime but given some of the things I
5 said before, we want to have our liquidity displayed
6 and we think that's been one of the things that has
7 been pushed, you know, obviously, in this market
8 structure, and we just haven't been able to.

9 So again, let me stop there. There
10 obviously are costs to connect and I'm sure we'll get
11 into that. But let me turn it over to other folks.

12 MR. PIWOWAR: Great, thanks.

13 Maureen, what does the academic literature
14 say on costs and unintended consequences. You alluded
15 to some of it in your opening statement.

16 MS. O'HARA: The costs are tricky for
17 academics to really pin down. Right? I mean, in
18 terms of compliance, we really can't get data on that.

19 So to be honest, you know, when we look at costs, we
20 really tend to look at what are the costs of
21 execution, as opposed to compliance. So I'll pass on
22 the compliance part, Mike, just because that's not
23 something we -- you know, on the other hand, any of
24 you who have data and would like us to look at it, we
25 would love to have it. So just a thought.

1 that comes along.

2 On the maintenance side, the ongoing
3 maintenance side, you know, maintaining continued
4 connectivity, maintaining the upgrades that
5 continuously come your way, making sure that your
6 surveillance systems are up to date. You know, and I
7 think this is one of the unintended consequences of
8 Reg NMS, and many of the surveillance systems over
9 time, you know, did not update quickly enough, were
10 not leveraging, you know, raw data feeds and
11 leveraging the SIP and you saw a lot of false
12 positives coming out of these things.

13 So making sure that your surveillance
14 systems are up to date is very important as well. So
15 we roughly think it's about -- you know, the ongoing
16 maintenance for us is about \$200,000 per year. So
17 when you think about the overall cost, it's quite
18 significant when you've got 30-plus exchanges across
19 options and equities that we're dealing with.

20 MR. PIWOWAR: Thank you.

21 Joe, so Pankil just gave us some really good
22 numbers in terms of that. Are you seeing similar
23 numbers?

24 MR. MECANE: Sure. So just to expand on the
25 numbers I mentioned at the beginning, as we all know,

1 Reg NMS predicted a proliferation of exchanges and
2 fragmentation. And we've certainly seen that play
3 out, whether causal or correlated. And it seems to us
4 that when the industry complains about the cost and
5 complexity of 611, they are largely referring to that
6 factor and the number of venues that have sprung up.

7 We did a calculation, as I mentioned
8 earlier. And what we looked at was, and no offense to
9 our exchange friends in the audience, we looked at
10 venues with less than 2 percent market share in
11 equities, so right in the middle of Dan's 1 percent
12 and 3 percent, by coincidence, and 4 percent for
13 options, accounting for the fact that there is no off-
14 exchange in options. And we looked and estimated for
15 the industry what is the cost of connectivity, market
16 data, and the options regulatory fee. And that
17 equates to roughly \$375 million a year. So a gross-up
18 of what Pankil is experiencing.

19 We also estimate that that 375 million is
20 about two thirds of the total revenue for those
21 venues, so a meaningful driver of the overall
22 operating model for those venues.

23 The complexity, though, also comes from the
24 fact that we believe that if you eliminated OPR, we
25 don't think that number would go down materially, for

1 a number of different reasons. A lot of us are
2 already connected to those venues. Those of us that
3 do agency routing have best execution obligations,
4 which makes it very difficult to just disconnect from
5 a venue and potentially save the cost. So
6 realistically, we don't think eliminating trade-
7 through rule is the fix for that particular problem.

8 We do think there's a few things that the
9 Commission could consider to address that particular
10 issue. One thing that we think could help along these
11 lines is revisiting the split of the SIP revenue
12 allocation between trades and quotes and shifting it
13 more towards trading activity. Another change could
14 be introducing a minimum volume threshold before
15 participating in SIP revenue. Another change could be
16 capping the amount that could be charged for fees
17 until a venue reaches a certain size.

18 A couple of things I would say about those
19 particular points. So one is, yes, those are
20 introducing additional cost controls, which is
21 understandably an area that the SEC has not wanted to
22 get further into. But I worry that that's an
23 unavoidable issue that the Commission is going to have
24 to deal with, no matter what. Even if you remove the
25 trade-through rule, there's nothing stopping any

1 exchange from charging whatever they want for those
2 same costs. And so we think that that's an issue in
3 an exchange marketplace that is going to have to exist
4 no matter what.

5 The other thing I would say is the -- that's
6 really it. I'll stop there.

7 MR. PIWOWAR: Great, thanks.

8 Before we move on to the next topic, I just
9 want to make sure nobody else wants to weigh in on
10 this particular one.

11 Yeah, Dave?

12 MR. LAUER: I think these, you know, very
13 specific costs aside, from the unintended consequences
14 of -- and it's hard to talk about specifically Rule
15 611. It's really Reg NMS as a structure has had many
16 unintended consequences. If you think about it, we
17 went from a situation where we had mostly just -- most
18 of the trading on one exchange, but really almost all
19 of it on two exchanges, and many, many market makers,
20 to a situation in which we have so many different
21 exchanges and complete fragmentation and very few
22 market makers. And so that cost of concentration on
23 the one hand in market makers and broker-dealers, as
24 we saw in the presentation earlier, the lower level of
25 competition results in significant costs that the

1 industry and investors are bearing.

2 And the fragmentation, the extreme
3 fragmentation in the exchange space has just driven
4 latency arbitrage and the speed race to zero, which
5 results in more rents that are being extracted from
6 the market if we're talking about the costs and the
7 unintended consequences of this regulatory framework.
8 We've seen this increase in complexity and these
9 interlinkages between exchanges and complex order
10 types. But, of course, that's both Rule 611 as well
11 as the ban on locked and crossed markets. There's no
12 incentive for exchange consolidation. Exchanges run
13 parallel, nearly identical order books. And as we saw
14 on the chart earlier, seven out of the eight exchanges
15 that are less than 1 percent, most of which are
16 copycat exchanges, are run by the three major exchange
17 families. Exchange monopoly power has resulted in
18 excessive costs for connectivity and data, and that's
19 what -- these costs that we're hearing about. And
20 this is another form of rent extraction.

21 And, you know, I think that the other
22 unintended consequence has been that these rules have
23 driven so much trading off of exchange. Once again,
24 that has led to concentration and that has led to a
25 lack of -- a lack of competition for filling both off-

1 exchange orders as well as a degradation of the NBBO.
 2 And Rule 611 had a dual purpose. In short,
 3 order execution of the best possible price, and
 4 encourage displayed liquidity. But right now, we're
 5 sitting at over half of all trading off exchange.
 6 We're seeing much of displayed liquidity unprotected
 7 because of the odd lot issue. And while we're seeing
 8 incremental improvements in displayed liquidity over
 9 the past years in some of the most liquid names, this
 10 one-size-fits-all market isn't working for all of the
 11 less liquid stocks.

12 And finally, in terms of these unintended
 13 consequences, we've also seen a complete erosion of
 14 best execution. And I do think it's important.

15 I wanted to comment a 2018 XTX comment
 16 letter, that despite repeated statements in the
 17 Regulation NMS proposing and approving releases that
 18 OPR was not a substitute for best execution, it has
 19 effectively replaced best execution. I think that's
 20 another cost that is hard to quantify but is very
 21 problematic.

22 MR. PIWOWAR: Yeah, so on that, I want to go
 23 to best execution now. It's one of these ones that
 24 was not on my script but keeps coming up, so it's a
 25 marketplace of ideas, so we'll go with that.

1 So, Ari, I know you wanted to weigh in here.

2 MR. BURSTEIN: Yeah, I just wanted to say,
 3 look, I acknowledge the cost of connecting to a new
 4 venue and if IntelligentCross gets a protected quote,
 5 that will enter the argument. But I do think getting
 6 to best ex, you have to think about how do you counter
 7 the proclivities of folks not to take in, again, the
 8 experience that we're having now, an unprotected quote
 9 because they don't have to.

10 So I never thought I'd be agreeing with Dave
 11 Lauer all the time, but --

12 (Laughter.)

13 MR. BURSTEIN: But, yeah, you've got to take
 14 a look at best execution because you can't ignore it.
 15 It plays a factor in here.

16 I think on the minimum threshold, just one
 17 point. Again, if you want to fix a minimum threshold
 18 and tee it off of the revenue you're going to get,
 19 okay, I think that's something to look at. But if
 20 you're going to just say 1 percent, protected quote or
 21 not, or 2 percent, or whatever it is, I think that
 22 puts the Commission in a position of picking winners
 23 and losers more than they necessarily are now. So
 24 again, something to think about.

25 MR. PIWOWAR: Dave, since you are in

1 agreement with him, do you want a counterpoint here?

2 MR. LAUER: It's weird Ari and I agree.

3 No, I just -- I do think that best ex is
 4 sort of the elephant in the room, and we're going to
 5 hear a lot about how great it is and how everyone's
 6 got all these policies and procedures in place, and
 7 effective over quote is amazing and all of that. And
 8 I want to say that what we have seen in reality is it
 9 is not in force. There are not enforcement actions
 10 around best ex. There are a tiny handful. They are
 11 mostly tiny. Sometimes they are folded into other
 12 enforcement actions or it's all about whether you
 13 adequately disclosed certain things.

14 But the current best ex regime has resulted
 15 in something that is unenforceable, that has been
 16 likened to trying to nail Jello to a wall. And as a
 17 very simple and obvious example, FINRA has been very
 18 clear and explicit. The brokers cannot route orders,
 19 "in a manner that reduces price improvement
 20 opportunities that otherwise would be available to
 21 those customers absent payment for order flow."
 22 That's a quote from FINRA guidance.

23 And then the head of one of the largest
 24 market makers out there goes on national TV and he
 25 explains that, yes, in fact, Fidelity customers get

1 more price improvement than Robinhood, strictly

2 because of payment for order flow. And that is really
 3 a huge problem, when something so obvious and blatant
 4 is not being enforced.

5 And so, you know, I think that everyone
 6 here's like, yeah, duh, that's the way it works.
 7 Obviously, that's true. But it's not supposed to be.
 8 And retail investors are supposed to be getting the
 9 best possible price, not just a good enough price.

10 And so one concern is that, in the absence
 11 of order protection, the retail experience, which has
 12 been extremely positive, what you see in the NBBO and
 13 you know you're going to get it, or you know you're
 14 going to get something even better than that, could be
 15 improved through enforceable best ex standards, better
 16 best ex disclosures. And then I think you could
 17 consider whether order protection still has a role.

18 But, you know, any changes to reduce trade-
 19 through protections, such as a market share threshold,
 20 has to be accompanied by an enforceable standard of
 21 best ex or an order-by-order standard.

22 MR. PIWOWAR: Great. I know Maureen wants
 23 to jump in here, and then I know Jamie has a question
 24 right after that.

25 MS. O'HARA: Let me just give some numbers

1 that I think are kind of interesting. These are from
2 recent research papers that I've done with several
3 people.

4 One of the challenges that you do have is
5 for retail trader odd lot trades are extremely
6 important. Right? And they're huge now in the
7 market. But, you know, 60 percent of the time,
8 there's a better odd lot bid for Amazon, 54 percent of
9 the time for Google. Across all price groups, 26
10 percent of the time there's a better odd lot quote.
11 So when we talk about best execution, those aren't
12 protected.

13 One of the interesting things as you sort of
14 look at this, you say, well, odd lots are tiny, you
15 know, they don't matter. But they do matter. And
16 it's kind of interesting. If you look conditional on
17 a spread being at least one tick -- greater than one
18 tick. Right? If it's one tick, it's really hard to
19 get in there. But greater than one tick, 42 percent
20 of the time, there's a better odd lot quote. And if
21 you look at odd lot depth you may say, well, you know,
22 there's just not that many of those, but there are.
23 Right? What we found is odd lot depth is about 15
24 percent of the NBBO depth.

25 So as we look at this market, when you talk

1 executed trading volume. And it rises to 83 percent
2 for high-priced stocks. When you look at a Google,
3 roughly -- pick any given day -- you're going to find
4 maybe 10 percent of the executions are against
5 displayed liquidity on exchanges, just on exchanges,
6 not over here with Joe. Right?

7 But when we look at what's happening in the
8 market, there is an active, I would like to say,
9 hidden world out there now that is almost as big as
10 the displayed world in many stocks. That's not
11 protected. And it doesn't -- it's extremely important
12 to understand that. Because in some recent work we've
13 done, I've done with Robert Bartlett out at Stanford.
14 One of the things we found that was kind of fun,
15 conditional on finding the hidden liquidity in the
16 exchange, right, we found that the execution quality
17 of executions exceeded that of the non-exchanges,
18 except for the largest price group. And, you know,
19 that may seem surprising. But it's because if you
20 find the hidden liquidity on the exchange, you
21 actually are getting much better execution.
22 If you're just executing at the displayed
23 liquidity, the off-exchange guys beat you all the
24 time, by definition in part, because they have to beat
25 you. But it can be de minimis. Right? Whereas, if

1 about best execution, there's this gaping hole.
2 Right? That's on the retail side.

3 When you look on -- there's another large
4 quantity of non-displayed orders, the hidden orders,
5 right? And one of the things we haven't spoken about
6 enough is that I think the order protection rule led
7 to a dramatic increase in the complexity of orders
8 when you look at all the different order types the
9 exchanges offer. Right? The hide not slides and the
10 various other things. Why is that?

11 Well, in part, because as the exchanges
12 already pointed out, when you think about prices just
13 as the protected quote without bringing in all the
14 other costs of getting to it and, you know, the costs
15 of trading in terms of the rebates and whatever.
16 People don't want to necessarily, you know, slide to
17 the best price.

18 And there's a nice paper by Mao Ye looking
19 at a sample from I think it was 2016 that found that
20 more than 50 cent of the orders at NYCE now have some
21 sort of order protection to not go there. So that's a
22 problem.

23 Let me end up with one last thing on hidden
24 liquidity. Right? Hidden orders now, non-displayed
25 orders, right, provide about 39 percent of all

1 you can go out and get all of that hidden order flow
2 that you're not seeing, the best execution is
3 important.

4 So again, going back to what are we talking
5 about? We're talking about trade-through. I think
6 trade-through is not guaranteeing best execution. And
7 that's one of the things that they thought it would
8 do.

9 MR. PIWOWAR: Joe, I'm not sure if it was
10 you on TV or not, but there might be something on your
11 mind. I'd also --

12 MR. MECANE: It wasn't me. But there is
13 something on my mind.

14 MR. PIWOWAR: Also, as part of your
15 response, it would be good I think for the group to
16 hear how you think about your explicit cost in the
17 context of best execution, the notion that exchanges
18 could continue to rise, increase rates, without
19 impacting your routing decision. How do you think
20 about that --

21 MR. MECANE: I appreciate the question.
22 Yeah, I think -- there's a lot of things running
23 through my mind. I worry that we're also conflating a
24 lot of different things that are loosely related but
25 maybe not directly tied to the trade-through rule.

1 I'll say I couldn't disagree with Mr.
2 Lauer's characterization of best execution more. But
3 a couple of things that I'll put out there.

4 So one is, speaking for us, and I mean I
5 think speaking for a lot of other folks in the room, I
6 would say that the best execution standard that we
7 hold ourselves to and that the industry holds us to
8 and the regulators hold us to is extremely stringent
9 and extremely thorough. And I agree with Maureen, it
10 is not the trade-through rule. I think the trade-
11 through rule is one level of best execution. But the
12 standard that we are all held to and how we execute
13 client orders, and I think this is pervasive across
14 the retail space as well as the institutional space,
15 is very much dictated by where you're going to get the
16 best execution and not necessarily a protected quote.
17

18 So we connect to I think 40 non-protected
19 venues that we incorporate in the execution that we do
20 for clients.

21 I also think we're talking on kind of both
22 sides of the issue. On the one hand, some of the
23 comments I think are heading in the direction of
24 saying we should have more protection, we should have
25 protection for dark, we should have more protection

1 MR. PIWOWAR: Yep, so I know a bunch of
2 people want to jump in here. I know Pankil was sort
3 of first, Chris Solgan I saw next.

4 A couple things that have been put out on
5 the table, which is what I actually wanted to get to
6 is sort of differential effects. You know, Maureen
7 mentioned high-priced stocks versus low-priced stocks.
8 What about illiquid versus liquid? The Staff, you
9 know, showed their numbers, stocks versus ETFs. Is
10 there any differences there? Folks want to talk about
11 retail trading, institutional trading, the odd lots
12 issues. A lot of different issues that are put out
13 there.

14 Then we'll get to, after this discussion,
15 we'll get to options versus equities and stuff and
16 then some of the other things.

17 But I know, Pankil, you wanted to weigh in
18 here. Then we'll get Chris Solgan and then whoever
19 else wants to weigh in.

20 MR. PATEL: So I think one thing people need
21 to consider is that, you know, we're here talking
22 about 611, order protection. But, you know, for us
23 folks that run big, you know, algorithmic services
24 across the globe, you know, we don't -- we don't -- we
25 have to provide -- we have a fiduciary responsibility

1 for odd lots.

2 And then we're also saying, well, we don't
3 need the trade-through rule, or we don't need to
4 protect different venues. And I think those two
5 things are a little bit in opposition to each other.
6 And I think we do have quantitative measurements of
7 execution quality, which the SEC has been very
8 rigorous at enforcing and, as everyone knows, is in
9 the process of updating. And I think those
10 quantitative measures go a lot further than, you know,
11 qualitative comments around whether people are getting
12 good execution or not.

13 But I do think that there are certainly
14 standards that everyone adheres to in terms of making
15 sure that the execution that people get is best. I
16 think that incorporates non-displayed liquidity, it
17 includes odd lots, it includes a lot of things that
18 aren't maybe protected or aren't currently explicitly
19 displayed. I think that's why we have changes going
20 in to make odd lots on the tape and things like that,
21 just to make them more accessible and easier to
22 access. But the fact that those are not part of the
23 current arrangement doesn't mean that they're not
24 being incorporated when people execute.

25 Did I answer your question, Jamie? Sorry.

1 to provide best execution. And in a majority of our
2 markets, there is no order protection. Right?

3 We go ahead and we stitch that back
4 together. And, you know, in fact we -- in Europe, we
5 create the EBBO. Here, we have a synthetic NBBO. So
6 all of that is part and parcel, a part of the
7 foundation of best execution. But our clients, both
8 institutional and retail, in our minds, have never had
9 better best execution. You know, if you think about
10 the amount of data we collect today, the level of
11 analysis that we do, the trials that we run across all
12 of these venues, whether they are dark or lit, whether
13 they are protected or not, you know, it's pretty
14 extensive.

15 And we see, you know, for us in particular,
16 a lot of our flow actually is operating in an
17 unprotected world. Right? Seventy percent of the
18 trades are odd lots. Right? So if we look at the
19 reality of the situation, you know, when we go back
20 and see, you know, how odd lots have performed,
21 whether we're posting them -- for example, in our
22 retail business, about 80-plus percent of our posted
23 orders are actually odd lots, so they don't even
24 qualify for order protection. Yet they're very rarely
25 traded through. Similarly on the institutional side.

1 So I think -- I think, you know, for us as a
2 whole, irrespective of whether there's order
3 protection or not, you know, we are providing best
4 execution, that fiduciary responsibility. We are
5 making sure that whenever we see good prices, we're
6 taking advantage of them. But we're also factoring
7 in, especially on the institutional side, you know,
8 other characteristics. How big is the order? Right?
9 Is there an information -- is there a risk for
10 information loss if we execute on one venue versus the
11 other?

12 So all of these things come together and
13 really there's seven to eight levers that you leverage
14 as part of your best execution philosophy that, you
15 know, Rule 611 is really just one of those -- those
16 levers. And like I said, we don't have it in a lot of
17 our marketplaces.

18 MR. PIWOWAR: Great, so we'll go Chris, then
19 Katie, and then I know Julie wants to get in too.

20 MR. SOLGAN: I just wanted to go back to
21 costs. You know, we understand the costs. In the
22 aggregate, you know, the numbers sound, you know,
23 obscene. But when we look at it from the MIAX
24 perspective and from within our own exchange
25 ecosystem, when we launch a new market, we at times

1 couple things together here. One of them is what was
2 just being said by two of my members, that best ex is
3 not just about the best price and whether that's
4 protected or not. There's a lot that goes into it.
5 And it can be argued that best ex underpins the
6 investor experience. This isn't just a regulatory --
7 you don't just have to answer to FINRA that you're
8 meeting best ex. You have to answer to your customers
9 as a broker. And best ex is scrutinized quite heavily
10 by them. Best ex committees run very rigorous reviews
11 on them. They judge their execution quality and they
12 direct flow accordingly.

13 So it may not be black and white as some
14 would like in a FINRA rule. But from the customer
15 side, it's very clear to the brokers, you better get
16 me the best service that you can get me. And there's
17 review procedures in place, I want to add, not just
18 for the institutional but on the retail side, too.
19 They have best ex committees as well.

20 And if you bring this back to whether this
21 is 611 or there's more of it, again, everything is
22 interconnected. Let's take a hypothetical example on
23 the protected side of a volume threshold to qualify
24 for your protected quote. So some of these numbers
25 Dan ran through. Just real quick again, eight

1 waive market data fees and connectivity fees for a
2 period of time until that market's robust. And then
3 when ultimately -- when we do file fees for those, and
4 as we've had over the last number of years, we try to
5 cost justify those fees and show our costs in painful
6 detail to Commission staff, and to show the margin
7 that we make on those. And having the personal
8 experience of writing those filings, they are very
9 thorough, very detailed, and very painful to put
10 together.

11 But with that, you know, we'd like to think
12 that ultimately the cost and the fee that we charge to
13 access our markets, that market participants actually
14 feel value, outside of having to come to us if we're a
15 protected quote, in the experience, the technology,
16 the determinism, and that they actually find the fee
17 to connect to our market worth the money that they're
18 paying to connect to it.

19 But that being said, we, you know,
20 consider -- you know, we really think and have
21 sympathy for the amount of fees that we charge and we
22 try to make the most detailed disclosures about our
23 fees when we do file them with the Commission.

24 MR. PIWOWAR: Katie.

25 MS. KOLCHIN: Sure, I'm going to tie a

1 exchanges have less than a 1 percent market share,
2 which is just under 3 percent of total volume. Six of
3 those exchanges are under 0.5 percent market share,
4 which is just about 1 percent of total volume.

5 Now that sounds like a small number for
6 aggregate volume at that 0.5 percent threshold.
7 However, that's almost 38 percent of the exchanges by
8 count. So if you're a broker, that could be a very
9 difficult conversation for you to go to your customers
10 and say, I didn't seek out prices and best ex for you
11 on 38 percent of the exchanges available. That's a
12 tough conversation and that's not one they want to
13 have.

14 MR. PIWOWAR: Julie.

15 MS. ANDRESS: I would kind of reiterate what
16 Katie was saying in terms of the best ex and how the
17 customer side, we're looking at many different things,
18 and the technology has changed in 20 years for what
19 customers are looking at and how they're evaluating
20 their brokers. And I think, generally, if you're not
21 providing best execution, you're not going to be
22 around much longer. So there's just way too many TSA
23 reports or TCA reports and reports that are ongoing to
24 keep brokers honest, basically.

25 And I also want to point out that we're

1 speaking a lot, or the reason some of these rules came
2 about was focused on the retail. But when we're
3 talking about best execution and we're talking about
4 institutional orders, again, it's not just the pricing
5 of best ex, it's -- sometimes when you have to sweep
6 the book or do the ISO orders as well, that's creating
7 slippage and not necessarily providing the best
8 execution for institutional orders as well. So it's
9 looking at where's liquidity and are we reaching that.

10 And while I have it, I just want to say to
11 Maureen that a lot of our members, I had a lot of
12 conversations around the cost of compliance. There is
13 no data but maybe we can talk on specifically the
14 costs there. But there's a lot of pain points, even
15 though some of the numbers said that threshold --
16 breakthrough thresholds were low. A lot of the back
17 office people that are dealing and the manpower hours
18 that are going into dealing with trade-through issues,
19 matching up with also FINRA, too, has become quite a
20 pain point, too.

21 MR. PIWOWAR: Before we move on, yeah,
22 Chris, did you want to weigh in?

23 MR. ISAACSON: If I could just real quick on
24 best ex, you know, I would agree with many of the
25 panelists. Probably not my esteemed panelist David

1 ought to look at why is that part of the market
2 growing, versus the part that we're focusing on
3 because of Rule 611 and potentially the costs
4 associated with that.

5 I think there's a lot to celebrate in this
6 overall market. But I think maybe we could shift our
7 focus a bit there.

8 MR. PIWOWAR: Yeah. Before we move on to
9 options and stuff, so Peter, did you want to weigh in
10 on ETFs? I know you have a particular emphasis on
11 that.

12 MR. HAYNES: Where I wanted to talk about
13 was -- or I thought was of value was to provide a
14 little bit of background on the threshold rule that we
15 do have in Canada.

16 MR. PIWOWAR: Yeah, we'll get to that on the
17 next one. But I just wanted to see if you wanted to
18 weigh in on ETFs first?

19 MR. HAYNES: Nope.

20 MR. PIWOWAR: All right, good. Dave, and
21 then we'll move on.

22 MR. LAUER: Yeah, just real quick, just to
23 clarify what I was talking about, you know, and what
24 Pankil was talking about, my experience working with
25 institutional investors doing quantitative analysis of

1 Lauer. But the best ex that -- I think by and large,
2 people are having -- using stringent best ex, and then
3 they're going to the place where they can get the best
4 execution for their customer, however they define
5 that, using a whole bunch of different criteria, as
6 Pankil said. And OPR or the protected quote is just
7 one of many, many things they consider.

8 Also, you know, think back. Katie had some
9 great stats. 2004, 10 percent off exchange. Today,
10 we're well over 50 percent most days. We're talking a
11 lot about small exchanges, eight exchanges that have
12 less than 1 percent that might have a protected quote.

13 It's a shrinking part of the market. We're not
14 talking very much about the part of the market that's
15 growing the most. It's off exchange. And I think
16 that actually says that people are seeking best
17 execution.

18 I obviously run exchanges, and we look at
19 them. And we have OPR that helps us, supposedly. But
20 it's not helping us to grow that part of the market.

21 The part of the market that's growing is off exchange.

22 And evidently, people are going there for a whole
23 host of reasons. But I think some of them are likely
24 because, frankly, you can do things off exchange in a
25 competitive way you can't do on exchange. I think we

1 broker order routing algorithms. It's a different
2 world for best ex and it's not what I'm referring to.
3 I think institutional investors, the most
4 sophisticated ones especially, do an excellent job.
5 I'm really speaking specifically to the retail
6 experience.

7 And when we talked about how much trading is
8 migrating off exchange, there are certainly a host of
9 reasons. But the primary one is payment for order
10 flow. And the fee-sensitive routing is still an issue
11 in markets. And you still see executions taking place
12 on markets that don't provide the best execution
13 quality because the ones that do are charging a
14 slightly different set of fees.

15 MR. SELWAY: So before we leave best
16 execution for options, I just have to say, you know,
17 sort of the institutional investment experience is
18 profoundly retail, because retail owns mutual funds.
19 So think through all those tricky institutional best
20 ex questions in the context of this discussion,
21 please.

22 MR. PIWOWAR: All right, thanks.

23 So now we'll move on to options and we'll
24 get the Chrises involved here. Chris Isaacson, why
25 don't you go first here?

1 You know, as I think Dan mentioned, or the
2 Staff mentioned -- oh, it was Jesse, actually --
3 option markets operate under a different plan, the
4 options plan, which is sort of their version of 611
5 for equities. Love to get your guys' perspective on
6 that.

7 MR. ISAACSON: Yeah, as I said in my opening
8 remarks, we believe options -- the options market
9 structure is fundamentally different. Many of you all
10 know this. This room is full of extremely smart
11 people. But obviously, there is no off-exchange
12 trading in options. Every order has to be exposed for
13 competition of some sort. It's quote driven versus
14 order driven. You do have a whole series of different
15 auction types, where orders are being exposed. Even
16 if you look at the trade-through exemptions that were
17 shown by Jesse before, like half of those trade-
18 through exemptions are because of multi-leg. So
19 complex orders make up a large, large portion of the
20 options market, given complex order strategies that
21 are in options.

22 So as you saw the growth especially since
23 zero commissions have come into vogue, we think the
24 options market is incredibly, incredibly strong and
25 resilient, as has been shown through especially the

1 past few years. So we don't see a whole lot of need
2 for change here.

3 A couple other statistics. There are nearly
4 2 million strikes in U.S. options today, so 2
5 million -- almost 2 million different order books, 1.8
6 to be exact -- versus a few thousand corporate
7 listings or ETPs in equities. You think from a
8 messaging perspective, all of you see this in your
9 systems. It's about a 50x messaging problem as well.
10 It's completely different than any market we see
11 around the world. We operate all over the world.
12 U.S. options is incredibly unique because of its
13 quote-driven nature and these attributes.

14 So also education is a huge part of the
15 market. It's important in equities but even more so
16 in options. And Cboe has been dedicated to education
17 for 40-plus years with the Options Institute. And
18 part of the growth that you saw in the chart there
19 from the Staff was, obviously, people stayed home for
20 COVID. They started to learn how to use options, and
21 many retail brokers and others have educated them.
22 And we see incredible retail growth and durable use of
23 options that is unabated and healthy.

24 And another statistic you might -- some
25 people have been concerned about what our retail

1 customers using options in unsafe ways. Not a hundred
2 percent of the time, but I would say 90 to 95 percent
3 of the time, what we see from retail brokerage
4 platforms is that people are coming in with cap risk,
5 either just paying their premium, or they have some
6 complex strategy where they're risking \$2,000 to
7 \$4,000 on average.

8 So it's incredibly -- we think an incredibly
9 healthy ecosystem within U.S. options. And we don't
10 see that many trade-throughs. And the trade-throughs
11 that we do see are usually under exemptions that make
12 a ton of sense to us.

13 So in this case, do no harm within the
14 options market. We think the equities market probably
15 is in need of more of a review. But they should be
16 reviewed separately.

17 MR. PIWOWAR: Chris Solgan, do you agree
18 with him?

19 MR. SOLGAN: Yes. Yeah, the trade-through
20 rule was already a major part of equities in the
21 options ecosystem when MIAX first launched in December
22 of 2012. That gave us the opportunity from day one to
23 build and operate our technology to ensure order book
24 processing was highly efficient and deterministic for
25 a trade-through world.

1 Our experience with trade-through
2 prohibitions in equities versus options markets have
3 been different. Primarily because those markets are
4 fundamentally different, and we agree with Cboe on
5 that. And we again urge that they be considered
6 separately.

7 For options, we believe there's less of a
8 need for change. From our perspective, the options
9 markets provide a vibrant, healthy, and competitive
10 trading ecosystem fueled by technology and innovation.
11 At MIAX, we work hard to provide a resilient and
12 deterministic options trading environment and
13 continuously work to improve the growth of the U.S.
14 options market.

15 Options further differentiate itself from
16 equities in other ways, right? There are only
17 displayed orders in options. There is no over-the-
18 counter trading, which ensures the value of the
19 options markets NBBO. And because of this, it's self-
20 policing. Right? Who wants to trade at a worse
21 price?

22 And also with options, in addition to
23 providing mechanics for order protection like ISO
24 routing, ISOs and routing, features such as improved
25 allocation carveouts, more widespread use of on-

1 exchange auctions, and the healthy trading floor
2 environment means that substantially all orders, and I
3 agree with Cboe in this, that enter the options market
4 are subject to a competitive process. So we think
5 there's little to no need for change on the options
6 side. On the equities side, we feel differently, but
7 we'll pause there.

8 MR. PIWOWAR: Yeah. So, Joe, I'd love to
9 get your perspective on this. Right? So they both
10 agree that equities are different than options. Chris
11 Solgan said less of a need for change. Chris Isaacson
12 said no need for changes in options market. Where do
13 you fall on this?

14 MR. MECANE: I would say, so we're the
15 largest U.S. market maker in equities and options.
16 We're the largest internalizer of retail flow, so we
17 have a lot of experience in both products, and as a
18 market maker as well as handling client flow.

19 I would say there's nothing that strikes us
20 with respect to the trade-through rule that is
21 fundamentally different between options and equities.
22 I think we would agree if we were going to look at
23 either market in more detail, it's a much bigger
24 question than I think just the trade-through rule that
25 we would want to look at. But I don't think you can

1 argue from our standpoint that the trade-through rule
2 is more or less relevant or impactful in equities
3 versus options. So I think we stand by a lot of the
4 fundamental views of taking it out doesn't necessarily
5 yield any improvement.

6 The numbers I quoted earlier of the smaller
7 venues, about 200 million of the 375 million that I
8 quoted is from the smaller options market. So, you
9 know, I think you have a similar kind of dynamic that
10 plays out in both regards.

11 I'd also say that, you know, you can't argue
12 with the investor experience in both markets. Retail
13 participation in equities and options is extremely
14 strong and robust. You can't argue with the facts
15 that investors, retail investors, have an unbelievably
16 good experience in both markets. They trade
17 differently. They have similar if not even greater
18 levels of complexity in options, if you look at, you
19 know, some of the things -- some of the dynamics
20 between on and off-exchange in equities, I think are
21 probably more complex in terms of how the auction
22 mechanisms operate and how the markets operate in that
23 fashion. People could argue whether one is better or
24 worse. But the end result is retail investors have an
25 unbelievable experience in both markets. So we

1 wouldn't see any significant contrast to be drawn out
2 of the gate.

3 I can understand exchanges, having been in
4 that seat, looking at the amount that trades off
5 exchange in equities and the amount that trades on
6 exchange in options, and looking at the fees in
7 equities and the fees in options, saying leave options
8 alone, we shouldn't change equities. But I think it's
9 a much more complex question around it.

10 MR. PIWOWAR: Chris?

11 MR. ISAACSON: Can I ask Joe a question? Of
12 the 200 million you said that were related to options
13 costs, how much of that was ORF?

14 MR. MECANE: I don't know that off the top
15 of my head. We can add that to the comment letter
16 we're going to put in. But my guess, don't hold me to
17 this, is it's probably around half.

18 MR. ISAACSON: Yeah, I think we've been on
19 the record or will be on the record soon. We're for
20 ORF reform. There are certain subsidies. In
21 equities, it has to do with, you know, the tape plans
22 and people talked about SIP allocation, quote versus
23 trade. And we would favor some review of that to make
24 sure there's not quote harvesting in equities. But in
25 options, unfortunately, it's -- it's an arcane way in

1 which ORF fees are collected by entrants into the
2 space that we think is definitely in need of reform.

3 MR. SELWAY: Guys, the ORF panel is -- ORF
4 roundtable is in 2027, so --
5 (Laughter.)

6 MR. ISAACSON: I had to get it in there,
7 Jamie.

8 MR. SELWAY: I think Pankil has got
9 something on his mind.

10 MR. PATEL: No, I was -- we got to ORF,
11 which was, I think, you know, the main driver.

12 You know, I do look at the options space.
13 When you think about quote-driven market, all the
14 strikes, you know, yes, retail is having a great
15 experience but why do we need so many? Right?
16 There's just not enough differentiation. And I think,
17 you know, the cost on this one is massive. Right?
18 Because as was mentioned, the quotes that get
19 disseminated from all these platforms, you know, it's
20 just another thing that brokers have to account for in
21 their smart order routers.

22 Look at CAT. Ninety-eight percent of all
23 CAT messages, I think were options related, right, and
24 have blown out the cost of CAT.

25 So we just have to think about these things

1 collectively. You know, I do agree that I think the
2 protection in this space is not the issue, you know.
3 But again, there is a significant undue cost and
4 complexity that is introduced by having this many
5 options exchanges.

6 MR. PIWOWAR: Anybody else want to weigh in
7 on options before we move to Peter to talk about
8 Canada and we'll talk about other markets?

9 All right. So Peter, you want to talk about
10 Canada? I think, you know, it's a really important
11 thing for us to discuss. What about other markets
12 that either have different trade-through protections
13 or no trade-through protections at all? Because we
14 don't -- we can't directly look at a counter-factual
15 history. What if we had not put the order protection
16 rule in? But what we can do is look at other markets
17 and get experience from them that have either slightly
18 different rules or no rules at all.

19 So, Peter, why don't you start us off here?
20 And I know a lot of folks want to weigh in on this
21 one.

22 MR. HAYNES: Yeah, just a quick history. In
23 Canada, we don't have a SIP, as I mentioned earlier.
24 So when we had one marketplace back in 2006, the TMX,
25 they were charging data fees to the Street of a

1 certain amount. And each new market, when competitive
2 markets were onboarded, was able to charge data from
3 day one. We were forced to connect to them because we
4 had the notion of a trade-through rule. So we were
5 forced to connect to those marketplaces early on,
6 right away, and they were able to charge for market
7 data.

8 So what we were finding in Canada was a
9 proliferation of markets that took place from the
10 period of 2007 through to 2012. These markets were
11 nondifferentiated and were able to charge for market
12 data. And as was talked about earlier, the
13 connectivity costs up front were very material to the
14 brokerage community.

15 So in around 2012, the regulators began to
16 look at putting rules in place that would eliminate or
17 at least create some sort of threshold required for
18 marketplaces to have orders protected. And in 2016,
19 they introduced a rule that said -- and it was
20 originally proposed at 5 percent but was lowered to
21 two and a half -- that any market that had some form
22 of a speed bump or a delay or had less than 2.5
23 percent market share was no longer protected. That
24 happened to be coincident with the last new
25 marketplace we saw launched, until one that's going to

1 be launched later this year. So it literally has been
2 10 years.

3 I don't want people to think that the reason
4 there have been no new markets is because of that
5 rule. I would argue it was more coincidental than
6 anything else. And as I mentioned earlier, it was
7 more driven by the industry's need to stop the
8 parabolic increase in realtime market data fees.
9 Because these new marketplaces had no rules with
10 respect to how they charged for data from day one.

11 So in coincidence with the threshold rule,
12 the regulators also created a rule that said the
13 percentage of fees associated with realtime market
14 data needed to be somewhat linked to your market
15 share. And that allowed the market to at least slow
16 down the increase in market data costs.

17 So arguably, to the point we've heard
18 earlier about whether or not a threshold rule would
19 lower costs on an ongoing basis, I don't think anyone
20 disconnected from any of the venues that were less
21 than two and a half percent. Once you've dealt with
22 those up-front costs, plus the combination of best ex
23 requirements, essentially you've onboarded and
24 absorbed most of the cost. So I don't anticipate that
25 you would see a significant number of people

1 disconnecting to those additional marketplaces,
2 especially if they're affiliated with exchanges you're
3 already connected to. Quite possibly, that reduces
4 costs with respect to gateways and the like. The
5 brand new marketplaces are the ones that require the
6 significant up-front costs, like 24. If you want to
7 connect to them, you're going to need to create your
8 own -- or pay for all the associated costs of
9 connecting.

10 So again, I think the message there is that
11 the threshold rule, yes, it did slow down or eliminate
12 the proliferation of marketplaces in Canada, which I
13 know is a goal a lot of people have with respect to
14 611. But it was again more due to market data issues
15 that the U.S. doesn't face directly that we were
16 facing in Canada.

17 MR. PIWOWAR: Does anybody else want to
18 weigh in on Canada or other venues?

19 MR. ISAACSON: I think it's instructive but
20 probably, you know, not to be lifted from Canada to
21 the U.S. I mean, Canada, all due respect to Peter, as
22 he said Canada is much smaller. We obviously operate
23 in many venues in Canada through our acquisitions over
24 the last few years. I think it's also important to
25 note, I mean, the effective trade-at rule there is a

1 quite a bit different market structure than in the
2 U.S. And we can discuss whether or not threshold
3 makes sense. But we have not seen, even though we
4 have one venue because of a delay that's not protected
5 there, we have not seen disconnects dramatically
6 because of that. So that's been our lived experience
7 as well.

8 MR. HAYNES: I'm not suggesting the -- in
9 terms of the trade-at rule, if you look at dark
10 trading in Canada, it's only 5 or 10 percent of the
11 market. So I know there have been a lot of comments
12 here about the proliferation of dark trading.
13 Certainly, the trade-at rule that exists in Canada is
14 the primary reason why we have a very low percentage
15 of trade that happens in the dark or off exchange.
16 That is absolutely the case. Whether that's good or
17 bad, you can debate. But that is definitely true.

18 MR. ISAACSON: I guess maybe while I have
19 the mic, I will mention obviously we operate the
20 largest pan-European exchange, both in the U.K. and
21 Europe, where we have a broad range of competitive
22 leeway there, so we compete for a whole bunch of
23 different trading mechanisms, on exchange, off
24 exchange, exchange trade reporting, a list of off-
25 exchange services there. There is, obviously, no Rule

1 positives and negatives of some of the rules that we
2 have in place here are very difficult. But I think
3 pointing to one other market that has figured things
4 out which we agree with, but then saying that's
5 evidence that we should make the U.S. market look more
6 like that to me is a problematic thought process.

7 The other thing I would say is -- we didn't
8 talk about this directly, but just back to the opening
9 presentation -- I would also be very cautious about
10 drawing conclusions about pre/post trading and regular
11 day trading when 611 is in place versus pre/post when
12 it's not. Because I would argue that at least for us,
13 but I think for a lot of participants, everyone
14 operates as if 611 was in effect during those periods
15 of time. And so I would just say if you don't see
16 incidences of trade-throughs in those sessions, I
17 don't think it's accidental, I think it's somewhat
18 intentional. So I would just keep that as a backdrop.

19 MR. PIWOWAR: All right, Chris Solgan.

20 MR. SOLGAN: Yeah, so having an equity
21 exchange that is small and could be impacted by any
22 potential volume thresholds, we kind of did some
23 research and have some thoughts on this. Right?

24 So, you know, what do you calculate? Right?
25 Do you just look at only on-exchange market share

1 611, there is no order protection and best ex. There
2 is best ex policies there. Some would say more
3 stringent, some would say less than here.

4 The market has figured it out there and so
5 have we as a competitive exchange. So we could live
6 without OPR. But, as I said in my opening statement,
7 I don't think that getting rid of it without looking
8 at everything else, given the U.S. size and structure,
9 is wise. But in Europe, we've seen quite a bit of
10 growth, given the ability for us to compete across the
11 full spectrum of trading mechanisms.

12 MR. PIWOWAR: Thanks. Joe, Citadel
13 obviously operates in a number of different markets.
14 What sort of insights can we glean?

15 MR. MECANE: I would just make two
16 observations. One, we are quite active in Europe,
17 including on Chris's venue. I would just be cautious
18 about drawing too many conclusions about the U.S.
19 versus Europe. When you look at the amount of volume,
20 retail participation, the cost structure in Europe,
21 and there's clearly, you know, some good companies and
22 some good markets, but it pales in comparison to what
23 we have in the U.S.

24 And again, back to my earlier points,
25 figuring out the contributing factors and the

1 versus total market share, including the TRF? Should
2 we also exclude opening and closing auctions from
3 volume, which is not protected today in -- cap
4 calculations? So it doesn't seem fair to hold an
5 exchange liable for volume and markets in which they
6 can't compete, such as over the counter or in the
7 auction space.

8 Also, a non-protected exchange may have more
9 volume in certain names than a protected venue. And
10 how do you reconcile not protecting one over the other
11 in that name? So importantly, the trading volume
12 threshold could be viewed as arbitrary.

13 And then looking at data on MIAX Pearl, if
14 our volume actually doubles when you exclude TRF data,
15 we could also be higher if you exclude opening and
16 closing auctions that are not protected. And actually
17 in Tape B at times, we could be over 4 percent.

18 There's also volume in select symbols and
19 tapes that exceeds exchanges with overall higher
20 trading volumes. And we're also at the NBBO at a
21 higher percentage in certain symbols than other
22 exchanges with higher market share than under a
23 threshold would be deemed protected. So why should
24 those exchanges be protected when they have lower
25 volume in select names, or are providing poorer

1 execution quality and depth in those names than we
2 are? So we find that hard to reconcile, and we would
3 challenge anyone to reconcile it by trading threshold
4 with some of those aspects.

5 MR. PIWOWAR: Katie, did you want to weigh
6 in here?

7 MS. KOLCHIN: I mean, I think what I would
8 just reiterate for both Canada and Europe and all the
9 other regions in general is that, yes, the markets are
10 extremely different. I wouldn't just say very
11 different. I would say the U.S. market is extremely
12 different from everything, from the quality of the
13 listed companies that are out there to trade to the
14 volumes to the diversity of market participants.

15 I would also concur, from what I hear from
16 my members, with Peter that no one disconnected in
17 Canada just because they were below that volume
18 threshold. And then in Europe, they do use a best ex
19 regime. They actually, from a more of a -- to put
20 more of a regulatory spin on it for Dave, they
21 actually are looking at what we all look at on a
22 customer perspective, let's call it. It's price
23 that's quoted, plus the external costs. So these are
24 the venue fees, clearing and settlement fees.
25 Everyone knows Europe has a lot more CSDs than we do

1 over here with our one. So those costs are higher
2 over there. Speed of execution, likelihood of percent
3 of order getting executed, size, nature, et cetera.

4 They are reviewed on those by their national
5 regulators. But I would point out that a few years
6 ago both the U.K. and the E.U. got rid of the formal
7 published reviews of those best ex, because they just
8 found that they were not used by investors and they
9 were very costly and difficult to produce and just the
10 cost-benefit analysis was not there.

11 MR. PIWOWAR: So I know Peter wants to weigh
12 in again. And then Ari, you want to say a few words?

13 MR. HAYNES: Just a quick comment that we
14 heard from MIAX. I caution the Commission, if we are
15 looking at a threshold rule, to avoid the complexity
16 arguments that we just heard. If we get into
17 individual stock market shares, it's just going to
18 blow everything up in terms of complexity here. So I
19 do think we have to be very, very careful.

20 The threshold rule is at the marketplace
21 level in Canada. And I'm not saying Canada -- by any
22 means should Canada be a guidepost for how you would
23 structure a threshold rule in the U.S. But the flip
24 side of that is if we get down to looking at market
25 shares on individual stocks or trying to take away

1 certain parts of the market from that calculation, I
2 think it will be a rabbit hole you don't want to go
3 down.

4 MR. PIWOWAR: Chris.

5 MR. SOLGAN: Yeah, just quickly, we weren't
6 advocating a per share or a symbol range threshold
7 calculation. We were just trying to show what some of
8 the issues could be in trying to set a threshold to be
9 protected or not.

10 MR. PIWOWAR: Thanks. Ari?

11 MR. BURSTEIN: Yeah, I guess just to
12 reiterate what some of the other panelists said, if
13 and when, hopefully, we have a protected quote, I
14 mean, is it 2.1 percent? Is it overall market volume?
15 How do you define it? You know, the devil is in the
16 details, bottom line. But, you know, hopefully
17 allowing for innovation and the next IntelligentCross
18 to come at least having an incubator to get up to that
19 1 percent, half percent, 2 percent threshold would be
20 great. So it's going to need a lot of thought.

21 The only other thing I would say, before we
22 run out of time, I feel like maybe I need to clarify
23 my support for Dave Lauer, given the rest of the panel
24 on best ex. But, you know, now I feel like hesitant
25 or --

1 (Laughter.)

2 MR. LAUER: I'm used to it.

3 MR. BURSTEIN: So just to clarify on best
4 ex, one last point. You know, look, again, we've
5 gotten to where we are as a venue because people are
6 not just looking at price, they're looking at other
7 factors in going to IntelligentCross. What I was I
8 guess trying to say back at the beginning of this
9 panel is people are just not taking in our quote, and
10 we hear that is because of either we're not
11 protected -- so if people want to take in our quote,
12 great, we'll sign everybody up tomorrow, and then they
13 can decide whether to act on that or not. But the
14 point is, we're just not seeing people take in the
15 quote. And we've heard part of it is best ex.

16 MR. PIWOWAR: Dave, and then Joe --

17 MR. LAUER: I think that one thing to
18 consider as well in Canada is that Canada is a good
19 example of a market in which listings saw innovation
20 and saw disruption. And that has not happened in the
21 U.S. for quite some time. And any consideration of
22 something like a market share threshold, I don't know
23 if there's a great way to do it, but if you do
24 something like that and you don't consider potential
25 innovation in listings, you've pretty much entrenched

1 the listings duopoly here in the U.S. And that is an
2 area where there is -- and I'm an adviser to the Green
3 Impact Exchange. That's a new exchange that is about
4 to launch. And they are innovating in listings. And
5 I think that that is something that we should want to
6 see.

7 As I talked about earlier, here we've seen
8 fragmentation without innovation, and it has all been
9 about copycat exchanges and latency rather than
10 innovation in listings, where one exchange did try to
11 do it. And, you know, I think that's something that
12 we should encourage. And so we should be looking for
13 ways to encourage innovation in parts of the market
14 that haven't seen it and be more thoughtful about how
15 we make exchange approvals before we continuously
16 approve copycat exchanges.

17 MR. PIWOWAR: Joe.

18 MR. MECANE: Just one quick clarification
19 and agreeing with Ari on part of his point. We may
20 not agree on the style of quote that needs to get
21 protected but I wanted to be clear that our suggestion
22 on a minimum market share threshold was for economic
23 benefits, not for protected quote benefits. So we do
24 think that having a threshold that introduces whether
25 we have a protected quote or not can be potentially

1 confusing to the marketplace and difficult to
2 administer. That was why we were intentionally
3 suggesting that the market share threshold could be
4 used to control the economic incentive to conduct
5 another medallion versus whether you have a protected
6 quote or not.

7 MR. PIWOWAR: Chris? Do you want to weigh
8 in here, Chris?

9 MR. SOLGAN: No, not right now. Thank you.

10 MR. PIWOWAR: We're almost done, so I am
11 going to ask folks for one last word. Go ahead.

12 MR. SOLGAN: Sure. I mean, a lot of the
13 focus has been on exchange proliferation and copycat
14 exchanges. And it's not that exchanges don't want to
15 innovate. We do. But we are subject to Exchange Act
16 standards when we file rule filings to adopt new
17 technology or new functionality. That has to go
18 through a Commission review process. And though not
19 directly commenting on Jamie and his staff, but past
20 Staff have made it difficult for exchanges to push
21 through things that are different. Everything has to
22 be apples to apples. And the easiest way to market is
23 to copy someone that's already doing it, that the SEC
24 has already approved.

25 So it's not that we don't want to innovate.

1 We are just a little hamstrung in innovating as
2 compared to the over-the-counter market, which is able
3 to innovate in a much more free form than exchanges
4 are. And we would welcome the opportunity to innovate
5 and to add more functionality to our markets, should
6 the SEC allow. Thank you.

7 MR. SELWAY: Chris, it's a brand new day at
8 the SEC.

9 MR. SOLGAN: Your mouth to God's ears.

10 MR. PIWOWAR: A renaissance. Yeah.

11 So we're going to close in just a minute
12 here. I ask the panelists if there is anything that
13 we did not get out on the table they want to. Not to
14 reiterate stuff we've already talked about, but is
15 there any issue that we haven't teed up that we want
16 to get in the transcript for feedback for the
17 Commission or to tee up for the next panels?

18 Joe.

19 MR. MECANE: I'll just say very quickly -- I
20 think this sort of came out, but it might be worth
21 just spelling out. I think the one thing that came
22 through very clearly in everyone's comments, whether
23 explicit or not, is just the myriad of rules that have
24 some tie-in with 611. Right?

25 MR. PIWOWAR: The octopus.

1 MR. MECANE: The octopus. And just to be,
2 as an industry and as the SEC, be thoughtful about how
3 all of those fit together. And if we change 611, all
4 the other rules that are going to have to be addressed
5 alongside that.

6 MR. SELWAY: Yeah. I mean, in your closing
7 remarks, I'd ask each of you to throw those out there.
8 Let's be explicit about the rules that we should
9 review.

10 MR. MECANE: I've got a list.
11 (Laughter.)

12 MR. MECANE: Lot cross, access fees, best
13 ex, market data, quoting increments, 605, how the SIP
14 operates, Reg SHO, what the NBBO calculation is, the
15 exchange balance of benefits and obligations as a
16 starting point.

17 MR. SELWAY: I bet you checked that twice.
18 (Laughter.)

19 MR. PIWOWAR: Did Joe miss any, before we
20 close out?

21 MR. LAUER: I agree with Joe's list. I'd
22 probably fall on a different side of each of those
23 issues.

24 I did want to put two things out there. The
25 first is if we're trying to reduce cost with exchange

1 connectivity and market data, the answer is a cost
2 plus model, which is something IEX has been advocating
3 for. And where they have, in their filings, they're
4 explicit delineated costs, and then the margins that
5 they are putting on top of that. It's something that
6 Europe has tried to move to with, you know, somewhat
7 not as much success. Something that I've also been
8 pushing for in Canada, as Canada revisits its market
9 data cost regime.

10 So I think that would do the most to reduce
11 cost and complexity. Not necessarily much complexity,
12 but at least cost.

13 And just to get it on the record, I just
14 wanted to quote Ken Griffin that internalization is
15 one of the greatest threats to price discovery in
16 financial markets. I think it's important that I get
17 that quote on the record at all possible
18 opportunities. Thank you.

19 MR. PIWOWAR: Joe, do you want to respond?
20 I know Maureen wants to get in here, but you got
21 called.

22 MR. MECANE: I think Dave needs to stop
23 taking out of context 20-year-old things and re quoting
24 it. But I'll leave it there.

25 MR. PIWOWAR: All right, Maureen.

1 being the first panel is we just tee up all the issues
2 and the second two have to solve everything, and the
3 Commission has to do that.

4 A fantastic job, fantastic discussion. Got
5 a lot of stuff into the roundtable transcript for the
6 Staff to think about and for the next panels to think
7 about.

8 I really want to thank Jamie Selway and his
9 entire team for inviting me here to participate in
10 this, in particular Ted Venuti.

11 I also want to thank Chairman Atkins and the
12 Commission for convening this roundtable. When the
13 Commission acts best, it really seeks out the public
14 comment from folks, and the experts today have really
15 given a lot to think about.

16 So now I turn it over to Jamie for some
17 housekeeping announcements.

18 MR. SELWAY: Thank you, panelists. It was
19 wonderful. A wonderful job. Thank you, Mike, great
20 moderation. Thank you, Vlad, for the coffee. I
21 needed that.

22 We are going to take a break for lunch.
23 We'll see you back at 12:45. Thank you.

24 (Whereupon, at 11:35 a.m., a luncheon recess
25 was taken.)

1 MS. O'HARA: I was just going to say, if you
2 want to add in a few more things, just because I know
3 you guys don't have enough to do, as you think about
4 the challenges we talked about, if you do take away,
5 you know, the trade-through protections, then
6 obviously the big concern is best ex. And so again
7 here, you come into things like what is on the SIPs,
8 right? Which I think is really important. I know
9 you're looking at that. But I think if you're going
10 to be able to figure out how well you did, you really
11 do know more -- you need more information.

12 And another area that is very tangential but
13 becoming more and more important, as the retail
14 brokers allow for order executions or order placements
15 in dollars as opposed to shares, then fractional
16 shares would become huge. And they don't fit anywhere
17 right now.

18 Now, I am certainly not arguing that we want
19 to protect fractional shares, per se. But, you know,
20 I do think rather than look at where we are now, we
21 want to look at where we're going to be in five years
22 as you make these decisions. And that change in
23 retail, I think, is huge.

24 MR. PIWOWAR: All right, thanks.

25 Thanks, everyone. The great thing about

1 AFTERNOON SESSION

2 MR. SELWAY: Welcome back, everybody.
3 Welcome to the Afternoon Session.

4 Our second panel of the day will be
5 monitored by Andre Owens. Andrew is an alumni and
6 friend of the agency. He is currently a partner at
7 WilmerHale. He chairs the Broker-Dealer Compliance
8 and Regulation Practice and co-chairs the Security
9 Financial Regulation Practice.

10 So we will do the second panel, be joined by
11 the Chairman around 2:00-ish. And then the third
12 panel will close us out.

13 So, Andre, take it away.

14 PANEL TWO: A TRADE-THROUGH PROHIBITION'S ROLE IN
15 TODAY'S MARKET

16 MR. OWENS: Thank you, Jamie. Good
17 afternoon everyone.

18 As Jamie said, I'm a partner at WilmerHale.
19 I wanted to thank the Commission and the Staff for
20 putting this roundtable together. The first
21 roundtable panel was fantastic. It's been 20 years
22 since the adoption of the rule. And I think the one
23 thing that everyone would agree on is that's long
24 enough to revisit an important rule like Rule 611.

25 So our panel is going to focus on the role

1 of the trade-through prohibition in today's market
2 structure. We're going to touch on a variety of the
3 issues. A number of them are going to be similar to
4 the topics that were discussed this morning. We're
5 going to talk about the objectives of the rule,
6 whether or not they're being met today. We're going
7 to talk about the intersection of trade-through
8 prohibitions and the duty of best execution, of
9 course, and then some ancillary rules, locked and
10 cross-markets rule, sub-penny rules, and things like
11 that.

12 We've got a fantastic panel today. They
13 represent a number of different organizations ranging
14 from exchanges to institutional firms, retail firms,
15 execution-only broker-dealers, global market makers.
16 We've got an esteemed academician you'll hear from in
17 a little bit. And we've got a nonprofit firm that
18 focuses on education of investors and reform of the
19 market. So a really great group.

20 And I'm going to ask each of the panelists
21 to just take a couple of minutes and introduce
22 yourself. And we'll start with Jim Angel from
23 Georgetown.

24 MR. ANGEL: Why thank you. And I want to
25 thank the Commission for holding these roundtables,

1 and thank all my fellow panelists, and thank all of
2 the audience as well. My name is Jim Angel. I am a
3 finance professor at Georgetown. And I would like to
4 say a few words about the OPR.

5 In the first panel, we had the image of the
6 market structure octopus, how all these things are
7 interconnected. The order protection rule was really
8 scaffolding on the national market system. You know,
9 when you build a building, you often have to put up
10 this temporary structure that's kind of all jury-
11 rigged and stuff to put it together. But once it's
12 built, you can take the scaffolding down because you
13 don't need it anymore.

14 Now, the beauty of the order protection rule
15 is it forced the U.S. equity market to become
16 automated and interconnected. That is not going away.

17 If we take that scaffolding away, it's not as if
18 suddenly all the interconnections will go away, all
19 the automation will go away, and the 1,366 seat-
20 holders of the old NYSE will come out of retirement
21 and start yelling and screaming at each other on a
22 wooden trading floor.

23 So we are now in the modern world. We don't
24 need that scaffolding anymore. Why should we get rid
25 of it? It adds a ton of complexity to the market.

1 You have all of the debates over what quotes should be
2 protected, which ones should not be protected. I
3 personally believe that best execution obligations are
4 sufficient to make sure that investors are protected.
5 And we can do without the unneeded complexity, but
6 I've only got a minute, and I want to hear from my
7 fellow panelists. Thank you.

8 MR. OWENS: Thank you, Jim.

9 Next up, we have Allison Bishop from Proof
10 Trading.

11 MS. BISHOP: Hi. Thank you very much for
12 having me and thank you all for being here. I'm
13 Allison Bishop. I'm co-founder and president of Proof
14 Trading, which is a small startup agency broker-dealer
15 for U.S. equities. I am also a part-time professor of
16 computer science at City College, where I study
17 adversarial systems, which might be relevant to
18 finance just some of the time.

19 So I am looking forward to giving the
20 perspective of especially transparency around costs
21 from the perspective of broker-dealer -- a small
22 broker-dealer competing in this space. In the first
23 panel, we heard a lot about how these things are tied
24 together with connectivity and market data costs,
25 which are often kind of lumped together but from our

1 experience actually behave very differently because of
2 the sort of way that the market ecosystem has provided
3 connectivity as a service that's available to broker-
4 dealers relatively cheaply. But market data is still
5 a huge cost, and we really appreciate and rely upon
6 the quality and accessibility of the SIP. And so I
7 think, to the extent these issues affect the role of
8 the SIP going forward, that's something we are very
9 interested in adding our perspective on.

10 MR. OWENS: Great, thank you. Thank you,
11 Allison.

12 Hubert de Jesus from BlackRock.

13 MR. DE JESUS: Hi. My name is Hubert de
14 Jesus. I am the head of Electronic Trading, Research
15 and Market Structure on behalf of BlackRock's markets
16 organization. BlackRock is one of the large asset
17 managers globally, and we are a significant
18 participant in markets across the globe on behalf of
19 our clients and investors.

20 I wanted to take the opportunity to thank
21 the Commission and the Staff for the opportunity to
22 come and discuss our views on the trade-through
23 prohibition, and I think at the outset it probably
24 makes sense to note that Reg NMS, and in particular
25 Rule 611, has been very instrumental and beneficial in

1 integrating independent marketplaces into the cohesive
2 market system that we have today. And as a result, it
3 makes sense to note that U.S. equity markets function
4 exceedingly well today and, as was highlighted earlier
5 in the panel, are fairly widely admired around the
6 globe.

7 Now, while certain aspects of Rule 611 may
8 contribute to market fragmentation and increased costs
9 in today's market environment, we think that trade-
10 through prohibition is very closely connected to a
11 number of other provisions in Reg NMS. So similar to
12 kind of taking the keystone off of an arch, you kind
13 of want to make sure that you are adjusting all the
14 other rules in Reg NMS to make sure we are not
15 introducing unintended consequences by eliminating or
16 modifying Rule 611.

17 We would suggest that the SEC should
18 consider a balanced approach where Rule 611 could be
19 refined to address fragmentation in cost by
20 introducing a market share threshold. But this needs
21 to be accompanied by corresponding adjustments to
22 other roles that would address additional economic
23 incentives for exchange proliferation and market
24 fragmentation.

25 MR. OWENS: Great, thank you, Hubert.

1 Appreciate it.

2 Next is Armando Diaz from PureStream.

3 MR. DIAZ: Thank you to the SEC for the
4 honor of contributing to the discussion. I am
5 Armando Diaz, the CEO and founder of PureStream, an
6 exclusively institutional ATS.

7 My views on 611 are influenced by two
8 primary experiences. The first is a 30-year career
9 that spans NMS, pre and post, most of it post. And
10 second, my firm's experience in introducing a novel
11 trading protocol called streaming. Streaming involves
12 referencing trades market wide in realtime, as opposed
13 to just referencing the midpoint of the NBBO.

14 We are essentially collocated on the SIP or
15 think of it as virtually collocated on the SIP. And
16 we are producing high-fidelity replication of market
17 prices in any fraction or multiple that participants
18 can match at on our market.

19 Referencing trades gives us a unique insight
20 on 611. In our experience, trade-throughs occur
21 exclusively off exchange. And as such, we filter each
22 and every trade occurring off exchange for trade-
23 throughs. We did this 50 million times yesterday.

24 Our data suggests trade-throughs occur at
25 roughly the rate of the SEC's non-one-second lookback.

1 That does not include locked and cross markets.

2 Importantly, our view is the impact of the
3 excluded trades, the trades that we don't reference,
4 is de minimis, unlike the inception of the trade-
5 through rule, where trade-throughs were more frequent
6 and of higher impact. Especially through the lens --
7 and in particular, especially through the lens of
8 institutional best practices on best execution, which
9 is looking at the weighted average of all executions.

10 The last thing that I would say is, as we
11 look through market structure, I think it's -- of
12 course, I'm biased on this, given my career -- but I
13 think it's important that we all, irrespective of what
14 stakeholder you are, recognize that the institutions
15 are the only participant that is constantly cycling
16 through the market structure that we have. Retail
17 traders are done in one trade. Corporates trade
18 before or after the close. And market makers, the
19 smaller NBBO or the tighter spreads, the vibrating
20 NBBO suit them well. Institutions are the only ones
21 that have to live through that. So I think that is of
22 particular importance for everybody.

23 Thank you again for the opportunity to
24 participate.

25 MR. OWENS: Thank you, Armando.

1 Next, we have Jonathan Kellner of Members
2 Exchange, MEMX.

3 MR. KELLNER: Thank you, Andre. Thank you,
4 Jamie, for having me.

5 I am Jonathan Kellner, the CEO of MEMX.
6 MEMX was created in 2019 by a diverse group of market
7 participants, many of whom are on this panel and
8 several panels today, who recognized that there was a
9 lack of competition in the exchange landscape and felt
10 that there needed to be an exchange operator that was
11 clearly aligned with the need of market participants.

12 Today, MEMX operates an equities and options exchange
13 and we also provide our market technology to other
14 market centers.

15 MEMX believes that a vibrant, healthy
16 capital markets ecosystem is characterized by both a
17 strong NBBO and significant amount of displayed
18 liquidity. If the SEC uses these two objectives as
19 their main priorities when undertaking market
20 structure reforms, we are confident many paths forward
21 could be successful. For example, if we keep 611 as
22 it is, or even with some targeted exceptions, then
23 more modest market structure changes like implementing
24 the already-approved tick size changes may suffice.
25 If however the Commission votes to remove 611, then it

Page 130

1 will need to evaluate ancillary rules, like access fee
 2 caps and locked in cross-markets, as well as broader
 3 market structure rules like fair access that, if left
 4 alone, run the risk of moving flow off exchange and
 5 into the dark.
 6 MEMX can be supportive of either path, as
 7 long as the SEC takes care to ensure that its overall
 8 regulatory regime continues to promote a robust
 9 displayed market.
 10 I look forward to participating in the
 11 dialogue today and appreciate the Commission for
 12 working with the industry to strengthen our market
 13 structure.
 14 MR. OWENS: Thank you, Jonathan. Appreciate
 15 that.
 16 Kevin. Kevin Kennedy of Nasdaq.
 17 MR. KENNEDY: Thanks, Andre.
 18 Good afternoon to Chair Atkins, to Director
 19 Selway, and to our fellow panelists. Thank you to the
 20 SEC Trading and Markets Staff for convening this
 21 important roundtable. We appreciate the opportunity
 22 to share our views and engage in dialogue about
 23 improvements to the U.S. equities and options market
 24 structure.
 25 In my current role, I oversee North American

Page 131

1 Markets for Nasdaq. That includes our Canadian
 2 equities markets, our six options exchanges, our three
 3 equities exchanges, our economic research team, and
 4 our operations. And in that role -- I do want to
 5 share one little anecdote, because it will play in
 6 later.
 7 So yesterday, because I like talking about
 8 myself, it was my thirty-eighth anniversary of trading
 9 as a professional in the markets, on the options
 10 market. So I got to start on September 17,
 11 Constitution Day, in 1987.
 12 And the reason that's important, and we're
 13 going to talk about it later when we get to options,
 14 because I think Chris Isaacson did an impeccable job,
 15 but I want to bring even a little more perspective of
 16 how important when we think about these things, we
 17 think about markets that can really be stressed.
 18 We've done really well over the years with COVID, with
 19 the financial crisis, with everything. But we have to
 20 prepare. And we'll talk about this largely in
 21 options, and might have maybe some diverging views,
 22 but I just wanted to share that one anecdote.
 23 So at Nasdaq, really important, we actually
 24 are closely aligned with the Commission's goals of
 25 reducing both the complexity and the regulatory burden

Page 132

1 with our markets. We all talk about the regulatory
 2 burden. We'd like to see it go away. There's
 3 actually leadership happening with this team at the
 4 SEC, with this administration, and we welcome that.
 5 We believe that simplifying the rules, of
 6 getting rid of the complexity, and moving away --
 7 really important -- moving away from prescriptive fee
 8 setting, that's really important in ensuring a level
 9 playing field, even in off exchange. Let the
 10 exchanges compete. All of those things will foster
 11 greater competitiveness. And that's what we're here
 12 for. Investor protection, more competition, and lower
 13 regulatory burden.
 14 So we believe enhancing our markets is
 15 central to our mission. A vibrant and competitive
 16 marketplace supports corporate issuance, fuels capital
 17 formation, and empowers investors to succeed. These
 18 pillars are fundamental to a healthy financial
 19 ecosystem.
 20 So we look forward to working with everyone
 21 to ensure the United States -- and we've heard this a
 22 few times today -- that the United States does remain
 23 the premier destination for investment and innovation.
 24 Thank you.
 25 MR. OWENS: Great, thank you.

Page 133

1 Matt MacKenzie from Optiver.
 2 MR. MacKENZIE: Thanks, Andre, thanks,
 3 Jamie, and to the Commission and Staff for all the
 4 work that went into setting today up. We really
 5 appreciate being invited.
 6 My name is Matt MacKenzie. I work at
 7 Optiver. Optiver is a shortening of the Dutch words
 8 for options trader. If you asked me to say those
 9 words, I would mess them up and it would take 15
 10 minutes. So we're going to stick with Optiver.
 11 We are a global market making firm. Our
 12 history and heritage is in options. But we trade all
 13 products. We also trade equities, and we do so
 14 globally. So we have a perspective that's informed by
 15 markets that have this rule and markets that don't.
 16 And when we think about changes to market structure
 17 and the rules in the U.S., I think the first principle
 18 that comes to mind is do no harm. And in the options
 19 space, you know, as has been discussed ad nauseam,
 20 there's some real strength there that we think those
 21 options markets might be better suited to digest a
 22 change of this magnitude if it were to be repealed.
 23 And on the equities side, we just really would take
 24 that do no harm approach or suggestion and focus on
 25 the way the trade-through rule is threaded throughout

1 the things that it supports, the NBBO, best execution,
 2 a number of other rules that we can discuss at a later
 3 point in the panel.
 4 But as a fundamental value of the firm, we
 5 really believe in lit liquidity, in trading on
 6 exchange. That's really where we find the value
 7 proposition. And so we would not want to see changes
 8 that the SEC would make that would disincentivize that
 9 liquidity provision on exchange. And so we have some
 10 thoughts around that I'm happy to share later.
 11 I would like to point out I was instructed
 12 to do two sentences. So I think that's all I --
 13 (Laughter.)
 14 MR. MacKENZIE: Thank you.
 15 MR. OWENS: That's great. Thank you. Thank
 16 you for following instructions.
 17 So I think Chris Nagy is next from Healthy
 18 Markets.
 19 MR. NAGY: Thanks. Thanks, Andre. And
 20 thanks Jamie and Ted and the entire Commission for
 21 having me here. Excited to be here representing some
 22 views.
 23 My name is Chris Nagy. I am the head of
 24 research at the Healthy Markets Association. We're an
 25 investor-focused trade group that includes public

1 pensions.
 2 We're talking a lot about the unintended
 3 consequences of Rule 611 today, but it's almost like
 4 we forgot why we have it and why we still need it.
 5 I'm old. Actually, I've been in the business a little
 6 bit longer than Kevin. And I'm old enough to
 7 remember, while I was the head of a large broker
 8 before it was adopted and after, the improvement to
 9 investors was pretty extreme.
 10 I recall markets being locked and crossed,
 11 my customers not getting executed on their orders. I
 12 recall my customers getting their orders filled at
 13 prices that were far worse than the displayed prices.
 14 I recall begging the SEC for help, and you can look
 15 at the public record for that.
 16 We all needed a backstop for best execution.
 17 And that's kind of what OPR is now. Trade-throughs
 18 are rare today. And that saves customers billions of
 19 dollars. But there are a lot of ways the rules could
 20 be improved to mitigate the negative impacts on data
 21 and access costs, and I really hope to talk about
 22 that. Also on the potential information leakage.
 23 However, any weakening of Rule 611 must be
 24 accompanied by improvements to best execution. We
 25 should have rules such as 605 and 606 implemented

1 first. We should require any trade-throughs to be
 2 disclosed and quantified on trade confirmations for
 3 customers.
 4 Similarly, the Commission should also add
 5 odd lot orders to the SIP immediately before doing
 6 anything with OPR. The Commission should consider a
 7 block trading exemption. But that should also be
 8 accompanied by an explanation of any trade-throughs.
 9 The Commission should consider a depth
 10 protection. The Commission should consider applying
 11 protection to all material venues and should exclude
 12 from protection voting and NMS planned profit for
 13 venues under 1 percent.
 14 Lastly, the Commission should further lower
 15 access fees' distortive incentives. Again, I'm old.
 16 While HMA has been commenting on potential changes to
 17 Rule 611 since we first launched, I've been working on
 18 these issues since before 611 existed.
 19 At the heart of it, Rule 611 is really about
 20 best execution. Let's not screw that up.
 21 MR. OWENS: Thank you. Thank you very much,
 22 Chris.
 23 And then we have Adam, Adam Nunes from
 24 Hudson River.
 25 MR. NUNES: Thanks, Andre. Thanks Jamie and

1 the Commission and the Staff.
 2 So I am Adam Nunes from Hudson River
 3 Trading. Hudson River Trading is a market making and
 4 trading firm that trades in markets around the world.
 5 I guess just a few thoughts without getting
 6 into any of the specific issues. You know, Hudson
 7 River Trading at the time of NMS didn't think there
 8 was a strong rationale for the order protection rule
 9 and trade-through rule then. And, you know, I think
 10 kind of largely for the reasons that Jim laid out.
 11 You know, we think the rationale today is even weaker.
 12 So, you know, in general, we think that
 13 market forces, competition, and innovation have
 14 already solved a lot of the problems. And you saw
 15 that in some of the data that the SEC put together on
 16 pre and post market, that what were numbers of trade-
 17 throughs that I think were in the 2 to 3 percent
 18 using, I think, a three-second lookback window at the
 19 time, you know, are now like far below that pre/post
 20 market, where there is no prohibition against trade-
 21 throughs. So we think that the evolution of the
 22 market from, you know, at the time, what was really
 23 the collision of manual markets and automated markets
 24 that, you know, was the primary driver of NMS, and one
 25 of the causes of that collision or one of the things

1 that exacerbated it was there was a trade-through
2 rule. I think that was kind of viewed as the biggest
3 problem at the time. And the solution was a different
4 trade-through rule.

5 And built into that trade-through rule was
6 you can trade through manual markets. And so I think
7 when, you know, Jim talks about the scaffolding and
8 the catalyst to move markets to automated, we're now
9 there. And I think we have to look at the trade-
10 through rule, you know, through that prism.

11 MR. OWENS: Great. Thank you, Adam.
12 And finally, Jeff Starr from Schwab.

13 MR. STARR: Thanks, Andre. Hi, everyone.
14 I'm Jeff Starr. I lead operations at Schwab. That
15 includes the teams that are responsible for order
16 routing and execution quality across all asset
17 classes.

18 We really appreciate the chance to be here
19 today and represent the voice of the retail client.
20 We think that there's always room for innovation,
21 there's always room for improvement when we look at
22 these things. We just want to make sure that we do it
23 in a way that preserves what we think is a world class
24 experience for retail clients today.

25 MR. OWENS: Great. Thank you.

1 So we are going to touch on a lot of the
2 questions, a lot of the topics that the panelists
3 mentioned. I just wanted to take a second to level
4 set mainly for folks who might have missed this
5 morning's session.

6 So we're talking about Rule 611, which is
7 intermarket price protection for published quotes.
8 And there are a number of exceptions to the rule,
9 including self-help exceptions for material delays,
10 intermarket sweep orders, benchmark exceptions for
11 flickering quotes and the like.

12 We are also going to touch on the options
13 market, which has its own options order protection
14 plan. We're going to try to intersperse that
15 discussion of options along the way, rather than do it
16 separately. But we are going to talk about options
17 for a bit.

18 You know, in looking back at what the market
19 looked like in 2005, this was sort of touched on
20 earlier today, we had nine SROs -- nine exchanges, I
21 should say, Nasdaq and about 10 ATS/ACNs. I guess
22 they were all ACNs back then. And the listed company
23 market share was heavily concentrated on the New York
24 Stock Exchange. There was a trade-through rule that
25 was mentioned a little earlier. It was the ITS plan

1 rule, which was antiquated to say the least. It had
2 an exception for 100-share orders and an opt out for
3 large orders.

4 On the Nasdaq side, trading was more
5 dispersed. The ACNs had gathered a pretty good share
6 of Nasdaq, Nasdaq's trading volume, in part I think
7 because there was no trade-through rule then on the
8 Nasdaq side.

9 And so if you flash forward to today, which
10 is what we're really focused on, we've got a very
11 different market. We've got 28 exchanges total, 16
12 equity, 12 options, 33 ATSS that trade NMS stocks.
13 You know, the split between on-exchange trading and
14 over-the-counter trading is roughly 50/50, roughly.
15 And the volume of exchange-listed stocks to trading is
16 much more -- much more dispersed.

17 So we are going to talk about some other
18 rules. Folks mentioned the locked-in cross-markets
19 rule, which deals with making sure there is fair
20 access to quotes and the fee limits. And we're also
21 going to talk about Rule 612, the sub-penny rule.
22 Those last two rules, as you know, are subject to
23 litigation in terms of recent amendments that the
24 Commission made to them.

25 So I wanted to start broadly. So I wanted

1 to ask whether or not the panel thinks that the trade-
2 through prohibitions have served their objectives in
3 our current market. So the two main objectives being
4 encouraging the display of limit orders, and the
5 second being sort of minimizing the extent to which
6 marketable orders are executed outside of the best
7 available protected quote.

8 Can I start with Armando? Do you want to
9 speak to that?

10 MR. DIAZ: Sure. I think the symbolism of
11 the rule cannot be at the time -- could be
12 overestimated. As I said before in my opening
13 remarks, the magnitude of trade-throughs or the impact
14 of trade-throughs was materially more significant back
15 then.

16 The notion that all markets' prices would be
17 equal when there were two dominant markets also could
18 not be understated.

19 Unfortunately, as appropriate and necessary
20 at the time, it has a major shortcoming in not having
21 protected the depth of the book. And fast forward to
22 today, we have incredibly well integrated markets.
23 The word fragmentation, I understand how people use
24 it. The markets are not fragmented. Fragmented means
25 isolated, separate. We operate on one protocol. They

1 are all accessible. So we have a very, very cohesive
2 network. Think of data networks. Data networks are
3 materially larger than the trading network that we
4 have.

5 But we missed an opportunity in terms of
6 depth. And currently, the markets don't suffer from
7 efficient price discovery, they suffer from efficient
8 throughput, throughput of what people want to do.

9 And for everybody that talks about lit
10 markets, one thing, thought experiment to have in the
11 back of your minds is, how much of what people want to
12 do is actually making its way into the marketplace?

13 And there is a tremendous amount of latent liquidity
14 that is sitting on desks. And we fundamentally have
15 to make a decision as to whether we want more lit
16 markets, tighter spreads, or more liquid markets, and
17 remind ourselves that liquidity is a ratio, a ratio of
18 how much volume can trade per price point. And I
19 think that we're off balance on that, and that these
20 rules have to be addressed at a minimum.

21 MR. OWENS: Great, thank you.

22 What about the exceptions to Rule 611?
23 Any -- any thoughts there on whether or not we need
24 new exceptions or whether or not the current
25 exceptions need to be tweaked?

1 coming into the call center, and they would look to
2 me. Chris, what's going on? You deal with these
3 market centers. What's going on with the markets?
4 And I would go around lecturing people on this is a
5 locked market, this is a cross market. I in turn then
6 actually would go to the SEC and try to explain this,
7 these issues.

8 So Rule 611 of Reg NMS has a lot of these
9 other parts associated with it, locked and cross being
10 one. But again, Rule 611, what it was really designed
11 to do was to create a best execution backstop for
12 investors so that their trades wouldn't go unexecuted,
13 so that they wouldn't be in a situation where they got
14 a bad price. And it worked, and it still works to
15 this day.

16 MR. OWENS: Jim, did you have --

17 MR. ANGEL: And then there's the biggest
18 exception of them all, which is odd lots. As we heard
19 in the morning panel, 70 percent of trades now are odd
20 lots, and they are not protected at all. So I think
21 this shows us how broken the rule is and how we need
22 to either fix it or scrap it.

23 MR. NUNES: So maybe I can add a few things.
24 I think, one, just getting back to the first question
25 on encouraging, you know, displayed limit orders, one

1 MR. NAGY: I'm happy to jump in, Andre.

2 MR. OWENS: Sure.

3 MR. NAGY: Well, first of all, let's look at
4 the trade-through rule itself. Okay? It's very
5 impractical and it's -- not impractical. It's an
6 imperfect prophylactic protection for investors
7 against bad prices. Right? And if you go back in the
8 record, before I was old enough to sign comment
9 letters, I'm included in the Chair's dissent on Reg
10 NMS.

11 But the fact of the matter is once 611 came
12 into place, it worked. And it still works today. And
13 instead of savings investors millions, it's saving
14 investors billions.

15 I also remember, to the unintended
16 consequences, one of the biggest things I fought every
17 single day was these locked and crossed markets. Back
18 then, in my day, it was a QQQ, it was Microsoft,
19 Oracle, whatever, you looked at a stock, it was in a
20 locked market 40-plus percent of the trading day. My
21 execution venues, some of the same venues exist today,
22 would not execute in a locked or crossed market. So
23 the order would sit there unexecuted for a very long
24 time.

25 What happened then, it led to a lot of calls

1 of the themes of the first panel was the growth of
2 like non-displayed. So you do have a great deal of
3 people actively opting out of that protection. And,
4 you know, obviously nothing happens in a vacuum. NMS
5 doesn't stand alone. There are other dynamics at
6 play. You know, but we're definitely seeing that not
7 be like such a strong attractor of limit orders. So
8 it's unclear how effective that is.

9 You know, I think as it gets to exceptions,
10 if we have to keep on layering exceptions onto a rule,
11 I think we should admit that the rule is broken
12 fundamentally and that it shouldn't require so many
13 exceptions to make workable. I think some of the
14 exceptions that exist around ISOs, around self-help
15 are more practical. And, you know, I think
16 particularly if you go back in time, just the
17 resilience of markets and market centers, you know,
18 clearly necessary. You know, today, it's still
19 necessary. Fortunately, it's necessary a lot less
20 often than it was at the time.

21 And then again, to Chris's point, I think
22 some of this has been evolved away. I think the
23 notion today that market makers would stop executing
24 retail orders in a locked market is probably untrue.

25 And I think overall, you know, first on

1 cross-markets, I just don't think they're going to be
2 an issue. I usually don't know if I should buy or
3 sell a stock at prevailing market prices. When the
4 market is crossed, I know exactly what to do. You buy
5 low, sell high instantaneously, and you get to make
6 money. So I think that's going to be arb'ed away.

7 I think on the locked market side, like I do
8 think that the market, especially with current, you
9 know, access fees and pricing, the market would be
10 locked I don't know what percent of the time, but
11 certainly much more often than having it prohibited
12 because economically it's not a locked market. And I
13 think that that does have implications on the retail
14 side.

15 I would note we all get really happy as
16 spreads asymptotically approach zero and then for some
17 reason we lose our minds when they hit zero. And I
18 don't. I don't think that's such a bad thing. Think
19 about the amazing zero spreads that we could have in
20 the stock market.

21 MR. ANGEL: I mean, part of the -- if I
22 recall correctly, part of the rationale for the locked
23 and cross-markets rule was that investors would be
24 confused, they wouldn't understand what to do.

25 MR. NUNES: And it's been my experience that

1 another perspective on Adam's point, the -- you know,
2 we do operate around the world and including in Europe
3 where these rules don't exist. And speaking to the
4 head of one of our equities desks in Europe, he noted
5 that when markets are crossed or locked in Europe,
6 they get very quickly unlocked and uncrossed. So just
7 another perspective on, I guess, amplification of what
8 Adam was saying.

9 MR. OWENS: Please.

10 MR. KENNEDY: Andre, can I just chime in a
11 little bit? And where Chris was coming from -- I read
12 your letter. I think it's great. But I think where
13 Chris and I -- he brought out were very similar,
14 because we've both been in this business for a while.

15 But where I differ with Chris is I think we
16 need to adapt and look forward. Like I don't want to
17 just look back, especially when we know especially in
18 U.S. equities where there is a problem. There is off-
19 exchange growth. This is not the classic we're
20 bringing a solution to a problem that we don't know.
21 We have a problem. We have a problem with off-
22 exchange trading.

23 And what this did is it brought with us --
24 it stifled innovation. Because we can't compete in
25 the off-exchange space. So it stifled innovation. It

1 when people don't have a good argument, they love to
2 point to investor confusion as the argument.

3 MR. STARR: Maybe just to bring the retail
4 perspective today into the conversation, you know, a
5 client that places a limit order on our platform
6 today, 97 percent of the time when the price hits or
7 trades through that price is going to get an execution
8 today. So it's very, very rare and infrequent that we
9 end up in a phone call with a retail client trying to
10 explain the intricacies of an intermarket sweep order.

11 It's functioning very well. Locked and
12 crossed markets, as Chris and Adam just said, for
13 retail clients are almost nonissues in the market
14 today. And to the point about odd lots, from our
15 perspective, whether it's a round lot or an odd lot
16 that 97 percent holds. We don't see any really
17 difference in odd lot limit orders that are out there.

18 And I think you heard the same thing from Pankil
19 earlier when he was talking about the Bank of America
20 retail order flow.

21 So that's the backdrop I think that we're
22 operating against when we talk about the retail
23 marketplace.

24 MR. OWENS: Thank you. Matt.

25 MR. MacKENZIE: Thanks. Just to offer

1 had prescriptive fee setting.

2 So I'm willing to say let's adapt, let's
3 evolve. I love the leadership coming out of the SEC
4 on this. And I think we're very, very open if it's
5 aligned and we're doing everything correctly that we
6 can compete. And we can -- you have to evolve. You
7 have to adapt.

8 And I'm going to have a little bit different
9 take in options. But it's different because in
10 options, and I don't want to steal it all, but there
11 is a problem in U.S. equities.

12 MR. OWENS: Yeah, so let's get to options.
13 That's the next topic --

14 MR. NAGY: Can I jump in on that real quick?
15 Because I want to say I actually agree with Kevin. I
16 think things need to evolve. And if you read my
17 letter, we've got a number of suggestions in that
18 letter on how to evolve the markets.

19 What worries me is that we're not focusing.
20 And we've got enough intellectual brain power in
21 this -- market structure brain power in this room to
22 solve for this today. But what worries me is that if
23 we don't address Rule 611 for what it is, which is a
24 best execution rule, and in that vein, the previous
25 Chair, you know, would say, we don't have a best

1 execution rule at the SEC. Actually, that's what 611
2 is.

3 If you just remove it without addressing or
4 strengthening disclosure and best execution, then as I
5 say and as I've seen firsthand, things will gravitate
6 towards the lowest common denominator. And that's
7 what worries me about just blatantly removing the
8 rule.

9 MR. OWENS: So, Chris, we'll come back to
10 best ex.

11 Yeah, Jonathan.

12 MR. KELLNER: So we've heard a lot just now
13 about -- some about innovation. We heard a lot this
14 morning that the exchanges don't innovate.

15 I'd say first of all we've been around six
16 years. We've built new technology. My CTO is here.
17 If he's not innovating, I think I'm paying him too
18 much. So we are doing a lot of innovation.

19 The exchanges innovate a lot around
20 providing fair markets, fast prices, orderly markets.

21 What we aren't able to innovate on is around market
22 structure. And that is a function of the regulatory
23 regime.

24 But I do caution us to say that -- and I
25 agree with Kevin, let's open the door and try to be

1 today, but I want to give a little add, of course.
2 Because Chris Isaacson, again, did an exceptional job
3 and he talked about the growth and the momentum that
4 we have.

5 But I just want to make sure everybody
6 listening to this understands that the top 11 days in
7 history in U.S. options, equity options trading, are
8 all this year. In the 177 days that we are into this
9 year, that's when they occurred. Four. Four of the
10 top seven in history have occurred since August 18.
11 And that's with a VIX no higher than 17.17.

12 So we are not sitting here rooting for a
13 collapse in the market and the derivatives business
14 will get busy. We have an incredible treasure that
15 we've developed over 40 years.

16 And my concern is -- and Chris laid out the
17 1.5, 1.7 million strikes, the securities, you need
18 intermediaries to provide liquidity, to open the
19 markets, to close them. There's great liquidity. And
20 you know who provides great liquidity? Retail
21 orders. Retail orders are posted in the equities
22 business, in the equity derivatives business. We know
23 exactly where they're posted. There's customer
24 priority on a large -- a large majority of those
25 exchanges. We don't want to trade through them.

1 able to compete. But just by removing 611 doesn't
2 take care of the problem of our inability to compete
3 on exchange. There are other rules like fair access
4 or how fair access has been interpreted by the
5 Commission that prevents the exchanges from competing
6 with a lot of what is going on in the off-exchange
7 pools under Reg ATS.

8 So if that's what we're looking to do, we
9 need to really think about what rules we want to
10 change, what rules we want to adapt or pull away so
11 that we can have fair competition across the venues
12 and on exchange.

13 MR. OWENS: Got it. Thank you. Thank you.

14 Before we move on, I did want to get to the
15 options side of this. So I'm curious as to whether or
16 not folks think that there's any difference in the
17 effectiveness of the order protection rule -- well,
18 not the order protection rule but the options trade-
19 through plan on that side. And why don't I start with
20 Kevin and then I can go to Matt.

21 MR. KENNEDY: Thanks, Andre. And I sit next
22 to Matt and we may differ on a few of these things.
23 But I really value Matt's opinion. Optiver has been
24 out there, very progressive. I think they bring a lot
25 to the table. We might disagree on a few things

1 And what I worry about, you start trading
2 through, and this goes back to 1987. We're not going
3 to hit 1987 again. But you know what? We're going to
4 have times that are turbulent. And you don't want
5 customers to say, I don't understand, I was bidding
6 \$4, they traded many, many, at \$3.80 away. That will
7 happen in the options market. We need to retain
8 customer priority, for lack of a better word, but
9 order protection to that customer.

10 So just like in equities, we will keep a
11 very, very open mind. I love sitting down with Joe
12 Mecane's team, Matt's team. Let's continue to talk
13 about it. And if you want to move that ORF reform up,
14 I'll come in even Christmas eve this year, Jamie.

15 But we already have a filing out there.
16 Because that is the problem with fragmentation in the
17 equity options business. It's the ORF. And we're
18 addressing it. We have our filing. Others are
19 following suit. I know Cboe has been very supportive.
20 But we have a lot to talk about. So we'll be here
21 any time.

22 I'll let others chime in.

23 MR. SELWAY: All right, Kevin. So it's a
24 roundtable of one Christmas eve.

25 MR. KENNEDY: I am in. I am in.

1 MR. SELWAY: We'll see you there.
 2 (Laughter.)
 3 MR. OWENS: Matt, do you want to --
 4 MR. MacKENZIE: Yeah, well, maybe two. I'd
 5 show up, you know, we could talk.
 6 Yeah, I think to build off one of the points
 7 that Adam made earlier, when you looked at the data
 8 and really applied the Staff for the data that they
 9 put out, the number of trade-throughs and options
 10 linked to multi-leg orders like the complex order
 11 types that we have, the exception essentially starts
 12 to destroy the rule. And so, you know, I do think
 13 when we look at the structure of options, the fact
 14 that it's listed and traded on exchange, there is no
 15 sort of dark competitor to it.
 16 We feel like that structure itself might be
 17 best able to handle the end of the trade-through rule,
 18 given the fact that the exceptions themselves are
 19 going to need to stay in place to address the way
 20 people trade in options, which is those multi-leg
 21 strategies.
 22 But to speak to the real issue that we have,
 23 and we have a paper. You can find it at
 24 Optiver.com/insights. We wrote about the options
 25 regulatory fee last year and definitely support the

1 work that Nasdaq and Cboe have done to move this issue
 2 forward. We do think that across these venues, that
 3 that has become an impediment to really robust growth.
 4 You know, and forward progress in options for the
 5 amount of exchanges that are there and what that fee
 6 really entails for market participants.
 7 And to be clear, we're members of all these
 8 exchanges. We're connected to all the exchanges. We
 9 do have costs and complexity associated with that that
 10 we're willing to do because we really do believe in
 11 providing liquidity and making markets 24/7 -- sorry,
 12 not 24/7 -- as much as possible. But I will say that,
 13 you know, that fee has acted as a real impediment.
 14 So it's definitely something we want to see
 15 addressed. And if the Commission is interested in
 16 opening up market structure and taking on this rule in
 17 options, we really do think that's one of those issues
 18 that should be addressed concurrently with that.
 19 MR. NUNES: I guess one of the issues on
 20 options, you know, as Kevin was talking, I was trying
 21 to count on my fingers how many options exchanges he
 22 operates. And I think I was running out of fingers
 23 before I got there.
 24 So one of the pieces, just the proliferation
 25 that we see across equities and options is the same.

1 I also just want to kind of flag the notion
 2 of trade-throughs goes against market participants'
 3 general self-interest. Like people want to trade at
 4 the best price. And so we have self-interest for
 5 firms that don't have like a best ex obligation if
 6 they're trading on their own account. And we do have
 7 a best execution rule. I agree that that is a rule
 8 that, in the absence of NMS, should and needs to be
 9 like revisited. But that does exist and, you know,
 10 like there is a version of the world where we have a
 11 trade-through and that trade-through is justifiable
 12 and can be justified. We have them today. That's
 13 part of the justification process.
 14 So I don't think that we should be scared to
 15 think about a world in which it doesn't exist. You
 16 know, as Matt said, it doesn't exist in Europe,
 17 doesn't exist in several Asian markets with
 18 competitive exchanges. We're the outlier in the
 19 world.
 20 MR. OWENS: Great. So I want to move on
 21 to --
 22 MR. MacKENZIE: Sorry, there is one point I
 23 wanted to make.
 24 MR. OWENS: Very quickly. Very quickly.
 25 MR. MacKENZIE: Yes, that Kevin could make,

1 which is there is a caveat to all of this that
 2 pertains to floor trading. That happens in options.
 3 MR. KENNEDY: We'll have that panel on
 4 Christmas day.
 5 (Laughter.)
 6 MR. OWENS: Great. Okay.
 7 So I wanted to get to this topic of cost and
 8 complexity, which we've touched on a little bit. You
 9 know, when the rule was proposed and adopted, there
 10 was a lot of criticism that it was going to introduce
 11 unnecessary complexity and cost, and we heard some
 12 figures from the first panel about some of those
 13 costs.
 14 You know, the rule, the final rule was
 15 simplified in some respects to deal with some of
 16 those, so they went with the market BBO rather than
 17 depth of book. But can we just talk for a little bit
 18 about what the -- what the costs are? To the extent
 19 that you agree with the estimates from the first
 20 panel, that would be great to know. We talked about
 21 connectivity costs, market data costs, compliance
 22 costs. And I'm just curious as to whether or not this
 23 panel agrees with some of what was said earlier in
 24 terms of the costs that are incurred today.
 25 We'll start with you, Allison.

1 MS. BISHOP: Thank you, yeah. Just wanted
 2 to add a little bit of context to that great data that
 3 was shared this morning in terms of connectivity costs
 4 for brokers in particular. Because I think it does
 5 show that the market has sort of worked around this
 6 issue of all brokers having to connect to all venues
 7 and provided various market solutions including direct
 8 market access, which Proof uses. And that cost
 9 regime, I think, is reasonably controlled by the
 10 effect that connectivity can be resold. So you do
 11 have sort of market forces sort of bringing those
 12 connectivity costs down.

13 I think market data is very structurally
 14 different. Because in the cost regime we have for
 15 market data, everyone keeps getting charged back to
 16 the original provider, no matter how many times you
 17 pass it through. And so sort of even if you're
 18 getting market data from a competing consolidator in
 19 the potential new SIP plan, that cost can only come
 20 down as much as that initial bill that's still due
 21 back to the SIP operator.

22 And so for a small competitive broker, we
 23 are able to control our connectivity costs reasonably
 24 well by going through other providers for
 25 connectivity. And I would differentiate that from

1 execution because we do have our own execution algos
 2 and our own trading logic. This is just strictly a
 3 connectivity service. But that's not possible in
 4 market data.

5 And to contrast what was said in the panel
 6 this morning about the market data costs in Canada, we
 7 do have our alternative here, being the SIP. And so I
 8 think maintaining the quality and improving the
 9 quality of the SIP on affordability is a great sort of
 10 support for effective competition among brokers. And
 11 in particular, if you're looking for a way to make it
 12 less profitable to own a small exchange and more
 13 profitable to own a small broker, you could make the
 14 SIP less expensive. And that would be one very sort
 15 of easy way to reduce the subsidy to exchanges.

16 And I think all the things we've talked
 17 about in terms of SIP enhancements, of adding depth of
 18 book, adding auctions, adding odd lots, all of those
 19 would be great, as long as we don't allow the costs to
 20 keep increasing. Because as we are all worried about
 21 exchanges being so profitable from SIP revenue, maybe
 22 that's an admission that SIP revenue is way out of
 23 proportion to costs. And sort of controlling that, I
 24 think, would reduce a lot of these negative effects
 25 that we're potentially blaming on the order protection

1 rule.

2 MR. OWENS: Thank you.
 3 Jeff, did you have anything?

4 MR. STARR: I think when you think about
 5 cost and complexity, there's two sides of that, in my
 6 view. We saw this morning from the presentation given
 7 by the SEC Staff, the cost and complexity of those
 8 connections have led to a model where firms like ours
 9 leverage market makers for order routing and use those
 10 firms to use their connections to get our orders
 11 executed. That's the market structure that's evolved.

12 It's working. There's competition in that space
 13 that's really benefitted clients.

14 The piece of the cost which Allison just hit
 15 on is the market data side. I think that we've got to
 16 be really, really conscious that market data costs are
 17 really, really high. I would say too high for retail
 18 clients. And as we look at evolving market structure,
 19 we've got to do it in a way that brings those costs
 20 down, whatever form that takes.

21 MR. OWENS: Jim.

22 MR. ANGEL: Well, one cost that we don't
 23 talk about is the cost to the limit order that is
 24 allegedly traded through. And this is something where
 25 I really hope that the SEC Staff uses its CAT data to

1 tell us who is being traded through and are they being
 2 harmed at all? Yes, you may observe what looks like a
 3 trade-through in the audit trail, but what happened to
 4 that order? If they waited a few more milliseconds,
 5 did they finally get filled after the alleged trade-
 6 through? In that case, who's been harmed? And
 7 indeed, who are they? Are they someone representing
 8 Mr. and Mrs. 401(k)? Are they a retail investor? Are
 9 they an ATFT? Who's being traded through and are they
 10 really harmed in any way?

11 You know, before we really make decisions,
 12 we should know whether there really is any cost to
 13 trade-throughs.

14 MR. OWENS: Yes, Chris.

15 MR. NAGY: Thanks, Andre.

16 So first off, I'd just like to say that I
 17 agree that Joe Mecane is a rare individual. But I
 18 also agree with his viewpoint about if you repeal 611,
 19 you're not necessarily going to reduce the market data
 20 connectivity costs associated with it.

21 I'm going to take a little bit different
 22 angle on the cost issue. So many of you may not know,
 23 but over the course of the past decade, I read and
 24 summarize every single SRO filing and have done it for
 25 quite a while. Generally, there's over 1,200 of them

1 a year.

2 What makes this important is that's exactly
3 where market data costs are filed and come from. All
4 the market data costs and connectivity. So when I see
5 things like an exchange filing for the fifteenth time
6 as a new filing that was twice suspended by the SEC,
7 basically usurping Commission process, the problem
8 isn't rule 611.

9 The unprecedented rise in these market data
10 costs can be traced to two things. First, I feel the
11 Commission's deeply flawed process for reviewing and
12 approving many of the SRO filings, and fee filings in
13 particular, is flawed. We petitioned the SEC, I think
14 it's been four or five years ago now, to fix the
15 process and nothing's been done on that.

16 Second, I think Section 916 of the Dodd-
17 Frank Act, which was included at the insistence of
18 Congressman Meeks of New York, essentially created a
19 short-circuit, expedited process that makes it
20 procedurally difficult if not impossible for market
21 participants to review and comment on filings on time
22 and for the agency Staff to intervene the filings.

23 And so what we have is an evergreen state of
24 filing. And if you read these things as long as I do,
25 an exchange will file. When the time comes up, they

1 withdraw and refile it, even if that filing has been
2 suspended. What happens? Those port charges, those
3 market data costs continue on.

4 We're going on four years on some of these.

5 Thank you.

6 MR. OWENS: All right, thank you.

7 MR. KELLNER: Andre?

8 MR. OWENS: Yes.

9 MR. KELLNER: Just one more, one thing.

10 Joe put out the data today. I'm guessing
11 that's right, and I don't know exactly what's going
12 into it. But just doing some quick calculation off of
13 that 375 million, it does sound like a big number.
14 But if you divide that by all the -- just take that
15 and divide that by all the equity shares that are
16 traded in a year, it comes down to about half a mil,
17 half a mil a share.

18 So just I think -- I think, yes, we should
19 continuously look at ways we can reduce cost,
20 especially on the market data fee side. But we also
21 need to put it in the context of the infrastructure
22 that we all have in place and what it actually costs
23 per share.

24 MR. OWENS: Thank you, thank you.

25 I wanted to actually follow up on something

1 that Jeff mentioned. You had mentioned that, you
2 know, a lot of brokers use their market maker for
3 connectivity and the like. I was going to -- do you
4 have any thoughts on how that impacts -- how that
5 plays out over the law in terms of spreads and
6 execution quality.

7 MR. STARR: Well, I think it does -- it does
8 two things, in my view. One is it allows us to
9 leverage the technology investments of those firms.
10 So when you go back to -- people are referencing when
11 collocating became the thing, it let firms like ours
12 focus on our core business, which was serving our
13 clients, advising our clients, and not get into the
14 technology arms race. Around it, we were able to
15 leverage the investments that those firms had made.

16 The second thing that that market has done
17 though, it's inspired competition. We've now got a
18 market now where exchanges compete with off-exchange
19 venues for retail order flow. You've got a market
20 where the market makers themselves compete for retail
21 order flow. And if you just look at the statistics,
22 you can look at execution quality, you can look at
23 price improvement. I mean, all of those things have
24 worked in the benefit of retail clients.

25 MR. OWENS: Got it. Thank you.

1 Another type of complexity which came up on
2 the first panel and you see in some of the literature
3 around 611 relates to the proliferation of order
4 types, complex order types.

5 Hubert, can you kick us off on this? Do you
6 have any thoughts on sort of what you're seeing and
7 what it means for your firm?

8 MR. DE JESUS: I mean, we definitely do see
9 some new order types that are geared towards managing
10 our handling Rule 611. A lot of those tend to be more
11 of the ISO order types, the intermarket sweep orders
12 that have been created so that people can kind of
13 sweep through -- you know, sweep through the book
14 knowing that they're taking out the protected quotes
15 on other venues when they're sending orders to the
16 two-way venues. But I think a large degree of the,
17 you know, hide not slide, you know, price to comply
18 order types that we've all kind of talked about in the
19 past are really not there to deal with Rule 611 but
20 there to deal with other aspects of market structure.
21 For instance, the ban on locked and cross markets.
22 And so since you can't lock or cross a quotation, you
23 oftentimes have to change -- you know, where you would
24 have priced more aggressively, you have to slide that
25 quote back so you can comply with the prohibition.

1 And I also think part of the complexity also
2 is allowing liquidity providers and market makers to
3 make sure that they're on the right side of the quote.
4 Right? A lot of the order types are there to make
5 sure that you're only adding and only providing
6 liquidity so you can collect a rebate and capture
7 spread, and so that you're not inadvertently crossing
8 the spread when the order hits the exchange and the
9 market like moves very quickly.

10 So some of these order types wouldn't
11 exactly go away with the elimination of Rule 611,
12 unless you also deal with the prohibition on locked
13 and crossed markets and other aspects of market
14 structure.

15 MR. OWENS: Adam.

16 MR. NUNES: Yeah, Hubert makes a good point.

17 And I do think that when you think about the lock-
18 cross prohibition, combined with trade-through, from
19 an implementation and compliance standpoint, the
20 difference is basically an equal sign as opposed to a
21 greater than or equal sign. They are effectively the
22 same rule. You can send an order to price. So on a
23 trade-through, an IOC can go at a price. If you can't
24 send a day order, if you have residual to post at that
25 price, you're still impeding price discovery by not

1 permitting that order to display. All the compliance
2 systems are the same. All of the, you know, order
3 routing positions are the same.

4 And, yeah, the order types you referenced
5 are very much there for, you know, trade-through to
6 some degree. But, you know, a lot of it is on the
7 lock-cross side or really the lock side of things.

8 And I think that when you talk about order
9 types, you know, you send orders and those orders have
10 features. And I think one of the things that adds a
11 great deal of complexity is that you have features to
12 do one thing sitting on top of features to do another
13 thing, and the combinations of those can get quite
14 extreme. But one of the things everyone has to deal
15 with on every single order they're sending is, is it
16 an ISO and the exchange can do -- you know, can just
17 kind of take the instructions and do it? Or if it's
18 not, they want to accept that order and they want to
19 handle that order in a compliant way for that firm.
20 So that means, you know, putting in like well-
21 intentioned and thoughtful processes on like, okay, I
22 have this order. It would lock the market. I want to
23 work that order at the most aggressive price I can.
24 That means I'm going to not display it at the working
25 price that locks the market, display it at the most

1 aggressive price that I can.

2 Hubert noted like what if it's an add
3 liquidity only? And then you're dealing with what's
4 the price on my exchange versus another? It's like,
5 so they do get quite complex.

6 You know, Jeff kind of referenced he got
7 sourced out complexity to firms who do it. You know,
8 perhaps where -- we had a time in the early 2010s
9 where there was a great deal of scrutiny on that and
10 it seemed like a lot of people realized that those
11 existed. I think the better way to deal with it is to
12 make things less complex. It kind of means the
13 exchanges aren't changing prices and sliding things
14 back and this and that.

15 So, you know, I think that things are
16 complex. If we can remove one degree of complexity
17 from the order types, it makes a big difference.

18 MR. OWENS: Got it. Thank you.

19 MR. MacKENZIE: Just to add, I think in
20 speaking with, again, one of our desk heads, he said
21 there's roughly 50 complex order types that we use.
22 And to add, you know, to the discussion, I think we've
23 hired, you know, these quantitative researchers to
24 develop strategies to use those orders that would not
25 be necessary without the rules in place. That's an

1 opportunity cost, when we talk about the cost of
2 complexity.

3 MR. ANGEL: Those 50 rules are for a
4 multitude of orders, not -- tied to a multitude of
5 rules. They're not necessarily 611.

6 MR. ANGEL: Exactly. Yeah. And to build on
7 the point that 611 is not considered in a vacuum.

8 MR. OWENS: Yeah, Armando.

9 MR. DIAZ: The New York Stock Exchange
10 should be commended for publishing the anatomy of the
11 use of their order types. And if you go through it,
12 if you count inter-sweep orders, intermarket sweep
13 orders, ISOs, DNS orders, non-routable orders, it's
14 roughly 54 percent, based on August 2025 volume. That
15 includes 37 percent which was done in auction. If you
16 remove that, that's the overwhelming majority of
17 volume using order types that are meant to suppress or
18 sidestep 611.

19 You know, there's been a lot of conversation
20 here about locked markets. I just want to make one
21 comment. Locked markets that are a stalemate over the
22 rebate serve no function. They are confusing.
23 They're nonsensical.

24 A locked market should result in a very
25 large trade. If it does not result in a very large

1 trade, the market is not at equilibrium. The market
2 is rarely at equilibrium. These are largely a
3 function of rebate and waiting for it. And
4 oftentimes, they are the function of a slower exchange
5 not refreshing the nondisplay liquidity and the faster
6 exchange locking that market.

7 So that should be something that's looked
8 at. You know, to the point that we reach Nirvana
9 where we can have a locked market that has endless
10 liquidity, of course, that would be great. That isn't
11 what's occurring now when we have locked markets.

12 MR. OWENS: Thank you.

13 Jonathan, did you have a comment? You good?
14 Okay, great.

15 One last question related to cost. And
16 this -- I'm curious as to whether or not folks can
17 speak to the cost of complying with 611. I know on
18 the prior panel, there were some remarks that it's
19 actually kind of hard to quantify.

20 But, you know, the rule is a policies and
21 procedures based rule. But it still requires, you
22 know, surveillance, technology, exception reports, you
23 know, how is it -- how are you dealing with this from
24 a compliance perspective? What is your experience
25 with the SEC Examination and Enforcement folks when

1 we do anything so we can tell them exactly which
2 quotes we saw at that time. We give them our
3 snapshot. Oh, these are the ISOs that we sent that
4 satisfied some of the quotes that you show us either
5 locking or trading through, to basically just
6 demonstrate, here's what our system is, here's how our
7 system works.

8 That's a lot of back and forth that
9 generally gets to, oh, okay, you're doing the right
10 thing, and we move on. And I think we've seen
11 instances where firms weren't doing the right thing
12 and there was enforcement. So I do think that's a
13 functional system. But that functional system has a
14 lot of overhead associated with the exception reports,
15 the systems that are built out to do that.

16 I think the other aspect of it that, you
17 know, does factor into the cost is if you want to be a
18 firm that competes in the United States of America,
19 you not only have to be good at trading, at customer
20 service, you also have to get that exactly right. And
21 there's not a great deal of forbearance to come in and
22 say, hey, I'm new here, so I'm going to trade through
23 and lock and cross the market a bunch because I'm
24 trying to figure it out. You need to get it exactly
25 right from the start.

1 they come in to look at your 611 compliance?

2 MR. NUNES: I can't put a good number on it.
3 I can kind of walk through how we think about it and
4 just like the process.

5 So, you know, we have to build systems that
6 are designed to comply on the front end. So that
7 takes just -- the rule is complex and the
8 implementation from a coding perspective is
9 nontrivial. I'll touch on that a little bit at the
10 end with a different angle.

11 You know, when this rule was implemented, we
12 were in a world of seconds and 30 seconds for, you
13 know, like the manual markets. We're now in a world
14 where price precision is very fine. So practically,
15 you know, we have like -- FINRA or the SEC are likely
16 looking at either the SIP or a consolidated, you know,
17 even direct market data feed. And for an active
18 market maker, they will show us locking the market a
19 lot.

20 So the process around that is generally they
21 see a bunch of locks, they may see some trade-
22 throughs. And they are going to sample those, send
23 those samples to us and we're going to show them,
24 well, here's our view of the market. We have to have
25 a system in place that has a quote snapshot every time

1 And, you know, we have seen, you know,
2 futures firms, firms that are successful in futures,
3 have a hard time getting into U.S. equities. We've
4 seen foreign firms who are very successful in foreign
5 markets have a hard time getting into U.S. equities.
6 And over the long run, you know, we tend to focus on
7 like the one-off, two-off trade-throughs. There's a
8 bigger picture of competition. There's a bigger
9 picture of innovation. And we don't know what we're
10 like not allowing to happen and, you know, the market
11 forces that we're not allowing to come in.

12 MR. OWENS: Thank you, thank you.

13 Competition. So a lot of discussion in the
14 adopting release for the rule and on our earlier panel
15 about competition among markets versus competition
16 among orders and fragmentation and the like. I wanted
17 to start out and sort of get your perspectives on
18 fragmentation. And in particular, fragmentation not
19 just among exchanges, right, not just the
20 proliferation of exchanges, though please speak to
21 that, but fragmentation between a lit market and a
22 dark market and get your perspectives on the extent to
23 which 611 in particular has driven it.

24 Can we start with -- Jonathan, do you want
25 to start us off here?

1 MR. KELLNER: Sure. So I think when we
2 think about competition, I will tell you, you know,
3 we've watched since we've launched, and since I've, as
4 many of you know, been in this industry for a long
5 time. We continue to see the amount of dark trading
6 or off-exchange trading increase. And sitting at the
7 exchange, trying to figure out how do we get more flow
8 and how do we innovate on the exchange to try to bring
9 back more lit liquidity, more liquidity on the
10 exchange. And what happens is we come up with an idea
11 and we try to take it to the Commission. And so far,
12 historically, it's been challenging to get that
13 through, whether it's an explicit rule or an
14 interpretation of a rule that prevents us from being
15 able to do that on exchange.

16 And so I think from our perspective, it's
17 not 611 that has prevented that competition. So it
18 doesn't mean that we are -- we are concerned about the
19 competition. We just think addressing 611 is not
20 going to change the -- directly change that balance of
21 competition between what an exchange can do or what
22 can be done on exchange and what can be done off
23 exchange.

24 And that is a little bit of our concern. If
25 we just change 611, do we expect flow to move on

1 exchange? And I don't think that's the case.

2 You know, as you'll hear, I'd continue to
3 encourage that we have to look at other rules that are
4 driving and forcing some of that flow off exchange. I
5 will also say like that when you think about -- as I
6 said at the outset, it's about displayed liquidity,
7 trying to encourage displayed liquidity. I think the
8 thought behind order protection is to encourage
9 displayed liquidity. You can debate whether that's
10 worked or not.

11 If you remove that, we need to think about
12 what else is going to encourage displayed liquidity.
13 Because I think the natural tendency for markets is to
14 move to a bilateral setup. And so you'll see we have
15 a lot of that off exchange today. And it provides
16 great experience with people trading bilaterally on
17 ATSs. But if we don't protect the lit quote, then,
18 you know, what's going to happen to our NBBO or NPGO,
19 however you want to call it. And so I think it's also
20 thinking about how do we continue to foster a strong
21 NBBO. And so allowing the exchanges to compete
22 effectively and then fostering that displayed
23 liquidity is what we should be thinking of.

24 MR. OWENS: And I take it when you talk
25 about competition, you're talking about innovation,

1 largely, too. Right? Being able to innovate more
2 easily through the rule filing process?

3 MR. KELLNER: Yeah, I think, of course.
4 Yeah.

5 MR. OWENS: Armando?

6 MR. DIAZ: My view is we're making too much
7 between lit and dark. We already have markets that
8 are overwhelmingly dark. Let's take the 50 percent
9 that we generally credit for being lit. Fifteen
10 percent of that 50 is at the open and the close
11 between two exchanges.

12 Exchanges do as much at midpoint hidden as
13 all ATSs, or just a tick below. So they're virtually
14 equal.

15 And then if you factor in, which nobody
16 knows, the percentage of volume that is occurring with
17 an iceberg order, you're well over 50 percent of that
18 50 percent.

19 The example that I would give you in terms
20 of price discovery is the close. We generally view
21 the close as very efficient. And take an example, we
22 have 550,000 shares for sale, we have 500,000 to buy.

23 We have 50,000 shares, the in-balance price, the
24 1,050,000 shares. So that's less than 5 percent
25 that's contributing to price discovery. And the

1 throughput is 1,050,000 shares. So I really think
2 that we have to focus on this lit market versus dark
3 market, and really focus to the point of view where,
4 you know, apply that quip that one person's freedom
5 fighter is another person's terrorist. One person's
6 lit market is another person's slippage. And it is
7 nonsensical, and it has been rejected, the notion that
8 people are going to display a large amount of
9 liquidity.

10 So I really think that that's the key to
11 strengthening the NBBO is permitting and maybe even
12 protecting, uniquely, the iceberg component of the
13 order. Because I really view the issue with the
14 market, as I said before, is the throughput. And
15 there's too much focus on the lit component of it.
16 And collectively as an industry, I think that we've
17 missed the fact that we have tighter spreads but the
18 amount of liquidity that we have at those spreads are
19 materially less than spreads have contracted.

20 So the shape of liquidity has changed. It's
21 much longer, or wider, excuse me. It's less deep.
22 And again, it's overwhelmingly impacted institutions.

23 MR. OWENS: Allison?

24 MS. BISHOP: Yes, I would like to agree that
25 that, that the NBBO quality is the specific issue of

1 lit versus -- is a better proxy than lit versus dark.
 2 Because when you're trading institutional blocks,
 3 you're benefitting from that pricing concept of the
 4 NBBO and that's really sort of where, you know, we
 5 need that robust price discovery.

6 I just want to bring up that we talk about
 7 fragmentation a lot in terms of number of venues. But
 8 there's also fragmentation in terms of time. So the
 9 point of the close being sort of such a big event
 10 every day, at the same time we're all saying there are
 11 so many exchanges, there are so many venues, that's
 12 diluting the quality of the NBBO, there's also all
 13 these suggestions to increase hours and sort of spread
 14 things out over greater amounts of time, which I think
 15 is also a threat to the quality of the NBBO if we have
 16 to sort of spread out natural liquidity over longer
 17 periods of time.

18 So I would agree that the right sort of
 19 focus is on shoring up the NBBO across time and space.

20 MR. OWENS: Sorry, go ahead.

21 MR. NUNES: I'm sorry, if I could add one
 22 thing?

23 I think on the earlier panel, it was noted
 24 that like 10 percent of volume was off exchange in
 25 2004, 40 percent today. I think the 10 percent is

1 But, you know, it is the case.

2 MR. OWENS: Kevin.

3 MR. KENNEDY: So first of all, I want to
 4 agree with Adam on the SIP reform. That would be
 5 awesome. We'll have that on New Year's Eve. We'll
 6 have that one on New Year's Eve.

7 MR. SELWAY: Just keep going, man.

8 MR. KENNEDY: You're seeing a lot of me now,
 9 now that you're in this role.

10 So we're -- I do want to bring home the data
 11 on on-exchange versus off-exchange. So we looked at
 12 the on-exchange trading without the crosses. And
 13 since 2020, there's been two years of growth in on-
 14 exchange continuous trading. And where price
 15 formation and discovery occurs on the exchanges.
 16 That's how you know where things are trading. We've
 17 had two years of growth and it's up 16 percent since
 18 2020.

19 The off-exchange is up 87 percent, to 7.7
 20 billion. So that is the problem.

21 You need to reward price discovery. You
 22 need to reward that lit market. We keep saying the
 23 NBBO, but to me it's really about price discovery.
 24 And you can do it by letting me compete. Me, the
 25 exchanges, let Jonathan, let all of us compete on and

1 wrong. So I think that like miscategorized Nasdaq
 2 volume as kind of on exchange. Nasdaq wasn't an
 3 exchange at the time and, you know, the ACT volume was
 4 significant, the ECN volume was significant. My guess
 5 is it's probably closer to 30, 35, at the time.

6 But be that as it may, if trade-through is
 7 supposed to be the thing that protects displayed
 8 liquidity, it's not working. Whatever that number
 9 was, I think it's higher now. So I don't think that
 10 that's kind of a rationale to preserve it.

11 I think that one area that we could explore
 12 and should explore is if we want to reward displayed
 13 orders on markets that execute, we have a market data
 14 revenue sharing formula that currently just rewards
 15 those quotes. And we've seen massive distortions in,
 16 you know, one exchange is 44 percent of the NBBO in
 17 SPY and 4 percent of the volume in SPY. So, you know,
 18 volume that trades on exchange I think is truly
 19 valuable and do think that should be rewarded, and I
 20 think that's something that could just be an
 21 adjustment to the formula.

22 But, you know, I do think that we've seen a
 23 shift to non-display. Again, this isn't happening in
 24 a vacuum. There are other reasons outside of NMS for
 25 that. And perhaps it's in contravalance to that.

1 off exchange. And that's the leadership I think we're
 2 going to get, and I am really optimistic. But that's
 3 what we support.

4 MR. OWENS: Any other comments here?
 5 Go ahead, Hubert.

6 MR. DE JESUS: Sorry. I just wanted to
 7 highlight I definitely agree with the points that
 8 Jonathan was making. When you think about innovation
 9 that we've seen in the markets, the innovation that
 10 we're seeing in the markets, the innovations that
 11 we're seeing in the markets are platforms like
 12 PureStream or OneChronos, IntelligentCross, right?
 13 It's people coming to market with different order
 14 types, with the ability to kind of segment client
 15 flow. Right?

16 A lot of this is not driven by Rule 611.
 17 It's driven by other aspects of market structure like
 18 fair access. But that said, I do think we have seen
 19 innovation in the exchange space as well. We are
 20 seeing new platforms like Texas come to market as a
 21 listings kind of venue. We've seen IEX come to market
 22 with a more innovative kind of speed bump type of
 23 approach to its execution.

24 So there is, you know, innovation that's
 25 kind of happening. But I think we're getting too lost

1 in the kind of displayed versus non-displayed. I
2 think there's also the question that was originally
3 raised, which is how much fragmentation do we see in
4 the exchange market, and does that make sense. I
5 think when you look at the data we saw earlier, there
6 are eight exchanges with less than 1 percent market
7 share, and they cumulatively account for less than 3
8 percent of the market.

9 And so we would suggest that there is
10 something that needs to happen to address exchange
11 fragmentation. But OPR isn't the only solution to
12 that, or the trade-through prohibitions aren't the
13 only solution. It is also things like how exchanges
14 are collecting on market data revenues from the SIP.
15 Or, you know, connectivity fees that they're charging
16 to the industry. And so all of these things need to
17 be addressed holistically if you want to really
18 address exchange proliferation and market
19 fragmentation.

20 MR. OWENS: Thank you.

21 MR. NAGY: Can I just make one point on
22 that?

23 So I agree completely with what Hubert said.

24 And I just add that, you know, we have seen a lot of
25 retail growth. I think the previous panel talked

1 retail is down 30 percent on daily volumes. And
2 retail sends their order flow to internalizers. And
3 they're going to continue to send their flow to
4 internalizers, even if 611 is taken down. So the
5 question is if you want to get it on exchange, if you
6 want control over that, then you need to think around
7 rules around how that happens in the context of best
8 execution.

9 MR. OWENS: So that's a perfect lead-in,
10 Chris, thank you, to best ex.

11 So it's interesting, you know, we've had a
12 number of comments that sort of, I guess, expressed
13 the reality that 611 is best ex. That's not the way
14 it's teed up by the Commission in its adopting release
15 with respect to the rule. Right? There's 611 and
16 then there's best ex. There's explicit statements
17 about how 611 is not meant to change your best ex
18 obligation. So there's definitely a disconnect there.

19 But I heard a few times, both on this panel
20 and the last panel, that if there are any changes to
21 611, they should only come after best ex is bolstered.

22 So, Chris, I know you've done a lot of thinking on
23 this. I know you mentioned you've got a list of
24 things that you think can be done. Maybe you can
25 start us off on this topic.

1 MR. NAGY: Well, I'd say if you just want to
2 wholeheartedly repeal 611, then make it easy. Throw a
3 trade-through on a trade confirmation. You know, I
4 get price improvement on my trade confirmations today.

5 Why can't I get a trade-through on my confirmation?

6 And that goes with institutional investors
7 as well, too. I will say I did -- after I left that
8 trading firm, I consulted and I did a lot of work with
9 institutional firms on implementing TCA in all kinds
10 of different asset classes. And I was a little
11 shocked at the lack of what was going on there. But
12 what I really found is that when you look at a lot of
13 the advisory shops that are out there, they're all
14 trading through retail channels. You know, they
15 custody through one of the big brokerage firms out
16 there.

17 And when you ask those advisory shops, you
18 know, what are you guys doing for your TCA? Oh, well,
19 gee, we just have a little check-the-box thing.
20 They're not getting customized 605 reports. They're
21 not getting customized 606. They're not really
22 getting customized anything. And I think you've got
23 to think about things in that context. Like how to
24 get these advisory shops which command a lot of assets
25 in custody through these retail channels the

1 disclosure and information they need. And I think
2 that's a really important aspect to consider.

3 Thank you.

4 MR. OWENS: Anyone else? Adam.

5 MR. NUNES: I guess as it relates to best
6 ex, I do think we need to take another look at it. I
7 don't know if the words in 5130 need to change, but I
8 think the application of it does. I think that there
9 has been a lot of talk about how people won't, you
10 know, disconnect from the exchanges and they'd be
11 afraid to disconnect from the exchanges. And on the
12 earlier panel, they talked about the European approach
13 to best ex, which is kind of more disclosure and
14 policy and procedures based. So I do think in a world
15 where you don't have, you know, you don't have 610,
16 611 effectively requiring everyone to connect
17 everywhere, you just need a standard of we did a
18 diligent process, this is what we do, we disclose that
19 to clients, and then we do it and we reevaluate that
20 as, you know, the market evolves, I think does come
21 into play.

22 One other thing that was mentioned as part
23 of that was the like how fees play into that. And I
24 think we'll touch on access fees as part of this.
25 Access fees was one of the big issues pre-NMS and pre-

1 trade-through -- that market that didn't have one. So
 2 I don't think we can just say you get rid of trade-
 3 through prohibition, access fees can go away. That
 4 was -- you know, that was an issue and a market
 5 failure that we would need to think about.
 6 But the notion that we shouldn't think about
 7 that in the context of like trading and accessing
 8 markets seems wrong. Like if I told everyone to go on
 9 Amazon and find me the best price for a product but
 10 don't include shipping and handling, guess what's
 11 going to happen to shipping and handling costs? And
 12 so that's kind of the state that we're in, and I think
 13 that that would have to be another part of the best
 14 ex, you know, kind of discussion, to say how do you
 15 think about that? How do they factor into your
 16 decision-making? Otherwise, there is just no governor
 17 on what those fees can be.
 18 So, you know, it is a big thing to look at.
 19 And I do think that, you know, today, I think the
 20 backstop idea is not that 611 is best ex. I think the
 21 idea is like if you get an order and you diligently
 22 route it to a bunch of the best prices, you're
 23 unlikely to have a lot of criticism of that and say,
 24 why didn't you internalize that? Right? That's not
 25 going to be a part of the discussion if you

1 internalized it. You'll have a lot of why didn't you
 2 go to all those places?
 3 So I think we just have to think about best
 4 ex where you don't have that backstop of if I did
 5 those things I'm probably fine. But I think that's a
 6 really healthy discussion. I think that considering
 7 the explicit fees, considering the fixed fees should
 8 be part of that discussion to get to a place -- you
 9 know, ultimately, those costs are passed through,
 10 whether it's explicitly or implicitly. So not having
 11 a governor on them is bad for the investors at the end
 12 of the day. And having them as part of the
 13 conversation and ensuring that we do a good job in
 14 that conversation, I think, is a big deal.
 15 MR. OWENS: Jeff, do you have thoughts?
 16 MR. STARR: Yeah. I was just going to say
 17 that, you know, while 611 is obviously not best ex, in
 18 the context of our best execution obligations and
 19 looking at our execution quality, I mean, the NBBO
 20 plays a role in that process. We are comparing
 21 executions against the NBBO. And so to the extent
 22 that we're looking at changing that, we're going to
 23 just have to make sure how that's going to translate
 24 into evaluation of retail best execution.
 25 MR. OWENS: Jim.

1 MR. ANGEL: And speaking of retail best ex,
 2 you know, as we've mentioned before, since the odd
 3 lots don't show up in the NBBO, measuring it against
 4 the NBBO really doesn't make sense. What we really
 5 ought to do is measure it against the actual displayed
 6 liquidity that is in the lit markets. That is how we
 7 should be measuring retail best ex. It's easy to do
 8 now with computers.
 9 MR. OWENS: So one of the questions I had,
 10 and maybe this is for Kevin, maybe for Matt, to the
 11 extent that we're thinking about -- or the Commission
 12 is thinking about eliminating 611 and relying heavily
 13 on best ex in the equity space, you do have the
 14 standardized disclosures that were mentioned, 605 and
 15 the like. You don't have that in the options space.
 16 What -- what would you think would have to
 17 happen in that space in order to eliminate the trade-
 18 through rule in the options space?
 19 MR. MacKENZIE: Gee, thanks.
 20 (Laughter.)
 21 MR. MacKENZIE: First he's got me coming in
 22 on Christmas.
 23 So I do think when we thought about this
 24 question, the very nature of the options market, given
 25 that it's all on exchange and the operation of OPRA,

1 if the trade-through were to go away, it becomes more
 2 of a -- you know, the NBBO is derived from the market
 3 data and the prices there. So like that's part of why
 4 we say that if the trade-through rule were to go away
 5 in options, the market seems to be able to bear it.
 6 It just becomes part of the -- the sort of
 7 consolidated tape in options. And, you know, that's
 8 something that we'd be pretty comfortable with, to be
 9 honest.
 10 MR. OWENS: But how does a broker decide
 11 where to route along options exchanges?
 12 MR. NAGY: Can I jump in a little bit? I've
 13 got a few thoughts on this.
 14 So I chaired the SIP options committee way
 15 back. And, you know, options are a totally different
 16 animal. And comparing options to equities, as an old
 17 option friend told me, it's like comparing apples to
 18 oranges to Volkswagens. But the reality is, in the
 19 options world, you know, we don't really have any
 20 disclosure. There is no 605 disclosure. And it's
 21 hard to just put a 605 disclosure in the options
 22 markets because you've got so many quoted classes for
 23 the underlying going on.
 24 Now, an interesting story with this is when
 25 I was Chair, we set about creating disclosure for

1 execution quality in the options markets. And my
 2 successor in 2008, Joanna Fields, saw it through and
 3 there was 605 kind of like metrics in the options
 4 world. But it wasn't mandated, nobody took it. And
 5 then it just quietly vanished, and it's gone.
 6 So again, I'd say, number one, if you're
 7 going to do something in the options world, right, and
 8 take out OPP, then you really should consider
 9 mandating disclosure and quality.
 10 MR. OWENS: Got it. Thank you.
 11 MR. KENNEDY: I'll chime in, just because I
 12 passed the buck to Matt.
 13 And again, I keep quoting Chris, but Chris
 14 Isaacson brought it up. It's so complicated if you
 15 take it out of the options space with the complex
 16 order of auctions, there's price improvement auctions.
 17 There's the opening auction every morning. We had --
 18 there was 1.7 million strikes opened. And I think
 19 what you'll get is -- and then we can add in the
 20 trading floors for even more auctions.
 21 But what you'll get is, I think, regulation
 22 sort of by punishment instead of by prevention. And I
 23 prefer it by prevention, certainly where I can't see a
 24 problem we're trying to solve.
 25 MR. OWENS: Hubert?

1 MR. DE JESUS: Sorry, I just wanted to make
 2 one note on best execution and Rule 611. You know,
 3 the common thought is if you eliminate Rule 611, that
 4 brokers' best execution obligations will prevent them
 5 from trading through better price quotations. And I
 6 think that would be true for us in how we expect our
 7 brokers to behave.
 8 But Rule 611 also applies to all market
 9 centers, which it doesn't just include broker-dealers,
 10 but also includes exchanges and alternative trading
 11 systems. And so there is sort of this corner case
 12 that might exist if you eliminate Rule 611 that a
 13 market center gets an order, there's a better price
 14 quote on a different exchange, and then they don't
 15 route out. And that was something that we saw
 16 happening before Reg NMS was put into place.
 17 MR. NUNES: Sorry. That could be a feature.
 18 Right? Prior to NMS, there was a business of pricing
 19 blocks and trading them. And there was a robust
 20 discussion about, you know, an exemption for
 21 institutions or institutionally sized orders. And
 22 something that we've seen in other markets globally
 23 are like, you know, on-demand auctions that are more
 24 focused on, you know, getting size than they are on
 25 what the NBBO is. So what he said is true.

1 And I think the discussion about innovation
 2 is like there still is innovation, but it is happening
 3 within a framework that eliminates from even having
 4 the discussion about what some of those innovations
 5 look like. And then there are further areas of
 6 innovation, say along speed bumps, where, you know,
 7 there is a negative externality to market participants
 8 because if they have the right to have a protected
 9 quote, everyone in the market has an obligation to
 10 respect it.
 11 And coming from a place where the kind of
 12 driving force behind NMS was that we had slow
 13 exchanges and the ITS trade-through rule that were
 14 able to impede competitors and impede price discovery
 15 by leaning on that. You know, there's a great deal of
 16 sensitivity to, you know, delays and slower markets.
 17 Those kind of become non-discussions in a world where
 18 there isn't a trade-through rule because that negative
 19 externality on other exchanges and other market
 20 participants goes away.
 21 You know, this was obviously an issue on
 22 IEX. We currently have two filings along those lines
 23 that are pending that don't have to be controversial
 24 if they comply with the Exchange Act, let them go.
 25 And a lot of the discussion goes away because they're

1 not holding other exchanges to their delay. And
 2 there's, I think, rightfully a great deal of
 3 sensitivity on that.
 4 MR. OWENS: Interesting. Interesting.
 5 Was there someone else who wanted to chime
 6 in on this?
 7 MR. NAGY: I was just going to chime in
 8 regarding the options markets, because I heard that
 9 it's, well, maybe efficient. And I'd just say is it
 10 operating efficiently? You know, when you look at the
 11 order flow rates in the options markets, they're
 12 considerably higher and a big source of revenue for a
 13 lot of the firms out there. So when you look at that
 14 aspect, there is a natural gravitation to want to push
 15 people into options because of how lucrative it is.
 16 And I would say that that suggests that
 17 there might need to be more work around execution
 18 quality and disclosure in that marketplace.
 19 MR. OWENS: Kevin, I assume you want to --
 20 MR. KENNEDY: I've learned over the years
 21 that you pick your battles with Chris Nagy, so I'm not
 22 sure --
 23 (Laughter.)
 24 MR. KENNEDY: I will say this. Chris, the
 25 only rebuttal I would have to that, I don't get into

1 the payment or order flow space that much. I'm not
 2 as -- no, no, no. But here's my question. Did you
 3 look at it notionally? Because if you think about the
 4 notional coverage of what the options market gives
 5 you, it might be a little -- might put a different
 6 spin on it.
 7 MR. NAGY: That's a fair point, Kevin.
 8 MR. OWENS: We're getting close to time.
 9 One last question.
 10 So we have talked about experiences in other
 11 markets. We've heard from the first panel about that.
 12 We heard the Canadian experience, which is useful.
 13 New markets. So digital assets, right?
 14 It's something that the Commission is really focused
 15 on. Nasdaq has a proposal out to allow its members to
 16 trade tokenized securities on the exchange, and those
 17 tokens would comply with all the rules that would
 18 apply to any other stock that's traded on Nasdaq.
 19 But I wanted to ask this group, should the
 20 trade-through rule have any applicability with respect
 21 to digital securities?
 22 Adam, do you have any thoughts on that?
 23 MR. NUNES: Sure. I guess the notion that
 24 like Coinbase can't trade at a price because Gemini
 25 happens to be at that price I think would be viewed as

1 absurd in the digital asset and crypto universe. And
 2 I think that that's kind of worth the stock exchanges
 3 and stock market reflecting on. Whereas I think that
 4 there are a number of other aspects of the equities
 5 market and the regulated market that, you know, do
 6 warrant a lot of consideration. I think some of the
 7 fundamental things, AML, KYC, some of the transparency
 8 questions, perhaps execution quality questions are
 9 like really fruitful discussion. But the notion that
 10 we're going to micromanage the execution, you know,
 11 seems a bit far-fetched.
 12 And I think, especially given some of the
 13 aspects of that market, and those could evolve,
 14 there's counterparty risk in that market. So, you
 15 know, your broker is that exchange. I might feel
 16 differently about one exchange versus another, and I
 17 might want to factor that into perhaps I want to pay a
 18 slightly different price because I trust that
 19 counterparty more.
 20 So there are going to be differences in the
 21 market structures. You know, that's going to be an
 22 evolving space. But, you know, I think that there are
 23 some fundamental areas where we can look at, you know,
 24 where were their like significant issues that we can
 25 apply in the digital asset space? Where were their

1 market failures? And where were the kind of things
 2 that were done on the transparency or public good side
 3 that, you know, could make that a better, more
 4 efficient market, without getting into like you can't
 5 do this because -- you know where I stand on that.
 6 MR. OWENS: Okay. Jim.
 7 MR. ANGEL: When we talk about tokenizing
 8 assets, I just have to point out that we have been
 9 tokenizing assets for over 400 years in this industry.
 10 So the idea that we are tokenizing things is not
 11 really new. And when we think about how to deal with
 12 the regulatory aspects, what we really need to focus
 13 on is what are we tokenizing? What are the legal
 14 rights and obligations of the token holder? And we
 15 need to focus on the fundamental objectives of
 16 regulation like fraud prevention, like making sure
 17 that the intermediaries are not going to, you know,
 18 take our money and run with it. Those are the
 19 fundamental objectives. And we can worry about
 20 micromanaging the details of trade execution far, far,
 21 farther down the line.
 22 But actually, if you liked this session
 23 today --
 24 (Laughter.)
 25 MR. ANGEL: -- next week, one week from

1 today, here in Washington, will be Georgetown's Psaros
 2 Center's Financial Markets Quality Conference. It's
 3 free. You can go to finpolicy.georgetown.edu. That's
 4 finpolicy.georgetown.edu --
 5 (Laughter.)
 6 MR. ANGEL: -- to register. It's really
 7 great. Chair Atkins will be speaking. Fed Governor
 8 Michelle Bowman will be here. Goldman's CEO will be
 9 here. We have a number of -- I see people in the
 10 audience who are going to be here, today.
 11 So don't forget, finpolicy.georgetown.edu.
 12 Thank you.
 13 MR. OWENS: Is anyone surprised? Anyone at
 14 all?
 15 (Laughter.)
 16 MR. OWENS: Thank you very much. It's a
 17 great panel. Thank you all for participating. And
 18 Jamie, thank you for having us.
 19 MR. SELWAY: Thank you, panelists. Thank
 20 you, Andre.
 21 We are going to take a break now. Be back
 22 here at 2:30 to hear from the Chairman.
 23 (Applause.)
 24 (Recess.)
 25 MR. SELWAY: As you can see, Chairman Atkins

1 has arrived. And so we'll hear from him now.
 2 Mr. Chairman.
 3 REMARKS FROM SEC CHAIRMAN
 4 CHAIRMAN ATKINS: Thank you, Mr. Selway.
 5 And thank you very much for being here. I'm thrilled
 6 that you took on the task of being the head of our
 7 Trading and Markets Division. So, bravo. We have a
 8 lot of work to do, and you're not doing it fast enough
 9 or, you know, smart enough here. So we'll have to up
 10 the game.
 11 No, I'm joking. But anyway, he's doing a
 12 great job.
 13 So really happy, and really nice to see you
 14 all here today. I'm glad to be with you to kick off
 15 now the afternoon portion of today's program.
 16 So before sharing a few reflections, I
 17 should point out, to make my compliance folks happy,
 18 that the views I express here today are my own and do
 19 not necessarily reflect those of the SEC in the past,
 20 perhaps in the future, and maybe not even in the
 21 present --
 22 (Laughter.)
 23 CHAIRMAN ATKINS: -- so as an institution,
 24 or my fellow Commissioners.
 25 And of course, I should also like to thank

1 each of our moderators, presenters, and panelists for
 2 lending their expertise to the task of examining items
 3 in our rulebook that warrant a refresh.
 4 We've heard some thoughtful exchanges on
 5 Regulation NMS this morning. And in just a few
 6 moments, we will turn to our next panel on a subject
 7 near and dear to my heart. It's the trade-through
 8 prohibitions, which is a policy that I've followed
 9 rather closely for several years, and one that I
 10 believe very clearly demands a course correction.
 11 As others have noted, the SEC adopted Reg
 12 NMS over two decades ago. Reg NMS consolidated the
 13 existing national market system rules under Section
 14 11A of the Securities Exchange Act, and imposed a
 15 series of new market structure reforms, including the
 16 trade-through rule, the access rule, the sub-penny
 17 rule, and market data rules. In short, Reg NMS gave
 18 the SEC an opening to substitute, indeed, supplant its
 19 own judgment for that of the marketplace.
 20 And today we are devoting this roundtable
 21 discussion to what I believe is by far the most
 22 problematic provision, and that's Rule 611 or the
 23 trade-through rule, whose deceptively benign name can
 24 do little to disguise the distortions that it's
 25 wrought over the years.

1 For context, the Commission approved Reg NMS
 2 at a time of considerable transformation. Electronic
 3 trading systems continued to unsettle old assumptions
 4 about how markets could function, as order handling
 5 and routing practices became more transparent.
 6 Intensifying competition, meanwhile, drove commissions
 7 lower and penny pricing reshaped the mechanics of
 8 trading.
 9 Left to market forces, I truly believe that
 10 these trends would have steered the national market
 11 system toward an outcome far more favorable than what
 12 the trade-through rule has delivered. Indeed,
 13 Congress rightly expressed in the Securities Act
 14 amendments of 1975 that competition not regulation
 15 ought to guide the evolution of our markets.
 16 Regrettably, the Commission rebuffed that
 17 contention. And while the markets were still
 18 developing, the SEC decided how to "fix" them.
 19 Now, the stated purpose of the trade-through
 20 rule was to "increase displayed depth and liquidity in
 21 an NMS and thereby reduce transaction costs for a wide
 22 spectrum of investors, particularly institutional
 23 investors that must trade in larger sizes." In
 24 practice, however, the rule restricted the price at
 25 which investors could trade by mandating execution at

1 or within the national best bid or offer. This led
 2 the industry to treat price, unfortunately, as the
 3 only factor when considering best execution.
 4 If left to their own judgment, participants
 5 could favor one exchange over another due to speed,
 6 the likelihood of execution, or attributes of various
 7 order types. I suspect the exchanges would have
 8 continued to innovate along many of these dimensions.
 9 But instead, the trade-through rule reduced every
 10 consideration to one single characteristic, and that's
 11 price.
 12 To be sure, I've long and vigorously
 13 supported Regulation NMS's overarching goal of
 14 enhancing the efficiency of our markets. My
 15 differences have always concerned the means of
 16 achieving this objective. As the Trading and Markets
 17 Staff wrote in 2015, "The SEC has often noted that one
 18 of the primary challenges in its oversight of the
 19 national market system is to facilitate an
 20 appropriately balanced market structure that promotes
 21 competition among markets while minimizing the
 22 potentially adverse effects of fragmentation."
 23 The fragmentation that has followed Reg NMS
 24 is now obvious to everybody. Unfortunately, the
 25 economic analysis in the original adopting release

Page 202

1 failed to grapple with these particular risks of
 2 fragmentation, its adverse impact on competition, or
 3 frankly any costs beyond implementation. This was, I
 4 believe, a gross oversight that informed a myopic
 5 approach to regulation.
 6 To some of us who were here at the time,
 7 this shortsightedness was evident. My fellow
 8 Commissioner Cindy Glassman and I spoke openly about
 9 where the Commission could have avoided its missteps.
 10 In our dissent, we argued that it would have been
 11 better "to improve access to quotations, enhance
 12 connectivity among markets and market participants,
 13 clarify the brokers' duty of best execution, and
 14 reduce barriers to competition."
 15 The Commission, however, chose to reject our
 16 arguments, as well as concerns I thought thoughtfully
 17 articulated by many, many commentators. And that
 18 choice precipitated a highly fragmented market
 19 governed by rules that invite gamesmanship.
 20 Ironically, a rule intended to strengthen
 21 liquidity has instead splintered it among an
 22 unprecedented number of venues. The result is a
 23 marketplace with more trading platforms than ever, but
 24 fewer broker-dealers and traditional market makers to
 25 knit it all together.

Page 203

1 Those intermediaries have succumbed to a
 2 combination of increasing technology costs, exploding
 3 regulatory costs, more competition for a shrinking
 4 active trading clientele as passive investment
 5 vehicles have become more popular and flexible, among
 6 other issues that beset the industry.
 7 Much of this is great for investors, at
 8 least in the short term. But what does it mean for
 9 market health in the long term? We are now 20 years
 10 out from the troubled promulgation and implementation
 11 of Reg NMS. What will things look like in another 20
 12 years if the status quo remain?
 13 Meanwhile, the fallout of the trade-through
 14 rule extends also to forcing institutional investors
 15 to exhaust the often limited amount of liquidity
 16 available at the NBBO before they can access larger
 17 pools necessary to execute substantial block trades,
 18 potentially revealing their intentions to a market
 19 eager to pounce on any information leakage. So none
 20 of these outcomes is a hallmark of the worthy goals of
 21 a fair, orderly, and efficient marketplace.
 22 So today, I am quite pleased that the Staff
 23 is engaging in a reassessment of NMS. I am eager to
 24 hear the insights and perspectives that will emerge
 25 from our next two panels. Reg NMS has fundamentally

Page 204

1 reshaped our markets, and the Commission has layered
 2 two decades of rules upon its flawed foundation.
 3 So that's not to say that things cannot be
 4 improved. Many of the problems that we face today in
 5 the markets stem directly from the unintended
 6 consequences of regulatory policies. This sort of
 7 situation usually results when policymakers substitute
 8 their own judgment for that of the markets.
 9 As the Staff reviews Reg NMS and develops
 10 recommendations, I've asked them to take a considered
 11 approach to avoid repeating the mistakes of 20 years
 12 ago. Regulations must evolve alongside the markets.
 13 And I am committed to ensuring that a future
 14 Commission is not going to be saddled with the same
 15 challenges that we've left ourselves two decades ago.
 16 So in light of these reflections, I thank
 17 you once again for your engagement and for your
 18 dedication to this critical dialogue. The work before
 19 us will help the SEC to fulfill goals set forth in its
 20 mission. So I look forward to the discussions to
 21 follow.
 22 I'm sorry I can't stay because I have to run
 23 across town. But I really look forward to following
 24 the recordings and the fallout and the commentary from
 25 what you all talk about. So that's great. So thank

Page 205

1 you.
 2 Anyway, thank you very much, and good luck.
 3 (Applause.)
 4 MR. SELWAY: Thank you very much,
 5 Mr. Chairman.
 6 Can we please have the panelists for the
 7 third and final session to the stage, please?
 8 PANEL THREE: FORWARD THINKING
 9 MR. SELWAY: So for our third and final
 10 session, we will be moderated by Elad Roisman, also
 11 another former Commissioner of the SEC and good friend
 12 of the building. Elad is a partner at Cravath,
 13 Swaine, and Moore, where he is also a member of the
 14 Financial Institution Group and the Corporate
 15 Governance and Board Advisory Group.
 16 So, Elad, please finish us off.
 17 MR. ROISMAN: Thank you very much, Director
 18 Selway. Thank you, Chairman Atkins, for your remarks.
 19 Thank you, Commissioner Crenshaw and Commissioner
 20 Peirce, as well. And thank you Director Selway and
 21 your team for making this roundtable a priority and
 22 for helping all of us.
 23 Just for everyone in the audience's benefit,
 24 what we are going to do is we will give sort of a one-
 25 minute introduction from each panelist. Their bios

1 are on the website and probably don't do justice to
 2 the level of talent and knowledge here.
 3 Afterwards, we will have eight questions.
 4 And then we are saving the remainder of time for final
 5 thoughts.
 6 We are the, you know, looking forward panel.
 7 But it seems like that was also Panel One and Two, so
 8 we have the benefit of that. And I think we can
 9 safely say we've heard of freedom fighters, we had an
 10 adorable kid, we had Christmas Eve, we saw a prop, and
 11 a pretty impressive plug for an event next week.
 12 MR. SELWAY: Don't forget the octopus.
 13 MR. ROISMAN: And the octopus. So I think
 14 we can say safely equity market structure roundtables
 15 are back.
 16 And so with that, why don't we start
 17 actually in reverse alphabetical order with Debbie.
 18 MS. TOENNIES: I wasn't expecting that. I'm
 19 always last.
 20 (Laughter.)
 21 MS. TOENNIES: Hi. My name is Debbie
 22 Toennies and I am global head of regulatory affairs
 23 for J.P. Morgan's Commercial and Investment Bank. And
 24 first I want to thank the Commission for having this
 25 important discussion and for the invitation to be a

1 part of it.
 2 U.S. equities are widely recognized as the
 3 deepest and most liquid across the globe, as we've
 4 talked about on the prior two panels, a status that is
 5 underpinned by investor protection and efficient
 6 trading mechanisms. Retail investors now experience
 7 commission-free trading at or better than the observed
 8 price they see in the market.
 9 Having said that, there are structural
 10 issues, as we've talked about on the last two panels,
 11 that we think merit attention. First is the
 12 proliferation of exchanges. We went from seven, as
 13 was referenced 20 years ago, to 16, which is going to
 14 24. And we have to do something before that 24 goes
 15 to 100.
 16 I think perhaps having a minimum threshold
 17 of 1 percent for protected status might be beneficial
 18 there. I think also Citadel's recommendations on the
 19 revenue piece is worth looking at. Anything we can do
 20 to control that problem.
 21 Additionally, our large clients complain
 22 about 611 and their ability for block trades. I
 23 appreciated Chair Atkins's comments on that issue.
 24 And we actually think an exemption for large block
 25 trades here might make sense to allow them to get

1 better overall execution.
 2 There have been good arguments on both sides
 3 of get rid of it or moderate it. I think it's clear
 4 though that it's provided market integrity and
 5 investor outcomes. And maybe selective refinements --
 6 we would support selective refinements. But we don't
 7 want them to result in disruptions to the market.
 8 As Joe Mecane mentioned this morning, there
 9 are a lot of other rules that are interspersed with
 10 this rule. And my concern is that doing this is going
 11 to be complex, it's going to be resource intensive,
 12 and it's going to have short-term potential risk to
 13 the market depth and resilience. If we can't alter
 14 all of the affected rules simultaneously with removing
 15 this if we were to remove it, I think we put our very
 16 healthy markets at risk.
 17 And finally, looking ahead, continued
 18 innovation in equity markets is both inevitable and
 19 desirable. It is imperative that reforms preserve the
 20 core protections that have made the U.S. markets the
 21 envy of the world as a global benchmark for efficiency
 22 and investor confidence.
 23 MR. SMITH: Good afternoon. My name is
 24 Cameron Smith. I'm with the Texas Stock Exchange.
 25 And we have applied to be yet another exchange that

1 apparently is not super popular here. But we aim to
 2 be a very competitive exchange both in listings, which
 3 is somewhat novel with the new exchanges, and also of
 4 course trading.
 5 And I wanted to -- I almost forgot to thank
 6 Jamie and team for the invitation. We're not even an
 7 exchange yet, so I'm very flattered to be here to talk
 8 about market structure, something I've thought a lot
 9 about for the last 25 years.
 10 But instead of giving you a little bit of,
 11 you know, commercial about the Texas Stock Exchange, I
 12 thought it might be good -- and you probably all have
 13 introduction fatigue at this point. So I thought I
 14 would just lay the scene here.
 15 We are in a market where mostly retail
 16 trades off exchange. Institutions -- I've been out of
 17 the industry and I have been out of the industry and I
 18 started making the rounds, you know, with the Texas
 19 Stock Exchange talking to the institutional sell side
 20 kind of firms. And when you talk to them, they'd say
 21 about 50 percent of their order flow is executed off
 22 exchange. And that number feels like it's going
 23 higher. I guess overall, right, 53 percent is off
 24 exchange.
 25 In fact, I was interested to find, and I'm

1 sure most people in the room understand that the
2 exchanges now, seems like you try everywhere else and
3 then orders are going to the exchange. So they're
4 sort of the -- the NBBO is sort of a last resort
5 price, as where we are in history. And it made me
6 joke to one of the guys in the meetings after he was
7 telling me this, I said, I feel like I am 7-Eleven
8 selling milk; no one is going to come to me unless
9 they've tried everywhere else first. And so exchanges
10 are in a tough spot.

11 Luckily, I think there's things we can do
12 going forward to improve the situation, make exchanges
13 more relevant. But more importantly, because this
14 isn't about exchanges, it's bringing innovation to the
15 equity markets, which means that there's a lot of
16 competition from other asset classes, and we need to
17 maintain the equity markets both for issuers and
18 investors.

19 Thanks.

20 MR. SMITH: Good afternoon. Thank you to
21 the Commission for this opportunity, for Jamie and the
22 Staff and the other Commissioners and the Chair for
23 enabling us to have this important discussion. We
24 really appreciate the SEC's openness to revisit these
25 rules and seek industry feedback with, you know, a

1 data-driven approach as to whether we want to change
2 the trade-through prohibitions and the many related
3 rules.

4 Our view is if the problem is exchange
5 proliferation, and that's really driven by the
6 incentives that are in place in the market, which is
7 the SIP revenue model, then I suggest we take a
8 surgical approach to addressing the SIP issue and then
9 see if we still have that same problem.

10 I think that, you know, when we look back at
11 the predictions and concerns about Rule 611 that were
12 expressed at the time of its adoption, they were
13 correct, right? They've come to be. They've been
14 realized. But as others have talked about, the market
15 is efficient, and it finds solutions. It finds
16 efficient solutions to address these problems and the
17 structural parameters that it has been given.

18 Those solutions, obviously, don't come
19 without a cost. But we know those costs, and
20 competition helps reduce those costs. And, you know,
21 I think it's important for us to take a very close
22 look at what sort of costs, what's the range of costs,
23 and other factors both in terms of changes in trust
24 and confidence in the markets, investor confusion and,
25 you know, potential increase in costs if we make big

1 changes to Rule 611.

2 MR. SALUZZI: Thank you, Jamie, and the SEC
3 for inviting me. My name is Joe Saluzzi. I am a
4 partner and co-founder of Themis Trading. Themis
5 Trading is a boutique institutional agency brokerage
6 firm. We're based in Chatham, New Jersey. We've been
7 doing this for quite some time. We started in 2002.
8 Prior to that, I worked at InstaNet for a while, so I
9 know something about the electronic markets.

10 But when we started the firm, we realized
11 market structure was changing. And particularly in
12 2005, like the Chair has said, with Reg NMS. And we
13 knew we had to learn the inner workings of market
14 structure first to compete.

15 We trade mostly small to mids and tough-to-
16 trade stocks, so it's the bottom of the list of most
17 institutional traders. We get it, and those are the
18 ones that we really excel at, because you need to
19 understand market structure in order to trade these
20 stocks. You can't just pop them in an algo and expect
21 to get the results.

22 So they trade much differently. I think
23 that's a point some of the other panelists made. It's
24 much different than an ETF and a big cap versus a
25 small and a mid-cap.

1 So I wanted to just read a quick quote from
2 Chairman Atkins when he was before the 2021 Investor
3 Advisory Committee and he talked about Reg NMS. And I
4 thought this quote was fantastic, and I could have put
5 it in our book Broken Markets in 2012, but it was nine
6 years later.

7 So he says here, "Reg NMS is unnecessarily
8 complex, invites gamesmanship, induces widespread
9 market fragmentation, disperses liquidity, and
10 diminishes transparency. Indeed, we have seen Reg NMS
11 drive order flow away from exchanges, fuel unhealthy
12 trading volatility, and expose the markets to flash
13 crashes, because its rules have led to the atomization
14 of orders --"

15 And I think that word atomization is even
16 more important than fragmentation, because that's what
17 happens. Orders just explode and they go to all
18 different spots, off exchange, on exchange, hidden on
19 exchange. So what happens -- let me finish the quote,
20 sorry.

21 "-- and liquidity among a dizzying array of
22 trading venues. None of these outcomes is a hallmark
23 of the worthy goals of fair and orderly and efficient
24 market."

25 Hundred percent agree. I can't agree more

1 with that statement. I just don't think 611 is the
 2 reason and the cause for all of that mess.
 3 And Professor Angel and I were talking
 4 before about the Rube Goldberg, if you've ever seen
 5 that diagram, and that's what our stock market is,
 6 it's a Rube Goldberg, right? We go from here to here,
 7 but we've got to go through 17 different mazes to get
 8 there.
 9 So I'd like to talk -- and later, we'll talk
 10 about the reasons why on-exchange trading is so
 11 difficult, the reasons why we have atomization of
 12 orders and what can we do to fix it.
 13 Thank you.
 14 MR. KINAK: Good afternoon. My name is
 15 Mehmet Kinak. I run global equity trading for T. Rowe
 16 Price.
 17 To add to a list of things that you didn't
 18 think you'd ever hear, I'm actually glad to be back
 19 participating in another roundtable here at the SEC.
 20 And thank you to the SEC for putting this event
 21 together. It's been a while. But I think it's
 22 welcomed. And I know the industry, collectively,
 23 wants to get back at doing roundtables and having
 24 discussions about very important issues, and that's
 25 what OPR is.

1 I have to give my standard disclaimer. I
 2 feel like Jamie -- I had a displayed order out there
 3 and Jamie ran through it earlier, but I'm going to go
 4 ahead and reiterate it anyway.
 5 My comments today are going to be based on
 6 my experience as a trader for a large institution.
 7 But I want to be clear in saying that T. Rowe Price
 8 represents millions of individual investors. And
 9 oftentimes, we represent a larger percentage of their
 10 savings through their pension plans, their retirement
 11 accounts, their mutual funds, and other products that
 12 are offered at T. Rowe.
 13 So while I'm up here advocating for market
 14 structure changes, I want to reiterate that those
 15 changes are to the direct benefit of those individual
 16 investors. We derive zero revenue from trading at
 17 T. Rowe Price.
 18 That being said, on OPR, here's the biggest
 19 displayed order ever. I don't like it, and I think
 20 everyone knows that if they've ever heard me speak.
 21 It's probably the one rule that I think has created
 22 more detriment to our markets than it has actually
 23 benefitted.
 24 I do like analogies, and I thought Jim's
 25 analogy around the scaffolding was pretty appropriate.

1 I do think that OPR was probably necessary, or some
 2 form of OPR was necessary in 2005 to try and get
 3 markets to connect with one another. But as others
 4 have pointed out, there has been a large evolution in
 5 our markets. We've gone over the last 20 years from
 6 being very manual and slow to being extremely fast and
 7 automated. So I don't believe OPR is necessary
 8 anymore. And I am happy to go into deal on that
 9 further.
 10 MR. KHANDROS: I'm glad Jamie reversed the
 11 order so I could go after Mehmet and just say I agree
 12 with T. Rowe. And I appreciate BlackRock giving
 13 OneChronos a shout out earlier.
 14 Thank you for hosting, for putting this
 15 together, for the opportunity.
 16 You know, the U.S. capital markets are the
 17 envy of the world. And this roundtable is a great
 18 example of how the U.S. keeps further improving,
 19 because it's taking in industry feedback, and we are
 20 really grateful for that. We also believe in
 21 regulation that allows both protection of investors,
 22 but also for innovation.
 23 Three quick points on our side to kick this
 24 off.
 25 One would be price discovery. We learn a

1 lot from different industries. One of the largest
 2 real world successes of an auction example is actually
 3 the FCC wireless spectrum auction. It's important to
 4 note that OPR or trade-through prohibitions don't
 5 exist. Had they existed, the auction wouldn't be
 6 possible. And so if you look at what is many would
 7 say one of the most successful auctions that continues
 8 to this day, of those auctions, and you think about
 9 what is it that works there, something like 611
 10 wouldn't allow it to survive.
 11 The person who helped devise that won the
 12 Nobel Prize a few years ago. He's actually
 13 collaborating with OneChronos, which is really cool
 14 validation for us.
 15 Two -- so one was price discovery. Two,
 16 around mandated connectivity, one of the biggest
 17 reasons some brokers took longer to connect to
 18 OneChronos than they hoped was because they had to
 19 connect to a number of new exchanges. And
 20 consistently, brokers would tell us, even though they
 21 know that data shows we are one of if not the best
 22 venues for execution quality, they were sometimes
 23 delaying the connection because of complying with
 24 rules, not because they thought it was aiding their
 25 execution quality.

1 Number three, an arms race. Chair Atkins,
2 also to quote from 2021, his quick line on NMS, "Firms
3 are locked in a high-tech arms race for speed,
4 directly attributable to provisions of NMS."

5 And so at OneChronos, we couldn't agree
6 more. There is a latency arms race. We do think
7 there's a lot of price-time venues out there. We do
8 think 611 is only exacerbating that. We hope for a
9 market where things like smart markets can flourish
10 and innovation can allow further improved execution
11 quality. And agree to the point of Mehmet earlier,
12 that while our institutional broker-dealer customers
13 are trading on behalf of institutional money managers,
14 who are ultimately representing mom and pop. And so
15 that is an important group of constituents. So we are
16 excited to talk about things like block exceptions
17 shortly.

18 The market has changed dramatically in the
19 last 20 years, so we are excited to be here, excited
20 to reopen some of these rules, and excited to take
21 questions. Thank you all.

22 MR. HERRICK: Thank you. Good afternoon,
23 everyone. I also too want to thank the Commission,
24 Chairman Atkins, Director Selway, your Staff, and
25 everyone for taking the time to be here today. Thank

1 you for the panelists before us to give us good ideas,
2 as you noted, about how to move forward.

3 I'll start by sharing a little bit about
4 what I focus on at the New York Stock Exchange. So as
5 chief product officer, I look after all our
6 transactional businesses across equities and options,
7 including the data business associated with that, and
8 our ETF listings business.

9 I think, you know, as has been said by a
10 couple of folks on the panel already, and panels prior
11 to this, we all, I think, appreciate what the world
12 looked like 20 years ago. And, you know, we were
13 certainly moving from, you know, analog to digital,
14 from manual to automated trading. And the world we
15 live in today and, you know, some of the aspects that
16 lead to the technological arms race that we're faced
17 with couldn't have been imagined.

18 And when you look at it that way and you
19 think about what Rule 611 is meant to represent and
20 how it plays into practice, it really is -- it's a
21 function of the choices that market participants can
22 make, the agency they're given. Right? Under the
23 purview of best ex and what they're required to do in
24 seeing the NBBO as they need to see it and keeping
25 record of it.

1 Just think of the choices that can be made
2 that make material difference in a world that makes
3 decisions in microseconds. You know, you have
4 differences in data ingest, right? Is it software
5 based? Is it hardware based? You have data
6 transport. Is it wireless? Is it fiber? And, you
7 know, lastly, you have this, as we were talking about
8 on the earlier panels, the ISO exemption on top of
9 that, which allows a market participant or a trading
10 center to include its order flow in its view of what
11 the protected NBBO is.

12 And so what does that mean? It means trying
13 to align the view of the NBBO is impossible. It's
14 transient. It's subjective. Right? And much of that
15 is dictated by in some cases the laws of physics. But
16 it's also dictated by choices that market participants
17 can make about how important that realtime view is.
18 Right?

19 Because we live in a world of such low
20 latency that if you're trading on a much longer time
21 horizon, people will make those choices, as we've
22 heard from other panelists, to maybe use the SIP
23 instead of direct feeds. Or, if you're using direct
24 feeds, you have all these different choices. So I
25 think we need to keep that in mind, that it is a very

1 difficult proposition.

2 And when you think about what 611 was
3 intended to do, where we've come as a market, it has
4 just led to this excess of complexity, of
5 fragmentation both on and off exchange. Right? I
6 think it's fair to point out or at least ask the
7 question, how many ATSS would there be in a world
8 where, you know, these anomalies around your view
9 being different of someone else's view of the NBBO in
10 very short durations didn't exist. A lot of that has
11 to do with the quality of order flow and what people
12 seek. And so I think as we talk about it today,
13 keeping that in mind is really critical.

14 And finally, I will beat the drum of what we
15 have in our markets isn't bad. It's actually really
16 good. And a lot of that has to do with the simple
17 fact that there's a price source. All of us are very
18 inside baseball, right? We're talking about nuance
19 microstructure issues. But there's a price out there
20 that anyone can see, that investors around the world
21 can see, that they have trust in, that they have
22 access to. And when we think about serving the public
23 interest and what's in the true spirit of what we
24 should all try to accomplish here, that's a really
25 good thing. We should try to uphold that.

1 It's hard, as you think about unraveling 611
2 or changing it. How do we do that? But that's a
3 really critical part of our markets that I think is
4 helping this. You know, through the last 20 years,
5 even though some things have been suboptimal, look at
6 the growth from investors and issuers around the world
7 that want to be in our markets. And I think that
8 that's a good thing and we shouldn't lose sight of it.

9 And just like Chair Atkins said, I am
10 optimistic that, you know, we can set this up for, you
11 know, 20-plus years of exceptional growth going
12 forward. So thank you.

13 MR. GERHARDSTEIN: Good afternoon. And
14 thank you Chair Atkins, Commissioners, Director
15 Selway, and Commission Staff for the opportunity to
16 participate in today's important discussion on Rule
17 611 and trade-through prohibitions. I would also like
18 to thank Elad for moderating this panel.

19 My name is Daniel Gerhardtstein and I am Jump
20 Trading Group, which is a research-driven trading firm
21 with a significant presence in U.S. equity markets,
22 global markets across various asset classes, and
23 digital assets. Additionally, I am here as Jump is an
24 active member of the FIA Principal Traders Group,
25 which represents leading proprietary trading firms

1 that are active in U.S. equity markets, and recently
2 published a position paper on targeted reforms to Reg
3 NMS.

4 We appreciate the Commission's commitment to
5 reevaluating these foundational market structure rules
6 which have shaped our equity markets for nearly two
7 decades. Advancements in technology, changing market
8 dynamics, and evolving participant needs since 2005
9 present an important opportunity to modernize our
10 regulatory framework. Thoughtful reforms can enhance
11 market efficiency, reduce unnecessary costs, and
12 deliver better outcomes for investors. And we look
13 forward to the constructive and thoughtful dialogue
14 today on the ways that targeted updates to Rule 611
15 can support the SEC's mission to promote fair,
16 orderly, and efficient markets while upholding
17 investor protections.

18 MR. COLBY: I'm Bob Colby from FINRA. I
19 thank Jamie and his colleagues. I think I thanked
20 them for inviting me to this roundtable.

21 MR. SELWAY: You're welcome.

22 MR. COLBY: I'm here because, with my
23 colleagues, I interpret and apply the FINRA's best
24 execution rule. And I should say I'm speaking
25 directionally but not formally for FINRA. That's my

1 first disclaimer.

2 We also don't run a market. That's my
3 second disclaimer.

4 So I come to this roundtable not to praise
5 the trade-through rule, nor to bury it. Rather, I
6 want to address best execution. Like everybody else
7 that's been here, I want to address best execution,
8 because it is the fundamental and foremost principle
9 of fair markets. And it is the structure that flows
10 through the markets and it's what all market structure
11 rules should be designed to support.

12 Best execution derives from agency and
13 shingle theory principles. It also is based in
14 FINRA's best execution rule from the 1960s, and also
15 parallel SEC development of anti-fraud provisions to
16 govern best execution. So it's really not true that
17 the SEC doesn't have best execution rules. It does,
18 and they've been very powerful in the last four
19 decades.

20 Best execution is a really powerful
21 principle. And it can be and is enforced. I note
22 that it's done through exams and it's done through
23 disciplinary actions. But, you know, it operates
24 within the extant market structure. It doesn't create
25 the market structure; it operates within the one

1 that's set up. And the market structure can make best
2 execution more or less simple to enforce.

3 So best execution's application is simpler
4 when it's supported by clear standards. What's a firm
5 quote? What fees can be tacked on in addition to a
6 firm quote? What costs can be imposed for access to a
7 firm quote? What's the real tick size?

8 So if you want to figure out who won the
9 Boston Marathon, you've got to make sure that they're
10 both running the same course, that one doesn't go over
11 Heartbreak Hill and the other goes on the flat earth
12 through the T. And so that's what you need when
13 you're trying to figure out best execution.

14 Without clear standards, best execution will
15 be applied either through Staff interpretations or
16 through exams and enforcement actions. The latter is
17 not ideal. So if 611 and the supporting rules are
18 changed or if they disappear, then the SEC and FINRA
19 staff will need to collectively work on what
20 interpretations are necessary to give substance to
21 best execution.

22 I'll stop at that.

23 MR. SELWAY: So, Bob, in terms of praising
24 burials, it is the ides of September, I think.

25 MR. COLBY: It is.

1 MR. BILLINGS: I'd like to thank Chairman
2 Atkins, all the Commissioners, Director Selway, and
3 the SEC Staff for convening this roundtable on such an
4 important topic. And Elad as well, thank you for
5 moderating for this.

6 I'm grateful for the invitation to
7 participate on the third panel today, and grateful
8 I've had the opportunity to listen to all these other
9 panels and the super-knowledgeable input we've
10 received throughout this day.

11 I am Matt Billings, VP of brokerage and
12 president of Robinhood Financial and Robinhood
13 Securities. Those are two FINRA registered broker-
14 dealers, so I know Bob pretty well.

15 MR. COLBY: Yep, yep. And we like each
16 other.

17 MR. BILLINGS: Yes, we get along great, and
18 we spend a lot of times with the colleagues. And
19 we'll even compliment the FINRA Forward Initiative and
20 give a shout out for that.

21 Robinhood, servicing the self-directed
22 investing community, has over 26 million funded
23 accounts. We are proud that our simple and innovative
24 approach has brought millions of people to the markets
25 who otherwise would not have been there. At

1 Robinhood, we lead with a strong customer focus. This
2 customer focus, coupled with a first principles
3 thinking, has led to our innovative culture.

4 Now, innovation and intelligent regulation
5 can and should go hand in hand. It should go hand in
6 hand, which is why we believe it is time to consider
7 the rescission of Rule 611. We realize saying this is
8 a, you know, you just can't drop the mic on this. It
9 needs a thoughtful, deliberate discussion around it,
10 which is why we're here and we'll continue to have
11 more discussions about it, and there will be a
12 measured approach around it. But it is important that
13 we foment the competition across our markets.

14 And as Bob was saying about Reg Best Ex,
15 we'll focus on that. But with everything Bob did say,
16 it's also about the end client and the focus on them,
17 and making sure for all our obligations, all we have
18 to do and our regulatory obligations for this. It's
19 also about our end client and the point of execution.
20 So we look forward to digging into that.

21 So thank you very much for having me. And I
22 look forward to discussion about our positions and why
23 we believe this will ultimately result in positive
24 outcomes for the retail investor. Thank you.

25 MR. BATTALIO: I'm Robert Battalio from the

1 University of Notre Dame. Thanks, Jamie, for the
2 invitation. Jamie actually wrote two academic papers
3 with me back in the '90s. Believe that.

4 Anyway --
5 (Laughter.)

6 MR. BATTALIO: He's got cites.

7 Anyway, I wrote a comment letter with Bob
8 Jennings on behalf of Fidelity back in the 2000s
9 pointing out the flaws in the Office of Economic
10 Analysis study of trade-throughs. They used TACK data
11 which has latencies. We actually use proprietary
12 data, had to match against TACK quotes, which still
13 have latencies, and it showed that the numbers dropped
14 dramatically, thereby saying what's the problem.

15 More recent research that we've done is to
16 show people route based on net prices, surprise,
17 surprise, and don't need to be told to go get the best
18 price.

19 Thanks again for having me here.

20 MR. ROISMAN: Thank you, everyone. So let's
21 go to the questions segment.

22 This question is for Matt, Dan, Mehmet, and
23 Joe.

24 We've heard a lot today about the effects of
25 the trade-through prohibition on our markets and

1 whether it's still necessary. How should Rule 611 be
2 changed, if at all, and what impact do you think that
3 would have?

4 MR. BILLINGS: Thank you.

5 Certainly, as several colleagues have talked
6 about before, the U.S. equity markets have
7 transformed. And today, the participation in our
8 markets have never been more widespread. Trading
9 costs have never been lower. And platforms education
10 has never been stronger. So it's an incredibly
11 positive environment.

12 But it can get better, it can get stronger.
13 Which is why we do support rescinding 611. In
14 rescinding 611, the SEC can return to allowing
15 competitive forces to shape our U.S. equity market
16 structure, as these unnecessary regulatory
17 restrictions are removed. With the rescission of 611,
18 let's let the markets compete on price, improve
19 technology, service, and the reduced costs will be a
20 result on that.

21 I know we had a lot of discussion regarding
22 the costs in the subsequent panels, and I understand
23 connectivity costs, market data costs, all that adds
24 up to something. And all of that is something that we
25 want to see back into ultimately the retail clients'

Page 230

1 pockets. We know that if 611 isn't there and if we
 2 don't have to -- and the fragmentation is reduced,
 3 then a reduction in those costs can ultimately make it
 4 back to the retail.
 5 We, Robinhood, doesn't necessarily -- we do
 6 not -- we do not get the costs directly. We get them
 7 indirectly via our market makers and wholesalers. But
 8 indirectly, that does make it to us.
 9 Another thing we talked about was the
 10 complexity here. Rule 611 and excessive proliferation
 11 of exchanges, eight to 16, over a thousand order
 12 types, things of that nature. Robinhood does support
 13 innovation, competition in all parts of the
 14 marketplace. The proliferation of exchanges has
 15 neither spurred this innovation nor increased
 16 competition amongst the exchanges. As was noted
 17 earlier, there are lots of exchanges with de minimis
 18 market share.
 19 Do we know what, you know, fomenting this
 20 and doing away with -- rescission of this rule would
 21 probably lead to some natural selection and some
 22 reduction of the exchanges, therefore reducing the
 23 connectivity and the associated costs for market data.
 24 We recognize while competition with
 25 wholesalers has benefitted execution quality for

Page 231

1 retail customers, any costs due to 611 are dollars
 2 that could be repurposed for offering the better
 3 execution experience. So given the cost and
 4 complexity imposed on market participants and the
 5 downstream impact on retail investors, we believe it
 6 is worth questioning the rule's relative limited
 7 benefits than trying to justify the rule's continued
 8 existence.
 9 MR. ROISMAN: Thank you, Matt.
 10 Daniel.
 11 MR. GERHARDSTEIN: Thank you. So drawing
 12 upon our analysis and the collective experience of FIA
 13 PTG members, we also believe that Rule 611 should be
 14 repealed and replaced with a modernized, principles-
 15 based best execution framework, as outlined in the
 16 position paper submitted this week by PTG. The
 17 current trade-through prohibitions, while well
 18 intentioned when they were adopted 20 years ago, have
 19 resulted in significant unintended consequences. The
 20 rule has led to a one-size-fits-all approach to best
 21 execution that does not adequately address the diverse
 22 requirements of different investors and market
 23 participants.
 24 As highlighted in the position paper, 611's
 25 narrow emphasis on displayed price fails to ensure the

Page 232

1 best outcome for investors when considering factors
 2 like order size, liquidity, speed of execution, and
 3 all-in transaction costs, including fixed transaction
 4 costs.
 5 We propose the repeal of Rule 611 be
 6 accompanied by enhanced FINRA best execution
 7 requirements, which would require the broker-dealers
 8 publicly disclose to and adhere to routing policies
 9 and procedures. This framework would empower market
 10 participants to make informed decisions while
 11 maintaining broker-dealer accountability.
 12 These new best execution disclosures deliver
 13 required transparency, offering detailed data on price
 14 improvement, size improvement, and execution quality
 15 metrics. This set of reforms we believe would produce
 16 several important benefits.
 17 Overall, and this has been mentioned a lot
 18 today, it would reduce complexity by eliminating the
 19 need for industry participants and exchanges to
 20 operate and maintain elaborate systems solely for
 21 trade-through compliance. Lower costs, as market
 22 participants would not be forced to connect to every
 23 protected venue regardless of value. Per our own
 24 internal analysis, the fixed costs of connecting to
 25 U.S. equities exchanges are 350 percent greater than

Page 233

1 the average of the top 10 markets we trade globally.
 2 And most importantly, improved execution quality, as
 3 brokers could focus on achieving the best overall
 4 outcome for their clients.
 5 Together, these enhancements would promote
 6 innovation and competition based on execution quality
 7 and other factors, rather than regulatory compliance.
 8 MR. KINAK: So I think I heard from the
 9 previous panel that Schwab was supportive of
 10 rescinding. And I just heard Matt Billings say it.
 11 It almost kind of took me off my seat. And I heard
 12 some market makers also kind of reiterate the same
 13 opinion. And I'm here saying it. So I think we
 14 should just end it here and rescind the rule and move
 15 on.
 16 So why I don't like or never really liked
 17 OPR. So there are four reasons why OPR was put into
 18 existence and kind of what it's caused in our
 19 marketplace for the last 20 years. So I think a lot
 20 of the previous panels have already highlighted
 21 displayed liquidity did not improve.
 22 So the first assertion of, you know, putting
 23 in OPR to try and encourage displayed liquidity, that
 24 didn't work. That's fine.
 25 Trade-throughs. Trade-throughs were a

1 significant thing probably back in 2005. Armando
2 highlighted that pretty well. Trade-throughs don't
3 really exist now. I know what the SEC put together
4 earlier in some data around kind of the rate of trade-
5 throughs, but if you think about what a trade-through
6 is with our automated and super-efficient markets that
7 we have, if a stock is about to be traded through and
8 the quote is going to change, I guarantee you someone
9 is going to pick that off. And that's why they should
10 do some work around what actually happens. And I
11 think you made that point, Jim. What actually happens
12 to that quote that gets traded through? Does it trade
13 microseconds later? And if so, is that really a
14 trade-through? Like who got harmed?

15 I would argue, by the way, as an
16 institution, if you want to trade through my order,
17 that's great. Reprice me lower. I'll buy it at a
18 better price than I would have if you had picked me
19 off.

20 So trade-throughs, I don't know. I don't
21 really get that. And, by the way, that's on the
22 posting side.

23 On the taking side of things, best execution
24 standards dictate how you take liquidity. So this
25 notion that, you know, all of a sudden we get rid of

1 OPR and people are taking liquidity all over the place
2 at different prices, that's great. Except they have
3 to report that in 605. We monitor that from our
4 broker performance. If we're noticing significant
5 dislocations in prices relative to where the
6 prevailing NBBO is, we're going to ask questions. And
7 I would encourage retail participants to do the same
8 thing. So I don't believe trade-through is a
9 significant enough reason to keep OPR intact.

10 What OPR has done that I think is
11 detrimental is fragmentation. Right? We have way
12 more exchanges and exchanges are frankly subsidized by
13 the order protection rule. And we're going to
14 continue to have more exchanges. If we do nothing
15 with OPR, if we're here -- I won't be here in 10
16 years, but if you guys are here in 10 years discussing
17 OPR again, we might be looking at 30, 35-plus
18 exchanges because there's no reason why you wouldn't
19 keep launching them.

20 I think -- and by the way, I'm not naïve
21 enough to assume that if we were to rescind OPR
22 tomorrow, that everything would change drastically the
23 next day. It's going to take time. But if OPR
24 doesn't exist, over time those exchanges that were
25 highlighted earlier of having collectively less than 3

1 percent, there won't be as much of an incentive to
2 direct orders to either post there or to take
3 liquidity from them. And so you should see some
4 attrition over time. It certainly, I can say
5 confidently, I don't think will lead to 35 new
6 exchanges being available in 10-plus years.

7 And the last piece is best ex. So best
8 execution from a self-directed individual, I don't
9 think, can get much better than it currently is. I
10 will say from our perspective as an institution, OPR
11 puts restrictions on best ex. And Chair Atkins
12 actually pointed it out. I wish I could have just
13 taken his comments and reiterated them. But it does
14 put a restriction because price becomes that stopgap.

15 And I can't go to my broker-dealers and say, go ahead
16 and ignore that quote and go somewhere else. Or, you
17 know, if a market maker on this panel or on the
18 previous panel wants to kind of make comments around
19 delays and not liking delays, well, guess what?
20 Without OPR, you don't have to go to those venues.
21 Those venues no longer have to be in your routing
22 table. They're not protected. It gives you the
23 choice to choose where you want to go and where you
24 want to execute orders.

25 So from my perspective, we get the benefits

1 of having a more robust, probably a principles based
2 execution, best execution for institutions that allows
3 us to differentiate. If you actually look at all the
4 participants here, whether they're self-directed
5 individuals, whether it's a large asset manager, you
6 know, anyone that's trading for a small asset manager
7 or a small cap liquidity, whatever it might be, the
8 differentiation in best ex doesn't exist. We're all
9 based on best price. That's literally the case.
10 There is no differentiation between how my orders are
11 handled versus how a self-directed order is handled at
12 the larger level. Because you can't take my parent
13 order, which has a million shares, and trade it any
14 differently than achieving the best price on the
15 screen because you would violate OPR.

16 And so getting rid of OPR allows us that
17 flexibility to diverge, so I can compete with Hubert
18 in different ways, so I can compete with other asset
19 managers in different ways. And so I look at the
20 benefits of rescinding OPR and I don't really see any
21 negative impacts.

22 Now, there are some things that have to be
23 refined. The most important thing is that the SIP or
24 some form of the NBBO has to exist. And so right now,
25 the one benefit, I guess, of OPR is that it's clear.

1 Right? If you're a protected market, you are part of
2 the SIP and therefore you get to participate in price
3 discovery and your quote is visible.

4 We have to determine how that SIP is derived
5 in the future if there is no OPR. Which markets get
6 to contribute to it, what quotes are visible, and what
7 is kind of determined to be NBBO and pretty good BO.
8 So that's what I would say.

9 MR. SALUZZI: I'm actually really surprised
10 at some of the comments over there. I understand why
11 Daniel, as a proprietary trader and a member of FIA
12 PTG would want to get rid of it, because it gives him
13 maximum flexibility. You can trade as a prop trader
14 anywhere you want. You don't have to have OPR
15 anymore. You've now been -- it's off, right?

16 Everything is -- it's great. So I understand that.

17 But from a retail broker's perspective, I'd
18 be a little concerned. If I was posting a bid on a
19 broker -- let's just say the spread is five cents, you
20 know, a nickel bid offered at 10 cents, wide spread
21 stock, stocks that I trade, and somebody comes in and
22 posts an eight-cent bid through a retail broker, that
23 has to be displayed. A limit order, right? Most
24 likely, a market maker will post it on one of the
25 exchanges, or maybe it'll get directed there. If that

1 retail broker's order gets traded through, what does
2 that do for the confidence of the investor who placed
3 the bid to tighten the spread? The spread that, by
4 the way, all the off-exchange guys are trading off of.
5 So I'd be very concerned about that.

6 My opinion again is I think OPR is not
7 responsible for the fragmentation and everything. I
8 would limit it. I would limit the amount of exchanges
9 we have. And obviously, I like the threshold
10 experiment that they did in Canada. Even though I
11 know market data was the other reason why. I think
12 that's the right answer.

13 But let's think about this for a second.
14 Why do all the exchanges complain that all the
15 business is going off exchange? Why is everybody
16 saying, oh, there's too much business off exchange? I
17 can tell you our order flow, outside of the opening
18 and the close, 90 percent is traded not on lit venues.

19 In other words, we'll be on exchanges but I'm not
20 lighting up. And we'll be on dark pools. And the
21 reason why I'm not going through to an exchange is
22 because it's toxic. Everybody can see it. It's
23 information leakage. And you can -- proprietary data
24 feeds, folks, and you know what they are, they record
25 everything you do. Every time you revision, every

1 time you cancellation, these are order-by-order
2 proprietary data feeds that leak information. I'm not
3 going to an exchange that leaks my information. I
4 need to protect my clients.

5 I feel much more comfortable sitting in the
6 dark, whether it's on an exchange -- my preferred
7 exchange is IEX. I've been telling people that for
8 years. We've had a ton of volume on IEX. And people
9 say, how come you trade so much volume on IEX; they're
10 only 2, 3 percent. Because it's good flow. And if
11 you know what you're doing and you have some patience,
12 instead of spinning around the wheel of the algo
13 wheel, you can get stock done there.

14 But the point is why do institutions want to
15 go off exchange? Why do I want to go off exchange?
16 Because it's toxic. So they need to figure it out.

17 The exchanges can't just say, hey, it's OPR,
18 that's why we can't compete. That's not the reason,
19 folks. The reason why exchanges can't compete is
20 because they're trying to become like brokers.
21 They're trying to put order -- you know, order types
22 and do all these other things. But in fact, they're
23 SROs. So, you know, you can't be both. You are what
24 you are. You want to be a broker, or you want to be
25 an SRO? What do you want to be?

1 Armando Diaz and his firm is being very
2 successful because institutions are finding new ways
3 to trade. That was an innovative approach that
4 Armando took with PureStream, and people like it.
5 It's a way of creating liquidity. Right? It's unique
6 liquidity. It's not the same liquidity that's
7 spinning around 17 different exchanges, 16 different
8 exchanges, and 30-some-odd dark pools. So that's
9 innovation. Right?

10 So how do you get it all back? Again, I
11 don't think the answer is to get rid of OPR. I think
12 OPR -- obviously, we all have best execution
13 responsibilities and that overrides everything. But
14 OPR is a way of keeping that intact. It's kind of
15 like checking things, making sure you don't go out of
16 control. And it keeps FINRA's job a little bit
17 better, maybe they don't have to analyze everybody so
18 much. But OPR is important.

19 You can get rid of eight exchanges, but just
20 by doing the, you know, the 2 percent threshold, we
21 can get rid of a bunch. So that's where I would go
22 with it.

23 MR. ROISMAN: No shortage of strong
24 feelings.

25 So following up, what benefits to the

1 markets do you think would occur if Rule 611 is
 2 modified or rescinded?
 3 And let's start with you again, Matt.
 4 MR. BILLINGS: Yeah, first of all I'll
 5 address Joe's question regarding, you know, if you
 6 have a retail bid that comes in between to tighten the
 7 spread. You kind of asked and answered it in a way
 8 that talks about the best execution obligations with
 9 that. Those are not going away. Okay? So we're
 10 contending that if we invite this competition with
 11 the -- with best execution obligations and maybe even
 12 clarifying those even more, that that retail order
 13 flow, limit order flow is as likely to get filled
 14 today as it is tomorrow.
 15 There is -- there is a component that may
 16 result from it not getting filled. But we contend
 17 that the addition of the competition is worth it in
 18 regards to the best execution being the ultimate
 19 obligation here. So thank you for that.
 20 The -- so certainly the U.S. markets have
 21 transformed, as you mentioned. Most Americans could
 22 not afford to participate.
 23 So with the rescission of 611, the resulting
 24 reduction in complexity and costs and the interplay of
 25 competitive forces on exchanges are incremental steps

1 into a financial system that works even better for
 2 everyone. We believe that reducing exchange
 3 fragmentation would benefit our markets and investors
 4 as exchange costs indirectly factor into the execution
 5 costs.
 6 Every dollar that is unnecessarily spent in
 7 compliance with this rule is a dollar that may
 8 otherwise be used to provide a better investing
 9 experience for a retail customer.
 10 Leaning into the best execution Rule 5310,
 11 as it reads out, you know, broker-dealers use
 12 reasonable diligence to ascertain the best market for
 13 a security, such that the price the customer receives
 14 is as favorable as possible under the prevailing
 15 market conditions.
 16 We're going to focus on prevailing market
 17 conditions.
 18 FINRA Rule 5310 has proven to be a
 19 thoughtful, resilient, principles-based rule. It has
 20 stood the test of time. And when needed, they provide
 21 some clarification through Reg Notices 1546, 2112,
 22 just to name a couple.
 23 Important to note that one of the more
 24 significant rules in the last several years, the
 25 market data infrastructure rule, that brought about

1 significant changes to our market data complex,
 2 competing consolidators, things of that nature, did
 3 not contemplate any changes to 5310. In other words,
 4 it said, realize what's happening and take into
 5 consideration the prevailing market conditions. Do
 6 not stand still. Change with it. Change your
 7 processes, change your approach, change whatever it is
 8 that you're doing to make sure that you're fulfilling
 9 your regulatory obligations and benefitting your
 10 clients' experience.
 11 Even with the sweeping market structure
 12 proposals that were released in 2022, by and large,
 13 albeit for the Reg Best Ex, 5310 was left in place,
 14 because everyone kind of realizes that this is such an
 15 intelligent, principles-based approach, that it has
 16 just kind of stood the test of time. And with Reg
 17 Best Ex, a large majority of the industry comments
 18 were to -- were pointing to the fact that 5310 exists
 19 today and doesn't need to have any more complexity to
 20 the marketplace.
 21 So is it worth clarifying 5310 in light of
 22 this significant move that we're contemplating with
 23 611? Of course it is. We need to get together and
 24 think about what the changes would be, see whatever it
 25 is that needs the point of clarifications with that.

1 But ultimately it's stood the test of time and will
 2 continue to, you know, serve its purpose as a
 3 principles-based approach.
 4 And ultimately, it's just up to us to, you
 5 know, service our customers and give them the price
 6 that they deserve under whatever the prevailing market
 7 conditions are.
 8 MR. ROISMAN: Vlad.
 9 MR. KHANDROS: Thank you. Three main
 10 benefits we see and will impact them, but it would be
 11 improved execution quality, added innovation, and
 12 reduced burden. So hopefully those things all sound
 13 pretty good.
 14 So just back a bit more, so OneChronos
 15 operates a U.S. equity ATS. Many brokers say it's
 16 leading execution quality. In fact, literally during
 17 the roundtable, a major bank I see in my email just
 18 said they refreshed their stats and we're number one
 19 according to their data. So hopefully they sent it to
 20 all the buy side.
 21 So, you know, I think OneChronos I bring up
 22 is because it is a proof point that you don't need to
 23 be a connected venue to flourish. Newcomers can
 24 survive and can thrive. And so that is, I think, a
 25 big reason why we bring that up.

1 I also again want to note the -- this aspect
2 of 611, it is causing infrastructure costs to balloon.
3 And so it is something that we want to keep
4 emphasizing. Market data is a big problem. We do see
5 that that is continuing to grow. We do hear that from
6 the major institutional brokers we work with and their
7 buy side customers. And we do see the fact that our
8 customers are telling us there is a total disconnect
9 between the venues' available liquidity, slash, the
10 quality of the liquidity of a venue, versus the cost
11 that they are incurring for the venue. And so that
12 disconnect doesn't make any sense.

13 Minimum market share thresholds, again, we
14 see as a really practical way to borrow lessons
15 learned from other countries, other asset classes.
16 And it's worth noting, because we've spoken to a lot
17 of the folks that we get to work with. It's not just
18 about something like 1 or 2 percent market share, it's
19 about 1 or 2 percent of displayed market share.
20 Because otherwise, you might as well make hidden
21 venues protected as well. If you're not going to
22 distinguish, you might as well make hidden benefits,
23 give them liability caps if you're going to blur the
24 lines.

25 And so we do think, when you think about

1 even things like the SIP revenue, the balance of the
2 quote versus the trade revenue that Joe Mecane
3 mentioned earlier, I think there's a lot of merit to
4 revisiting that and rewarding the trades, more so.

5 And when we talk about the fact that about
6 half the exchanges today would fall out of the
7 threshold, would fall below the threshold we're
8 describing, we see that as a potential for cutting
9 infrastructure costs or connectivity costs potentially
10 in half, as one potentially dramatic, but one way to
11 look at those numbers. And when you think about the
12 fact that 16 will soon become closer to two dozen U.S.
13 equity exchanges let alone options, those numbers get
14 much higher. And so we do see a lot of benefits
15 across the bd to reduce costs for customers and
16 ultimately the end investor is going to benefit. All
17 of these things will benefit the end investor
18 significantly.

19 MR. ROISMAN: Thank you.
20 Mehmet.

21 MR. KINAK: I may have answered this
22 question already before. But if you don't mind, I
23 want to talk about thresholds.

24 So thresholds are great at addressing the
25 issue around fragmentation. So we would have eight

1 less exchanges that are protected. But they could
2 lead to a lot of gamesmanship. If we put a 1 percent
3 rule in, someone could juice up their market with
4 certain pricing incentives to exceed the 1 percent, be
5 protected, and then allow their market to fall below
6 that by changing their pricing structure. You still
7 have to go there. So, you know, now we're stuck to
8 whatever the regulatory regime has decided is the
9 appropriate time frame of reviewing whether or not the
10 1 percent threshold makes you protected or not
11 protected. It also leads to a lot of confusion,
12 right? Sitting there and saying, well, we can't
13 disconnect from folks because they could exceed 1
14 percent. And when they do, we have to connect to
15 them. And then we don't, then we do. Back and forth.
16 So it doesn't reduce the cost burden that Vlad was
17 just referring to. So I'm not a big fan of
18 thresholds.

19 Now, I will just go back to some of the
20 benefits. I do think you're going to see less
21 exchanges or the incentive for new exchanges decline
22 significantly if we don't have OPR. It would address
23 the existing one-size-fits-all best execution regime
24 that we have. So I think that's beneficial.

25 And then going to the exchange level, it

1 would allow them to innovate. If you're not
2 protected, the question to the SEC would be, are
3 they -- do they still have to abide by fair access
4 standards or can they, you know, experiment with
5 different books that they have and offer segmentation
6 or offer different ways of interacting?

7 I know it would allow institutions like us
8 to actually innovate and price outside of the NBBO for
9 larger orders. And there's always been a need or an
10 ask from some of the ATS providers to say, what if I
11 priced you a nickel up? Well, you can't, but if you
12 could and you could run an auction, if we didn't have
13 an existing OPR regime.

14 So I do think it leads to a lot more
15 innovation, not only on the lit but also on the dark
16 space. I think those are the benefits that we would
17 see.

18 MR. ROISMAN: Thanks, Mehmet.
19 Andrew.

20 MR. SMITH: Thanks. You know, we're all for
21 doing a holistic review of Rule 611. We think that's
22 a good thing. But making changes like rescinding or
23 scaling back Rule 611 due to reasons like cost saves,
24 reduce fragmentation or increasing competition or
25 innovation aren't good reasons in our view.

1 You know, if you look at the cost save
2 argument, it's that there will be fewer exchanges you
3 have to connect to. Well, as folks pointed out, if we
4 snapped our fingers and half the exchanges or all of
5 them weren't protected tomorrow, I don't think any
6 broker would save any money because they're not going
7 to disconnect from venues that they're used to going
8 to. They're already connected to them, they're in
9 their execution algorithms, they're in their routing
10 wheels. And their best execution tools, I mean,
11 especially as an agent, you know, it's hard to justify
12 not connecting to a venue without being at a
13 competitive disadvantage to other agents in the
14 market.

15 The agency model really doesn't -- because,
16 you know, when you think of let's let market forces
17 determine which venues survive. Let's get rid of, you
18 know, Rule 611 and just let the market decide which
19 ones are there. That works in a principal-only
20 market. But when you have agents in that market, too,
21 there's competitive forces between the agents that
22 force them to connect to and have more items on their
23 shelf, if you will, be connected to more venues than
24 they otherwise would if they were just from a
25 principal perspective.

1 We also think that the costs could go up
2 quite a bit, in terms of if exchanges are no longer
3 protected, they could charge higher amounts for market
4 data. There's less grounds for Rule 610 on limiting,
5 you know, what they can charge. If these unprotected
6 exchanges can connect to the SIP, well then they're
7 still going to get revenue share, and that's the
8 reason they're coming now, so how does that change
9 anything? We need to change the incentives, you know,
10 to change the problem.

11 Other factors are, you know, the NBBO
12 integrity, having a universal benchmark for all retail
13 and institutional investors, you know, to point to,
14 kind of like a true north. Because we have a defined
15 version, defined north on our compass, it makes it
16 easier for all of us to know what that standard is and
17 we can look at a common benchmark.

18 You know, having a partial protection or no
19 more Rule 611 could create a lot of confusion for a
20 retail investor who has two mobile trading apps and
21 they're seeing different NBBOs in each of these apps.

22 You know, the natural conclusion of that, clearly, is
23 that the market is rigged against you and, you know,
24 there's some greater conspiracy out there. Which, you
25 know, we don't need more fuel for those fires.

1 Exchange competition to the points about
2 innovation, you know, like has been mentioned with
3 PureStream and Armando and other ATSs that have
4 innovated, there isn't anything preventing ATSs from
5 innovating right now and doing their unique
6 segmentation mechanisms or speed bumps or batch
7 auctions. And exchanges can innovate in other ways.

8 But when it comes to kind of creating this,
9 quote, unquote, fair playing field or, you know, level
10 playing field, I think it's important for us to step
11 back and realize these are different divisions,
12 different leagues of the same sport. And these are
13 business decisions to be in different leagues here.

14 If you choose to be an exchange, you have
15 certain responsibilities and benefits, and whether
16 that includes Rule 611 order protection or not in the
17 future, I don't think that is as relevant as the
18 benefits of basically free clearing through the NSCC,
19 DTCC, SIP revenue, exchange immunity. There's a few
20 more there that I'm not remembering right now.

21 But as an ATS, you have higher costs and
22 lower barriers and more flexibility. But that's a
23 business decision.

24 But like I said, you know, exchange
25 proliferation is the problem, and it's driven by SIP

1 revenue. And I think addressing the SIP revenue issue
2 is more important than, you know, just breaking the
3 compass, if you will, so nobody knows where north is.

4 MR. ROISMAN: Thanks.

5 The next question has actually been answered
6 by everybody. But you guys, it's now your turn.

7 Understanding that Rule 611 is woven into
8 our markets and rules, what other requirements would
9 need to be or should be changed if 611 is modified or
10 rescinded?

11 And this one goes to Bob, Vlad, and to Cam.
12 Bob, why don't you start us off?

13 MR. COLBY: Well, I don't have a lot to say
14 here. They don't -- none of them have to be changed.
15 They could all stand as they are. The rationale for
16 them from a protected quote basis doesn't persist
17 anymore, but you do have to have standards. Right?
18 Unless you're going to just let every broker decide
19 for themselves whether they ignore a trivial cost and
20 thus skip a market.

21 MR. KHANDROS: So three buckets, best ex,
22 block exemption, and Reg SCI would be three comments.

23 Chair Atkins in 2005, and actually just
24 literally about 30 minutes ago, talked about the fact
25 that price gets too much focus. Things like quality

1 of fill should get more of a focus. And so that's the
2 pro and con that 611 has brought to the industry. And
3 so it is -- it is worth thinking more about that.
4 Institutions think much more about the quality of fill
5 rather than the price itself, and there's a lot of
6 merit to that.

7 It is worth noting, part of the comments,
8 just so I can stay on the theme of always agreeing
9 with Mehmet, so the reason why many brokers would say
10 they wouldn't disconnect from venues they're already
11 connecting to, brokers do that all the time with ATSS.

12 The bank I mentioned earlier that said OneChronos is
13 number one, in that same note, they anonymously said
14 they disconnected from an ATS. That happens all the
15 time with ATSS today if they're not fulfilling some
16 unique duty. That never happens with exchanges. So
17 it would start happening over time. And so that would
18 make a big difference.

19 But one of the things that happens, and one
20 of the things that I think a lot of people maybe are
21 too polite to say on the panel is, there is a fear
22 that if you disconnect, and this is no offense to Bob,
23 just because you're on the panel, for the sake of
24 discussion, that somebody will come after you and say,
25 hey, why did you disconnect? Go prove it to me.

1 And so whether it's a safe harbor or some
2 other language needs to be put out so that brokers
3 don't have this fear down the road of retaliation
4 because they're no longer forced to connect to some
5 exchanges and they've chosen to disconnect. And so
6 there is something to be said for ensuring that there
7 is some level of that protection so that brokers
8 actually do start disconnecting if they think it is
9 not aiding execution quality.

10 On the best ex side, it would be beneficial
11 for the execution outcomes for price discovery to
12 remove just constantly being bound by the NBBO. You
13 know, we trade over 1,000 blocks per day. We see a
14 lot of merit for true price discovery. We talked
15 about the FCC wireless spectrum earlier, auctions
16 earlier. The block -- and the block exemption could
17 be revisited. Maybe it's not the exact definition
18 today of a block. I think that's worth further
19 thought on what are the right metrics. But the idea
20 of a block exemption would make a lot of sense.

21 And lastly, on the REG SCI front, there are
22 venues right now that artificially stay below 1
23 percent of the market, just to try to avoid compliance
24 with pretty significant burden. There isn't any
25 commensurate benefit with that burden, and it almost

1 treats off-exchange venues like an exchange in terms
2 of all of the burden, none of the benefit. So it's
3 just very lopsided. And so it's almost treating these
4 ATSS as if they are part of the national
5 infrastructure but giving them none of the other
6 commensurate benefit.

7 So just streamlining SCI makes a lot of
8 sense in general. And we see that ultimately allowing
9 for more innovation, ultimately reducing costs for
10 investors, ultimately aiding in capital formation.

11 So those three items around best ex, block
12 exemption, SCI are things that we would short list.
13 Thank you.

14 MR. SMITH: So much to comment on and so
15 little time. My memory is not that good to go back
16 and hit some stuff.

17 But I do want to say we're registering to be
18 a new exchange. The premise of the business is
19 definitely not that there's an OPR and that you have
20 to come to us. We intend to earn the business by
21 having orders displayed on our market that are
22 attractive enough to hit.

23 You know, I think the market participants,
24 if anything, are economically rational. If we're
25 there at the best price, I don't think you necessarily

1 need a rule there in order for them to want to hit it.
2 As long as our trading system is world class and the
3 prices are right, I think they're going to hit it.

4 So it's definitely not the business plan of
5 the Texas Stock Exchange to -- you know, we need this
6 OPR. We're fine with it being removed. We haven't
7 touched on lock and cross. I'd love to get to that.
8 But you asked me a question about what other rules --
9 well, lock and cross. But I would rather talk about
10 the fair access because I stood up with that with my
11 introduction, talking about why, you know, exchanges
12 are last. Joe called exchanges toxic.

13 But let's think about what that means,
14 throwing around labels. But exchanges aren't -- we
15 don't give executions, right? Like it's a technology,
16 it's a bulletin board where people can post bids and
17 offers. So they're not determining the price.

18 So what's it mean that it's toxic? Everyone
19 is very mark-out sensitive. After being out and
20 coming back and seeing how the market has changed,
21 that's the biggest change I see, is everyone is
22 measuring, what, did the market move against me 500
23 milliseconds later, you know, 200 milliseconds later?

24 And that sensitivity has everyone trying to avoid
25 exchanges.

1 Why do you avoid exchanges? Because they
2 have a posted bid and ask, right? It's visible. It's
3 the NBBO, right?
4 But having been also at a high-frequency
5 trading firm, I can tell you the little secret that
6 one of the number one indicators in any model -- it's
7 not tides on the moon or something complicated -- it's
8 the bid and the ask. And when they decrement, that's
9 a major signal.
10 So when you post an order on exchange and
11 it's posting in NBBO, it's posting -- it's providing a
12 public service, and that order trades, that is a huge
13 indicator. And therefore the market will move.
14 So the exchanges, on one hand, are providing
15 a public service. On the other hand, you're going to
16 have -- your mark-out is not going to look as good as
17 if you went into the dark in a segmented ATS and
18 traded with a very cherry-picked counterparty who,
19 after they trade with you, isn't going to run around
20 and update their quote on every other exchange. So
21 there's completely different dynamics. And these are
22 important because I think when you asked me -- there
23 was a question, this isn't just a speech -- about what
24 would you change, it's the fair access.
25 And I think actually fair access gets to

1 fragmentation and everything else, too. And here's
2 how.
3 So you have exchanges with multiple
4 medallions. Why do they have multiple medallions?
5 Because you kind of only can have one business model
6 in an exchange. And if you have another good idea,
7 then you need another medallion to spin it up.
8 An ATS can sort of like have -- it could be
9 multiple markets simultaneously, could have a
10 waterfall effectively. Your order comes in, you can
11 interact with the quoted market, maybe we can do
12 something in SCI. We've got -- we've got different --
13 it's as if, you know, an exchange can only sell
14 vanilla ice cream and then if somebody comes in and
15 says, I want chocolate, I've got to send them to, you
16 know, across the street.
17 But that just kind of makes no sense when
18 you think what is an exchange? It's a central meeting
19 place. And yet exchanges are very pigeonholed in part
20 because of OPR and other interpretations of fair
21 access. They can pretty much only provide a
22 relatively simple service, putting IEX aside. And
23 that's a whole topic we don't have time for.
24 But -- I lost my train of thought. Oh, the
25 ice cream.

1 The ice cream analogy is -- oh. Well, so we
2 need to be able to -- if you come into an exchange, if
3 we can provide a multitude of different execution
4 possibilities in one place, then you don't have to
5 route all over the Street. So in a sense, their
6 proliferation of venues is exaggerated because no one
7 exchange can provide enough service because of the
8 fair access.
9 So I think one reform we should consider is
10 some sort of rule where, you know, exchanges can also
11 operate ATSS. And maybe we have only two kind of
12 quotes in the world. You know, the fair access,
13 readily accessible SIP quote, and then everyone else
14 who is segmenting and doing whatever. Those fair
15 access, immediately accessible quotes, they should get
16 most if not all of the market data revenue. Because
17 the NBBO is the bedrock of all -- you know, people
18 have midpoint orders, what's it based on? NBBO. Best
19 execution, NBBO. They need to get the market data.
20 If you put up a quote that trades, especially, that's
21 the most valuable thing.
22 And then, to the extent that exchanges also
23 want to simultaneously offer hidden books, hidden
24 orders, I don't think that should give much market
25 data, but that's a great service because again people

1 are managing mark-outs. Institutions are trying to
2 accumulate or sell stock, and they don't want to do it
3 and see the price move. So of course they're trying
4 to avoid, you know, trading on lit markets until the
5 very end. And so why can't exchanges service that?
6 I can keep going, but I'll stop there. It's
7 very hard to solve all the problems of the last 25
8 years in three minutes.
9 MR. ROISMAN: Yes, it is.
10 So I would like to go back to Bob for a
11 second. So we were talking about or you mentioned
12 this question of a broker avoiding a price for a de
13 minimis amount. And let's stipulate that we're not
14 talking about 5310 as it sits today, or shingle
15 theory, or anything but a prospective enhancement to
16 best ex.
17 How might a broker think about high explicit
18 costs that are maybe not transactional but monthly or
19 annual? How might a broker integrate those costs,
20 which we've heard today from a number of folks, are
21 pretty profound and growing? How would those costs
22 enter into the analysis?
23 MR. COLBY: So baseline, 5310 is a pretty
24 old rule. And its original formulation goes back to
25 when there were order rooms. So it has built into it

1 both a reasonable judgment and then a number of
2 factors that you look at. And one of the factors is
3 accessibility. And the question about costs that get
4 imposed to get there, portal costs, subscription cost,
5 goes into accessibility. So the concept is there.
6 The question is, what's the right level? Where's the
7 cutoff?

8 MR. SELWAY: Go on.

9 MR. COLBY: So the reason I said that our
10 best execution rule and the SEC's interpretation of
11 the anti-fraud provisions are fraternal twins is
12 because this is a decision for both of us. So we
13 could say one thing and you'd say another and it does
14 no good. So we'd have to work it out.

15 MR. SELWAY: Okay.

16 MR. ROISMAN: I'm excited for the follow-up.

17 So in that vein, what do you think are
18 potential unintended consequences of modifying 611?

19 We'll go back to you, Bob. Then to Andrew
20 and then Debbie.

21 MR. COLBY: Well, I pretty much said it.
22 It's not so much what you do with 611, it's what you
23 do with the supporting rules. Because 611, the
24 consequences have been well laid out, not identical
25 ways. But they've been well aired in the various

1 panels.

2 Which of the other rules? You say, well, I
3 no longer need that. And what do you replace it with?
4 Those are the questions that have to be resolved.

5 MR. ROISMAN: Great.

6 Andrew?

7 MR. SMITH: I think pulling the thread of
8 611 risks unraveling a number of things that should be
9 carefully considered before we do them. You know, a
10 number of folks have mentioned investor trust and
11 confidence. Having certainty is incredibly important
12 for having trust in our markets. And I think that
13 certainty applies to execution and transparency,
14 including around even tokenized stocks.

15 You know, the higher cost that I touched on
16 and others have touched on as well would, you know,
17 likely continue for more exchanges and the existing
18 SIP revenue model until that's changed. You know, I
19 worry that we'd be risking higher data and
20 connectivity costs without offsetting benefits.

21 And to the effect of competition, the
22 competition I worry would only be from existing
23 entrants in the space. Removing quote protection or
24 trade-through prohibition, excuse me, makes it harder
25 for new entrants to come into the market. And there's

1 that tradeoff of kind of having this blank check of
2 infinite new markets coming to the market. But
3 closing that door really just kind of is equivalent to
4 in a lot of ways pulling up the ladder behind
5 everybody who is out here today.

6 And so just from like an economic
7 perspective, is that something we want to do? And
8 maybe enough is enough, but maybe that's just how we
9 feel now and in 10 or 20 years we think, you know,
10 everybody's pencils aren't quite as sharp as they used
11 to be. It would be great if a new entrant came along
12 to really shape things up, but we've kind of closed
13 that door. So I think we'd want to find a way to make
14 sure that that was still something that was possible.

15 You know, there's a bit of regulatory
16 uncertainty. Do unprotected exchanges still face -- I
17 mean, are they still required to comply with Reg SCI?
18 Are they still subject to access fee caps? Do they
19 get, you know, clearing through the DTCC and NSCC?

20 The fragmentation of the rules kind of
21 distorts the incentives and it's not clear how that
22 plays out. I think we kind of need to walk through
23 all the different permutations and the give and takes
24 along the related rules.

25 Best execution, we've talked about that a

1 lot. But something as simple as 605 reports, what
2 benchmark do 605 reports use? The beautiful thing
3 right now about 605 reports with our current market
4 structure is we all know they're based on the SIP. So
5 you can actually compare across execution reports from
6 broker to broker. When each broker has a different
7 definition of what true north is, you question whether
8 you can actually make comparisons across the 605
9 reports.

10 And even if you said, okay, do, you know,
11 your best ex policy, but then for your 605 report, for
12 consistency sake, everybody needs to use this
13 definition, you know, for true north. Okay, well then
14 that's what you're really optimizing for is that
15 anyway, for what's in the report. I would worry that
16 that could become an incentive.

17 Just that SIP integrity really -- really
18 relies on having a universal north, a true NBBO.

19 MS. TOENNIES: Yeah, I agree a lot with what
20 Andrew just said in terms of unintended consequences.
21 I think first and foremost, investor confidence in
22 the market and ability to explain in particular to
23 retail clients how you got them best ex if you don't
24 have -- this NBBO is just absolutely fundamental to
25 that discussion. So while NBBO is not driven by 611,

1 I think it's kind of the enforcement tool for it, and
2 it's the measurement tool for it that's used for best
3 ex, that's used for discussions with clients.

4 So it could get a lot harder to tell them
5 how you got them best execution.

6 I mean, absolutely, 611 is not best ex. It
7 is one component of it, and then we go out and find
8 the best available price for -- or best available
9 execution, not just price, for our clients. But I
10 think 611 has been helpful in making those arguments
11 with our clients.

12 I think, you know, some other -- other
13 rules, it's kind of hard because, as we've talked
14 about, there's all these rules that interrelate. And
15 without knowing what other strings you will pull and
16 change and how those rules would be changed, it's
17 really hard to know how it will impact markets.

18 And as I said before, if you do -- if you
19 get rid of 611 and you don't change all these related
20 rules simultaneously, I worry we're playing an
21 experiment with a very healthy market and I'm not sure
22 what the reaction of everyone would be.

23 The final thing here is I think it could
24 make electronic trading and the associated performance
25 reporting a little more complicated. And I think we

1 need to think about -- I mean, this isn't a reason not
2 to do it, but it's not without cost too, because you'd
3 have to change systems within all of the broker-
4 dealers who have built systems, as we talked about on
5 all three panels, to adhere to 611 would have to be
6 undone.

7 MR. ROISMAN: Thank you.

8 So assuming 611 is rescinded, you know, what
9 are some of the benefits that you'd be concerned about
10 that should be preserved?

11 And why don't we start with you, Jon?

12 MR. HERRICK: Sure. Thank you.

13 It was tough to wait until question 5. I
14 think we do have four more questions to go, so I'm
15 going to try to run through a lot of things quickly
16 here.

17 So first I think I wanted to comment on
18 exchanges' ability to innovate. And I particularly
19 want to focus on there is a difference between
20 immediately accessible and fair access. And I think
21 we should understand that. Right? Fair access
22 denotes any market participant cannot be excluded from
23 accessing liquidity on a venue because of how they're
24 profiled by the venue. What we think of as
25 segmentation. Right? Or limiting access to some

1 liquidity.

2 Immediately accessible is a bit of a dated
3 term, but I think it's come up with respect to delay
4 mechanisms, IEX in particular. Today is a formidable
5 date with respect to, you know, the options side of
6 that. And I think it's really important, when you
7 think about what it means to be an immediately
8 accessible quote.

9 As I said in my remarks in the beginning, we
10 live in a world where there is relative parity amongst
11 exchanges in terms of the speed with which we operate.

12 We talked before about the resilience of market
13 structure. And yes, it is hard for exchanges to
14 innovate in ways where we can do more with one
15 medallion, whether that be in the dimension of price,
16 whether that be in the dimension of matching
17 algorithms or segmentation if it's non-displayed.

18 But I think this concept of an immediately
19 accessible quote is by definition an anonymous, one-
20 size-fits-all pricing mechanism that market makers use
21 to say, all right, I don't know who I'm going to trade
22 with, and I'm going to price that to the lowest common
23 denominator. That's much different than if they're
24 pricing something to a counterparty they know.

25 When you think of that and what the function

1 of markets are, right, markets at their core premise
2 should be built to help facilitate one stranger
3 trading with another stranger when they need to. And
4 that's such a critical part to our markets that, you
5 know, we need it. Do we need 16, soon to be 20?
6 Probably not. But that's a really important part of
7 what it means to be a market and run an efficient one.
8 And that's the displayed liquidity piece that has
9 been decaying that we should all care about,
10 regardless of what seat we sit in.

11 I think one thing on best ex that will play
12 into how I will answer the question in a second, we
13 have to be -- we have to -- I was thinking about this
14 earlier listening to what people on different panels
15 were saying. It's almost like best ex -- it's more
16 about consistency with what it is you do than forcing
17 conformity. And what I mean by that is don't arb, I'm
18 going to use the SIP here, I'm going to use a direct
19 feed there. Right? There is no -- and again, this
20 goes back to when you think, if this isn't -- we've
21 talked for so many years about direct feeds and SIPs
22 and this, that. It's just choice. It's network
23 transport. It's the -- you know, you're talking about
24 an exchange round trip time is the difference between
25 ingesting a quote via software versus an FPGA feed

1 handler.

2 And it's a free market. People should be
3 able to make those choices. And I think that when
4 you -- when you think about it that way and you relate
5 it about to the Matt Billings retail and the Mehmet
6 Kinak retail, right? He's got clients that want to
7 execute \$100. He's got clients -- many clients -- are
8 giving him orders for \$100 million. Those are
9 fundamentally different things. To measure them by
10 the same benchmark is sort of flawed, we would all
11 agree. But we have to look to preserve the -- almost
12 the social value of this price that's out there that
13 people trust.

14 Does it have to be overly verbose and
15 detailed? No. But it should represent the market's
16 best price. And as Maureen said this morning,
17 Professor O'Hara, maybe it's the NPGO, the national
18 pretty good bid and offer. But it's pretty good.
19 Right? It represents that lowest common denominator.
20 It is really important and critical to markets.

21 And so I think one thing we have to think
22 about, especially as we embark on thoughts around what
23 rescinding 611 might look like more so than modifying
24 it, if you look at the rule, a lot of the statements
25 in the rule are where a number of condition code

1 exceptions have come from. Those are important. VWAP
2 trade, something that was reported late.

3 One example I've been thinking about a lot
4 that will become very relevant similar to a scenario
5 Adam laid out earlier on the panel. In the world
6 we're headed into, if you think about what it costs to
7 prefund a trade -- I'm a market maker and I'm going to
8 give a price in SPY. One is prefunded, settleable
9 right now. The other uses centralized clearing. They
10 very well could be different prices. Right? That's a
11 choice that the next generation of retail investors
12 are demanding. Right? It's not our place to say, no,
13 you can't have that because it's a worse price. How
14 do we account for that? Right? We can't micromanage
15 those things, but they need to be transparent to the
16 world in a new and modern way where it can be
17 understood this is why this trade might live outside
18 of -- of, you know, what I'm seeing. And so I think
19 there's an opportunity to really take a fresh look at
20 that and refresh it.

21 And then finally, I just want to talk a
22 little bit about ISO trades. You know, someone on a
23 prior panel talked about how we disclose order type
24 usage and how ISOs are used in a number of different
25 ways. Trades provide a really interesting lens. So

1 there's a lot of ISOs that are sent to markets for
2 non-displayed orders, for displayed orders, right?
3 Many of them probably aren't filled, would be my
4 presumption if you're looking across the market.

5 But if you look at the trades in the market
6 that are marked with F, which is the ISO condition
7 code, it's been on the decline. It's about a quarter
8 of the trades intraday, if you take auctions out, give
9 or take. And that's on the decline from near 30
10 around COVID. And 99 percent of those happen on
11 exchange. That's interesting, right, when you think
12 about that. And that's because exchanges have this
13 inability to lock and cross the market by rule, they
14 won't. We talk about order types. Obviously, we
15 allow clients to send ISOs from a day capacity. If
16 they've done their due diligence from their view of
17 the NBBO to update it.

18 But it tells us something. Why is it that
19 there are so few ISO trades. I'm not saying that off-
20 exchange venues don't --

21 MR. ROISMAN: Jon, I'm really sorry, but we
22 have three more questions. So maybe at the very end,
23 you can sort of finalize this point. But I think your
24 point is well taken. I think ISOs are important.

25 Joe, would you mind also answering the

1 question?

2 MR. SALUZZI: Sure. I think not only, you
3 know, we can talk about thresholds, but I think we
4 should actually extend OPR. Okay? And we touched on
5 this before. Depth of book.

6 How does it make sense in any world where,
7 if exchange A has a 10 cent bid and exchange B has an
8 8 cent bid, and someone goes to clear the book, but
9 guess what, exchange A also has a 9 cent bid, how is
10 the 9 cent bid at that same exchange not protected?
11 It makes no sense, right?

12 Well, the SIP doesn't have depth of book.
13 We know that. And exchange fees, most brokers will
14 hit that bid anyway. But it's not protected.

15 So if anything, we should be extending for
16 depth of book. And I know it will be more technically
17 advanced and so on, and there will be a lot of data.
18 But if you really want to have a rule correctly, you
19 should have it in there. And it was talked about,
20 obviously, in the 2015 panel and the MSAC.

21 But I also would like to just touch on one
22 other thing. And I think it was Andre in the last
23 panel mentioned that in 2005, there was nine exchanges
24 when NMS first started, and there were 10 ATS/ECMs.
25 And today we've got 1633. It's really not that much

1 different when you think about it.
 2 So maybe, just maybe, OPR is not the reason
 3 for the problems that we have today. It's
 4 coincidental that it happened at the same time. But
 5 maybe the fact that the exchange model turned into a
 6 for profit, some public corporation model where they
 7 have a duty now to enhance their own bottom line,
 8 order types, proprietary data feeds, collocation fees,
 9 port fees, you name it. And if you look at their
 10 revenues and their balance sheets, most of their
 11 revenue is not coming from trading.

12 So maybe our market got distorted by the
 13 players being distorted. And maybe that's why we all
 14 go to off-exchange venues, because we're not
 15 comfortable there anymore.

16 And one last point. Again, different types
 17 of stocks require different types of solutions. When
 18 you're talking about small caps and mid-caps, with
 19 nickel spreads and 100 shares up, that's a lot
 20 different than an ETF that has 50,000 shares bid a
 21 penny wide. So we can't kind of -- there's a
 22 different model there. And that's a whole different
 23 panel.

24 MR. ROISMAN: Thank you, Joe.
 25 Next questions are for Robert, Bob, and for

1 having to have it. So I think that would be a helpful
 2 clarification in the existing best ex rule.

3 And then if 611 goes away, I do think that
 4 you need some changes to best ex. I think you need to
 5 be a little bit more specific. As I said, 611 is the
 6 teeth behind NBBO and executing relative to it, I
 7 would think maybe it would be worth revisiting whether
 8 you'd want something in best ex for that if you didn't
 9 have 611.

10 MR. COLBY: I say yes, yes. And the details
 11 depend on how this plays out.

12 I would say our members have said to us that
 13 there needs to be more guidance on best execution in
 14 the options markets, as those markets have evolved.
 15 And as was discussed before, there aren't the same
 16 supporting data, 605 data that's there. And we credit
 17 the Commission on the work they've done to update 605.

18 MR. ROISMAN: Thank you.

19 So over the past 20 years, we've seen both
 20 exchange consolidation and then what some would call
 21 proliferation. How would changes to Rule 611 affect
 22 those? And we heard from Andrew already. But I'm
 23 curious, from Daniel, from Jon, and from Cam.

24 MR. GERHARDSTEIN: Yeah, thank you.
 25 So we've talked a lot about today kind of

1 Debbie.

2 I think some of you have already spoken
 3 about this. But should the duty of best ex be
 4 clarified? And, you know, does it even depend on
 5 whether 611 is changed or not?

6 MR. BATTALIO: So I'm not a regulator like
 7 Bob. But at least since the late '90s, it has been
 8 the order receipt time quote that has been used to
 9 evaluate execution quality, not the trade time. I
 10 mean, we've been using VWAP implementation shortfall
 11 since the '90s for institutions. I don't know what
 12 else they're using now. But certainly wholesalers now
 13 are being held accountable to the order receipt time
 14 depth of book quote, and that's what they're being
 15 evaluated against. So I don't see how any of that
 16 changes.

17 MS. TOENNIES: Okay, I'm going to say yes
 18 and yes. I think it should -- I think there's room
 19 for clarification. As Bob said, it's been around for
 20 a long time. I think in particular, relative to
 21 parent orders and child orders, and we haven't really
 22 talked about that today, but indicating that we can
 23 give our clients overall best execution, maybe not in
 24 each child order but at the parent level, is better
 25 execution for them overall than every child order

1 the exchange proliferation and naturally with
 2 potential changes to Rule 611 amongst others. There's
 3 a potential, really, for a fundamental reshaping of
 4 the economic incentives that have fueled the
 5 proliferation of exchanges over the last 20 years.

6 Right now, Rule 611 creates artificial
 7 incentives for the establishments of new exchanges.
 8 Achieving the protected quote status provides
 9 exchanges with guaranteed revenue through the forced
 10 connectivity, market data, and access fees, without
 11 regard to new value delivered to market participants.
 12 Further, the SIP revenue allocation formula currently
 13 rewards quoting activity even for venues with minimal
 14 trading activity, which creates a subsidy mechanism
 15 that encourages venue proliferation absent true
 16 innovation.

17 Repealing 611 would hopefully prompt a
 18 rationalization of the exchange landscape. Venues
 19 would be required to justify their existence through
 20 genuine value creation, and those unable to provide
 21 meaningful differentiation would likely consolidate or
 22 exit, resulting in a more efficient market structure
 23 with less fragmentation.

24 This environment would foster more
 25 substantive innovation, as new entrants would need to

1 offer genuine improvements rather than merely meeting
2 regulatory requirements and leveraging existing
3 exchange technology.

4 Importantly, and this has come up a lot in
5 some of the earlier panels as well, we urge the
6 Commission to maintain careful oversight of the fee
7 filings from incumbent exchanges. The 2019 Staff
8 guidance on SRO rule filings had a positive impact.
9 And in a post-611 landscape should be updated to
10 ensure the continued scrutiny of market data and
11 access fees to prevent exchanges from exploiting their
12 market position.

13 In sum, we would hope that these changes
14 support a more dynamic and efficient market structure,
15 where the number of venues reflects the actual market
16 need rather than regulatory distortions, ultimately
17 benefitting all participants to reduce costs,
18 complexity, and improved execution quality.

19 MR. HERRICK: I included a couple of my
20 answers in the response before, not knowing how much
21 time we would have.

22 (Laughter.)

23 MR. HERRICK: I got two things to add here.
24 One is I agree with what was said by Andrew earlier,
25 was said on other panels. If we rescind 611 or make

1 we're going to cross '26 with 24X, most were
2 started -- most if not all were started and sort of
3 formed by industry constituents and the consortiums
4 that they were a part of to facilitate it.

5 And so I say that in the sense this is a
6 shared problem, and something that is not going to fix
7 itself without, you know, regulators kind of getting
8 involved and helping provide a path forward.

9 MR. SMITH: Yeah, so I think I agree with
10 Jon that I don't think it's going to make a big impact
11 if you eliminate OPR in terms of the fragmentation and
12 creation of exchanges. I'm not sure that they're
13 really driving the creation of new exchanges by
14 itself. I mean, we've seen also a proliferation of
15 ATSS and they don't have an OPR. And people are still
16 creating those as well. So it seems to be some demand
17 out there for just new venues.

18 In terms of the Texas Stock Exchange, again,
19 we don't -- we're not looking at that OPR or market
20 data revenue as the basis of a business. You have to
21 go out and earn the right to get people to connect to
22 you.

23 Dan showed an interesting graph earlier
24 showing that, just on this point, like that just
25 because of OPR everyone is connecting to it. It seems

1 any significant -- even if we make modifications, we
2 do have to look at the SIP revenue share construct,
3 right? We absolutely should incentivize displayed
4 trades. And, you know, I think about, you know, Ari
5 from IntelligentCross was up here talking about the
6 growth they've had. That's an example in a world
7 where a displayed quote, regardless of if it's behind
8 a delay mechanism that's promoting fair access, that
9 is resulting in trades. Maybe that's something that
10 exchanges can do in time.

11 Like in a world where you don't have this
12 protected/unprotected status, things like that become
13 easier, where we can put our money where our mouth is.

14 And I think if we do stuff like that, too, we also
15 have to look at non-displayed trades, particularly
16 those that show up every day as 50 percent of the
17 volume shows up, in this omnibus way that's kind of
18 not actionable and kind of delayed by the time you see
19 it. So we should be looking at those things and how
20 we can improve the market efficiency and transparency.

21 Finally,, you've got to look at the bigger
22 picture. Nine medallions across equities and options
23 existed before. Late '90s, which was when ISE
24 first -- was sort of the first new exchange to launch
25 in options. Most of the new medallions, right, and

1 that actually when you start a new exchange and people
2 are a little skeptical of whether you're going to have
3 material order flow, they go ahead and just hit you
4 through a router. So I still think even in an OPR
5 world, you still have to demonstrate that you're going
6 to add value and that it's worth connecting directly
7 and get those numbers. I think you said the lowest
8 exchange had 20 or so members. But if you prove
9 value, you can get up to 40 or 50 and get those direct
10 connections.

11 So I don't think, again, OPR -- I think the
12 proliferation of exchanges thing, I'm not so sure it's
13 as strong as everyone is talking about. Also, I think
14 about IEX and BATS were ATSSs and then they became
15 exchanges right after. So you kind of only really
16 have three or four new ones. So I don't know if
17 that's like exchanges gone crazy, necessarily. But I
18 don't think we're going to see an impact there,
19 frankly.

20 Fragmentation is a much more complicated
21 topic having to do with antitrust and breaking up the
22 New York Stock Exchange in 2005, frankly.

23 MR. SALUZZI: One quick point. You know
24 what's interesting about the new exchanges, and I
25 don't want to pick on them because they're not here.

1 24X just filed their fee schedule, 29-and-a-half mil
2 rebate, no tiering. How do you think they're going to
3 get flow? They're going to immediately capture market
4 share. Twenty-nine-and-a-half mil rebate, I'm sure a
5 lot of folks in this room are going to go there and
6 post some flow. That's how you get this fragmentation
7 problem.

8 MR. ROISMAN: So I think we're going to
9 shift to options now.

10 And so we've talked about what happens if
11 you change 611 for equities. Do you think we should
12 make the same modifications to the options markets, at
13 least through the trade-through prohibitions?

14 And why don't we start with, Professor
15 Battalio, with you.

16 MR. BATTALIO: All right, so I believe
17 Commissioner Atkins said that one of the reasons for
18 the trade-through rule was to increase displayed
19 liquidity. That did not happen in the equity option
20 market. So I guess I would ask what the objective is,
21 what is the order protection rule doing in option
22 markets, before I could answer what would happen if it
23 was taken away.

24 MR. ROISMAN: That's a good response.
25 Jon.

1 MR. HERRICK: Sure. I think you have to
2 look at OPR, I think, outside -- it's bigger than just
3 OPR, as my colleagues on the exchange side, both Cboe
4 and Nasdaq, were saying earlier. Options are
5 different. And I think if you were to just remove OPR
6 tomorrow what would change is hard to predict. It's
7 different than it is in equities. And I think a lot
8 of that has to do with the fact that we don't -- you
9 know, there is no TRF and, you know, you see a lot of
10 different anomalies.

11 And I think one thing we're also supportive
12 of, along with Nasdaq and Cboe is ORF reform. I do
13 want to state like that is a meaningful driver behind
14 what helps new medallions get going and kind of
15 subsidize their initial launch.

16 And the last thing is, we can't overlook the
17 role internalization of the growth of retail is
18 playing in this. And I think this has been a
19 phenomenon let's say in the last five years, where you
20 have new entrants, smaller venues, and the
21 competition, because of the rules of options, right,
22 because orders are required to be brought to an
23 exchange, to be given the opportunity to be price
24 improved, that you have competition for medallions
25 for, you know, internalized trades to find different

1 models where it works for them. And, you know, some
2 of this is on pro rata venues. We talked a little bit
3 before about, you know, customer order priority and
4 what have you.

5 And I think looking at ways -- again, this
6 goes back to that innovation point. How can the
7 Commission work with the industry and us as exchanges
8 to allow us to iterate a little bit, maybe working
9 with market making programs and some known concepts
10 out there like broker preferencing. Could have impact
11 on that and help move us forward.

12 MR. ROISMAN: Go ahead, Matt.

13 MR. BILLINGS: I think on the previous
14 panel, first of all, good comments regarding options,
15 and agreed, the options market is fundamentally
16 different. So we don't want to conflate these
17 discussions. But I appreciate the thread from the
18 last panel regarding, you know, one of the more
19 effective tools the SEC has is transparency
20 initiatives.

21 So if you want to dip your toe into the 605
22 theme, and granted that is an extremely complex
23 statement to make because options are just -- it's
24 just such an immense lift, but that is an area where
25 if you're going to take the next step with options,

1 it's about building a transparency regime around that.

2 MR. ROISMAN: So I want to give everyone an
3 opportunity to have sort of a financial statement. So
4 if -- we're running against sort of the end. So if
5 people can give 30 seconds or a minute of your final
6 thoughts, we can go through and be on time.

7 So, Professor, why don't you start.

8 MR. BATTALIO: I think Matt's right, with
9 regard to option markets, that would be a nice first
10 step. Just push out 605 and let people evaluate
11 brokers that way.

12 MR. BILLINGS: Awesome closing statement.

13 So a couple things just top of mind as I was
14 thinking through this. Number one, all in favor of
15 market data reform, and I think that's trying to
16 happen as we speak. I think we can tackle as an
17 industry how we're going to deal with an NBBO with
18 rescission of 611, whatever we're going to call it. I
19 think that's something that's part of the discussion.
20 And it can be -- it can be resolved.

21 I heard several comments about investor
22 confidence. Investor confidence is not achieved
23 through a rule. Investor confidence is achieved
24 through us. Investor confidence is us about, you
25 know, providing the experience, whether it's resilient

1 platforms and quality, and the whole-in experience
2 that we want to provide to our clients. So I don't
3 think we're going to lose investor confidence here. I
4 think our investor confidence is going to be
5 absolutely fine if we rescind 611.

6 Thank you guys very much. Thank you to the
7 Commission for the opportunity to participate in this
8 discussion. As you mentioned, while 611 is well
9 intentioned, it has created unnecessary fragmentation,
10 complexity, cost, and ultimately weighs on the
11 investors. Thank you.

12 MR. COLBY: I just say again that best
13 execution is a powerful concept, but it operates
14 within a market structure. If you choose to change
15 the market structure, we'll work with you to elaborate
16 best execution.

17 MR. GERHARDSTEIN: No, I would just say
18 thank you again for the opportunity to participate
19 today. I mean, I think one theme that was really
20 clear throughout all the panels is, obviously, as we
21 look around potential reforms to Rule 611 as part of a
22 wider reform to Reg NMS, it's not done in a vacuum,
23 but instead looked at 610, market data, SIP fee
24 revenues as well. And kind of look forward to future
25 engagement across all those topics, and maybe panels

1 to come.

2 MR. HERRICK: Echo that thanks. Look
3 forward to future discussions.

4 I'm encouraged by the amount of openness to
5 something. And I think, as I said to many of you
6 earlier, the worst case outcome here would be to walk
7 away and once again not have done anything. It seems
8 like we talk about a lot of change. This is an area
9 where I think we pretty much broadly agree change is
10 welcomed. And let's remember that we can work
11 together to solve these problems.

12 And, once again, thanks.

13 MR. KHANDROS: Just quickly on the options
14 side, before, we do see opportunities to trade off
15 exchange to help reduce cost of trading for retail
16 institutional on the options side. And so it is worth
17 giving people the ability to trade without getting
18 things broken up, without this fear of how they can
19 hedge and leaking info that happens. We keep getting
20 asked again to the options space. It's a big problem
21 that people have in options today as it's growing.
22 That's just on the prior question.

23 On the concluding remarks, I would again say
24 the U.S. markets are the envy of the world. This
25 roundtable is a great example that will just help

1 further improve capital markets.

2 Unfortunately, Chair Atkins 20 years ago was
3 spot on. And there's a lot of great quotes out there,
4 in fact from both Jamie and Elad from years past
5 around doing things like minimum thresholds, doing
6 things like block exemptions that can further improve
7 execution quality, further improve price formation,
8 capital formation, benefit households ultimately.

9 And our view at OneChronos is led by
10 innovation, led by data. And a lot of these mandatory
11 connectivity burdens on the industry are backfiring.
12 And so it's worth revisiting, and we definitely see
13 opportunity for a thoughtful regulation that protects
14 investors but actually does allow even more
15 innovation, ultimately benefitting households and mom
16 and pop.

17 MR. KINAK: All right, two quick responses
18 to things that were said a little bit earlier.

19 Proliferation within the exchange versus ATS
20 landscape. What we've seen in ATS, by the way, is
21 innovation and uniqueness that comes in. So we
22 support when there's new ATSs.

23 We have seen very little innovation within
24 the exchange landscape. And the ones that are looking
25 to come on board or at least, you know, looking to be

1 approved by the SEC don't provide any new, unique
2 innovation or anything that we can see that
3 differentiates them from the existing models. That's
4 one.

5 Two. I keep hearing things this morning and
6 today as well where people say they achieve best ex by
7 going to get the best execution. But no one clearly
8 defines what that best execution is. Unfortunately,
9 that best execution is OPR, which is best price.

10 So when people keep referring to we achieve
11 best ex by having a robust best execution, they're
12 referring to price because they are not clearly
13 defining what best execution is, other than the fact
14 that they're achieving the price that's accessible.

15 Closing remarks. I've heard today that it's
16 difficult, complicated, other rules need to be changed
17 in order to modify or rescind OPR. That's okay. We
18 give Jamie some work if there's other rules that need
19 to be amended. And he's up to the task.

20 That should not be the reason that we don't
21 address OPR. And as Vlad said and as others have
22 said, we are the envy of the world, but not because of
23 OPR, but in spite of it.

24 MR. SALUZZI: To use the professor's analogy
25 before, scaffolding, the building's got 16 floors of

1 scaffolding. We can take it down. But the
2 scaffolding needs to stay up. It needs to stay up
3 because OPR is important still, because best ex is,
4 yes, that's overriding responsibility. But investors,
5 to that point of confidence, will feel better if they
6 know their orders are protected.

7 And then the goal again should always be how
8 do we increase displayed liquidity. That should be
9 the number one reason why we're here. And by getting
10 rid of OPR, I don't think you're doing that. I've got
11 many other suggestions, but it's not for this panel.
12 So let's just think about that.

13 And I think a lot of prior panels, they've
14 always said do no harm. I think I heard that earlier.
15 So I think do no harm on this one.

16 MR. SMITH: I'd echo that.

17 At the end of the day, I think it's
18 important to regularly reassess our rules and ensure
19 that they're working as intended. But if the problem
20 is exchange proliferation and it's driven by the
21 incentives of the SIP revenue model, then it's
22 probably worth taking a more surgical approach towards
23 the SIP revenue cancer instead of the blunt approach
24 that could be more costly, you know, or disruptive.

25 I'd be remiss to not express appreciation

1 one at the new price level, you send the ISO orders.
2 It's all very distorting.

3 So then if we can do that, we can get to the
4 place where Mehmet is describing where an exchange
5 could actually innovate and, like the ATSS do, because
6 maybe we can then get to the fair access. Because
7 they're sort of linked.

8 Because you kind of need -- once you start
9 forcing people to access a particular price, you need
10 to sort of regulate that interaction, right?

11 So if we can make some progress on fair
12 access and some of the other kind of general notions
13 that have been out there for a long time about what it
14 means to be an exchange and having a central limit
15 order book, and if we can relax some of that, then we
16 will see innovation from exchanges as well.

17 An ATS is just an exempt exchange. So the
18 only difference is the regulation, not the capability
19 of the people working at the exchanges.

20 So thank you.

21 MS. TOENNIES: And I guess the question of
22 whether to modify or rescind 611 requires careful
23 consideration. And so I want to thank the Commission
24 and Jamie and Elad for this important discussion
25 today.

1 for this SEC's approach towards rulemaking and
2 engaging the market and industry in roundtables and
3 comment requests before the rule proposal phase. It's
4 very refreshing. So we appreciate that.

5 MR. SMITH: I want to agree with Mehmet. I
6 think now is the time to eliminate these rules. We
7 really probably never needed the rule in the first
8 place. There was very few trade-throughs even back
9 then, when you had manual markets and Slack Net, which
10 wasn't even automatic at that point either, and still
11 tortured the numbers enough and they only confessed
12 about two and a half percent trade-throughs or
13 something like that even then.

14 So the costs of it just outweigh the
15 benefits. It adds a lot of complexity. As somebody
16 who is working on a matching engine now with a team to
17 come into the exchange, it adds a lot of scenarios and
18 cases that really just extend the complexity of
19 everything. And I think it makes the market more
20 brittle too, because there are all these edge cases
21 that you have to think about. And it also distorts
22 trading, if you go visit the trading firms. ISO
23 orders and all the hide and slide, all the gaming that
24 goes on to try to get priority because you know the
25 market's about to move and you want to be the first

1 I think it's, I hope, the start of an
2 evaluation. We would hope that you'd go through a
3 notice and comment period associated with this big of
4 a change, in addition to a roundtable.

5 But this is definitely a good first step and
6 a big difference from prior administrations.
7 So much appreciated.

8 I think the only other thing I'd share is,
9 you know, we're talking about how over the last 20
10 years the markets have changed.

11 I wouldn't want -- I won't be here, but in
12 20 years, I wouldn't want to come back and say did we
13 really consider the future.

14 And we're all talking about the past
15 problems and the things we're fixing.

16 I think especially as tokenization becomes
17 more common in our markets, I think it's important
18 that we think about the rules that we're putting in
19 place and make sure that we apply rules so that if we
20 have a tokenized equity market, it is also the envy of
21 the world and is safe for investors.

22 MR. ROISMAN: Well, thank you all.

23 Thank you to the Commission again for this.
24 There's already been excellent comment letters
25 submitted. I'm sure we're all looking forward to

1 additional ones.
 2 But again, thank you, Director Selway, for
 3 inviting us, and for the roundtable.
 4 MR. SELWAY: Thank you, Elad. Thank you,
 5 panelists.
 6 Thank you, audience, here and on video.
 7 The comment file was mentioned a couple
 8 times.
 9 Let's keep that full.
 10 This will conclude the roundtable.
 11 I think Bob and I might have a late-night
 12 drafting session tonight on best ex, so stay tuned for
 13 that.
 14 Thank you all once again. It's extremely
 15 helpful.
 16 Roundtables are back, and I can't tell you
 17 how much the team appreciates this level of
 18 engagement.
 19 Thank you.
 20 (Applause.)
 21 (Whereupon, at 4:31 p.m., the meeting was
 22 adjourned.)
 23 * * * * *
 24
 25

1 CERTIFICATE OF REPORTER
 2
 3 I, Connor Morris, reporter, hereby certify
 4 that the foregoing transcript is a complete, true, and
 5 accurate transcript of the testimony indicated, held on
 6 Thursday, September 18th, 2025 in the matter of:
 7
 8 ROUNDTABLE ON TRADE THROUGH PROHIBITIONS
 9
 10 I further certify that this proceeding was
 11 recorded by me, and that the foregoing transcript has
 12 been prepared under my direction.
 13
 14
 15
 16 Date: 9/25/2025
 17 Official Reporter: Connor Morris
 18
 19
 20
 21
 22
 23
 24
 25

1 PROOFREADER'S CERTIFICATE
 2
 3 In The Matter of: ROUNDTABLE ON TRADE THROUGH
 4 PROHIBITIONS
 5 File Number: OS-0001
 6 Date: Thursday, September 18th, 2025
 7 Location: Washington, D.C.
 8
 9 This is to certify that I, Kyleigh McGinnis,
 10 (the undersigned), do hereby swear and affirm that the
 11 attached proceedings before the U.S. Securities and
 12 Exchange Commission were held according to the record
 13 and that this is the original, complete, true and
 14 accurate transcript that has been compared to the
 15 reporting or recording accomplished at the hearing.
 16
 17
 18 _____ 9/25/2025
 19 Kyleigh McGinnis (Date)
 20
 21
 22
 23
 24
 25

A				
a.m 1:14 120:24	264:18 267:20	140:5	190:19 214:17	52:2 132:4
abide 249:3	267:21,25	acquisitions	278:23 281:6	administrations
ability 107:10	277:10 278:11	105:23	added 245:11	293:6
181:14 207:22	279:8 292:6,9	acronyms 28:24	adding 24:20	admired 126:5
265:22 267:18	292:12	act 14:16 113:13	25:5 125:9	admission 159:22
287:17	accessibility	115:15 162:17	159:17,18,18	admit 145:11
able 67:8 103:2,6	125:6 262:3,5	179:3 192:24	166:5	adopt 115:16
103:11 116:2	accessible 83:21	199:14 200:13	addition 40:4	adopted 7:9
119:10 150:21	142:1 260:13	acted 155:13	97:22 225:5	14:25 15:13
151:1 154:17	260:15 267:20	Acting 34:11	242:17 293:4	28:12 60:10
158:23 164:14	268:2,8,19	action 9:19 51:13	additional 16:15	135:8 157:9
174:15 176:1	289:14	51:15	16:20 31:23	199:11 231:18
189:5 192:14	accessing 186:7	actionable	57:18 71:20	adopting 11:15
260:2 270:3	267:23	279:18	105:1 126:22	11:22 59:16
absence 77:10	accidental 108:17	actions 76:9,12	294:1	173:14 183:14
156:8	accompanied	224:23 225:16	Additionally	201:25
absent 44:13	77:20 126:21	active 80:8	32:10 44:7 58:1	adoption 31:3
76:21 277:15	135:24 136:8	107:16 171:17	207:21 222:23	36:9 121:22
absolutely 106:16	232:6	203:4 222:24	address 71:9	211:12
265:24 266:6	accomplish 26:24	223:1	126:19,22	adorable 206:10
279:3 286:5	221:24	actively 36:7	149:23 154:19	ADV 62:21
absorbed 104:24	accomplished	145:3	182:10,18	advance 44:12
absurd 195:1	41:5 295:15	activity 71:13	211:16 224:6,7	advanced 273:17
academic 52:15	account 9:14	277:13,14	231:21 242:5	advancements
52:17 53:2,13	101:20 156:6	acts 120:13	248:22 289:21	63:25 223:7
67:13 228:2	182:7 271:14	actual 41:13	addressed 117:4	advances 56:7
academician	accountability	61:10 188:5	142:20 155:15	advantage 57:1
122:16	232:11	278:15	155:18 182:17	86:6
academics 53:4	accountable	ad 133:19	addressing 150:3	adversarial
67:17	275:13	Adam 3:22	153:18 174:19	124:17
accept 49:15	accounting 61:14	136:23,23	211:8 247:24	adverse 201:22
167:18	70:13	137:2 138:11	253:1	202:2
access 8:14 16:15	accounts 215:11	147:12 148:8	adds 123:25	adviser 18:16
32:8 44:21 52:1	226:23	154:7 166:15	167:10 229:23	114:2
55:13 83:22	accumulate	180:4 185:4	291:15,17	advising 164:13
87:13 117:12	261:2	194:22 271:5	adequately 76:13	advisory 7:17
130:1,3 135:21	accurate 295:14	Adam's 148:1	231:21	50:8 52:23
136:15 140:20	296:5	adapt 56:14,19	adhere 232:8	184:13,17,24
146:9 151:3,4	accurately 34:8	148:16 149:2,7	267:5	205:15 213:3
158:8 181:18	achieve 41:10	151:10	adheres 83:14	advocating 112:6
185:24,25	289:6,10	adapted 57:10	adjourned	118:2 215:13
186:3 199:16	achieved 285:22	add 24:20,25	294:22	affairs 206:22
202:11 203:16	285:23	32:13 68:23	adjusting 126:13	affect 125:7
221:22 225:6	achieving 201:16	88:17 100:15	adjustment	276:21
249:3 257:10	233:3 237:14	116:5 119:2	179:21	affiliated 105:2
258:24,25	277:8 289:14	136:4 144:23	adjustments 11:8	affirm 295:10
259:21 260:8	acknowledge	152:1 158:2	126:21	afford 242:22
260:12,15	75:3	168:2,19,22	administer 115:2	affordability
	ACNs 139:22	178:21 182:24	administration	159:9

afraid 185:11	agreed 284:15	112:17 166:2	174:5 177:8,18	123:2 144:17
afternoon 121:3	agreeing 33:24	173:10,11	203:15 239:8	146:21 160:22
121:17 130:18	75:10 114:19	175:21 229:14	261:13 287:4	169:3,6 188:1
198:15 208:23	254:8	256:8	amounts 178:14	196:7,25 197:6
210:20 214:14	agreement 76:1	allows 27:12	251:3	214:3
218:22 222:13	agrees 157:23	164:8 216:21	amplification	Angeles 14:14
agency 33:17	ahead 10:6 85:3	220:9 237:2,16	148:7	angle 161:22
34:14 71:3	115:11 178:20	alluded 67:14	amplified 31:4	171:10
121:6 124:14	181:5 208:17	alongside 117:5	analog 219:13	animal 189:16
162:22 212:5	215:4 236:15	204:12	analogies 215:24	anniversary
219:22 224:12	281:3 284:12	alphabetical 35:8	analogy 47:15	131:8
250:15	aiding 217:24	206:17	49:4 61:24	announcements
agent 250:11	255:9 256:10	alphabetically	215:25 260:1	120:17
agents 250:13,20	aim 209:1	58:20	289:24	annual 261:19
250:21	aired 262:25	already-appro...	analyses 46:13	anomalies 221:8
ages 34:9	albeit 244:13	129:24	analysis 26:23	283:10
aggregate 86:22	algo 212:20	alter 208:13	27:19 47:9 68:6	anonymous
89:6	240:12	alternative 159:7	85:11 92:25	268:19
aggregated 23:21	algorithmic	191:10	111:10 201:25	anonymously
aggressive	84:23	alters 9:12	228:10 231:12	254:13
167:23 168:1	algorithms 55:12	alumni 121:5	232:24 261:22	answer 27:5
aggressively	56:2,10 93:1	amazing 76:7	Analytics 2:8,9	83:25 88:7,8
165:24	250:9 268:17	146:19	2:10 17:6,10	118:1 239:12
ago 15:13 36:10	algorithms 56:14 159:1	Amazon 78:8	analyze 43:19	241:11 269:12
37:22 50:10	align 220:13	186:9	46:1,24 241:17	282:22
59:16 60:10	aligned 129:11	ambition 18:25	analyzed 16:17	answered 14:19
61:4 111:6	131:24 149:5	Amen 10:2	anatomy 169:10	242:7 247:21
162:14 199:12	alignment 32:22	amended 8:10,13	ancillary 122:9	253:5
204:12,15	alike 57:17	289:19	130:1	answering 27:3
207:13 217:12	all-in 232:3	amending 9:9	Andre 2:14 121:5	38:19 42:18
219:12 231:18	alleged 161:5	amendments 8:8	121:13 129:3	272:25
253:24 288:2	allegedly 160:24	8:9 9:13 140:23	130:17 133:2	answers 14:20
agree 51:2 60:3	Allison 2:24	200:14	134:19 136:25	40:11 42:1
76:2 82:9 90:24	124:9,13	America 3:25	138:13 143:1	278:20
96:17 97:4 98:3	125:11 157:25	55:3,10,14,20	148:10 151:21	anti-fraud
98:10,22 102:1	160:14 177:23	147:19 172:18	161:15 163:7	224:15 262:11
108:4 114:20	allocation 71:12	American 24:9	197:20 273:22	anticipate 9:15
117:21 121:23	97:25 100:22	130:25	Andress 2:19	9:17 104:24
149:15 150:25	277:12	Americans 12:21	35:12,14,17	antiquated 140:1
156:7 157:19	allow 116:6	242:21	89:15	antitrust 281:21
161:17,18	119:14 159:19	AML 195:7	Andrew 4:5	anybody 102:6
177:24 178:18	194:15 207:25	amorphous 14:23	121:5 249:19	105:17
180:4 181:7	217:10 218:10	18:9	262:19 263:6	anymore 123:13
182:23 213:25	248:5 249:1,7	amount 10:14	265:20 276:22	123:24 216:8
213:25 216:11	272:15 284:8	53:18 71:16	278:24	238:15 253:17
218:5,11	288:14	85:10 87:21	anecdote 131:5	274:15
265:19 270:11	allowed 37:13	100:4,5 103:1	131:22	anyway 7:14
278:24 280:9	104:15	107:19 129:17	Angel 2:21	198:11 205:2
287:9 291:5	allowing 45:9	142:13 155:5	122:22,24	215:4 228:4,7

265:15 273:14	44:16 66:4	argument 75:5	110:4 126:7	Atkins's 34:14
apologize 10:9	126:18 133:24	147:1,2 250:2	165:20 166:13	207:23
apparently 209:1	146:16 181:23	arguments 7:23	181:17 195:4	Atlantic 42:4
appealing 41:3	185:12 202:5	20:10 50:17	195:13 196:12	atomization
APPEARANC...	204:11 211:1,8	111:16 202:16	219:15	213:13,15
2:1 3:1 4:1	226:24 227:12	208:2 266:10	Aspen 65:1,1	214:11
appears 24:12	231:20 241:3	Ari 2:25 36:18,22	assembled 35:1	ATS 36:25 37:6,9
appendages	244:7,15 245:3	38:20 64:14	assertion 233:22	43:8 127:6
28:21	290:22,23	75:1 76:2	assessing 46:7	151:7 245:15
applaud 60:15	291:1	111:12 112:10	asset 36:5 59:5	249:10 252:21
Applause 197:23	appropriate 8:12	114:19 279:4	125:16 138:16	254:14 258:17
205:3 294:20	141:19 215:25	arm 45:18,19	184:10 195:1	259:8 288:19
apples 115:22,22	248:9	Armando 3:6	195:25 210:16	288:20 292:17
189:17	appropriately	127:2,5 128:25	222:22 237:5,6	ATS/ACNs
applicability	201:20	141:8 169:8	237:18 246:15	139:21
194:20	approval 30:25	176:5 234:1	assets 184:24	ATS/ECMs
applicable 60:4	approvals 114:15	241:1,4 252:3	194:13 196:8,9	273:24
application 185:8	approve 114:16	arms 45:12,12,14	222:23	ATSs 9:3 37:6
225:3	approved 48:20	45:16,19,19	Assistant 26:13	63:6 140:12
applied 26:14	115:24 200:1	56:23 164:14	associated 92:4	175:17 176:13
27:2,23 30:4	289:1	218:1,3,6	104:13 105:8	221:7 252:3,4
154:8 208:25	approving 74:17	219:16	144:9 155:9	254:11,15
225:15	162:12	arrangement	161:20 172:14	256:4 260:11
applies 191:8	approximately	83:23	219:7 230:23	280:15 281:14
263:13	29:20 55:21	array 213:21	266:24 293:3	288:22 292:5
apply 8:10,17	apps 251:20,21	arrived 198:1	Association 2:19	attached 295:11
32:8 177:4	April 15:5 23:2	articles 52:13	3:17,21 14:13	attempt 26:20
194:18 195:25	arb 269:17	articulated	15:3 35:13,22	attention 56:16
223:23 293:19	arb'ed 146:6	202:17	36:1 45:4	207:11
applying 27:18	arbitrage 56:25	artificial 277:6	134:24	attest 13:5
28:7 136:10	73:4	artificially 66:19	assume 24:2 39:9	attractive 256:22
appointed 14:12	arbitrary 109:12	255:22	193:19 235:21	attractor 145:7
appreciate 16:17	arcane 100:25	Arun 2:9 18:12	assuming 267:8	attributable
33:4 43:10 47:7	arch 126:12	26:12,16,19	assumptions	218:4
50:12 81:21	area 71:21 114:2	30:3	200:3	attributes 95:13
125:5 127:1	119:12 179:11	Arun's 33:11	asymptotically	201:6
130:11,14,21	284:24 287:8	ascertain 243:12	146:16	attrition 236:4
133:5 138:18	areas 34:23 192:5	Asian 156:17	ATFT 161:9	auction 94:15
210:24 216:12	195:23	aside 20:13 72:13	Atkins 2:3 6:8	99:21 109:7
219:11 223:4	arguably 19:22	259:22	7:11 15:5,23	169:15 190:17
284:17 291:4	104:17	asked 14:14	34:6 37:24 43:2	217:2,3,5
appreciated	argue 41:10	133:8 204:10	61:8 120:11	249:12
26:21 207:23	62:14 66:2,16	242:7 257:8	130:18 197:7	auctions 98:1
293:7	99:1,11,14,23	258:22 287:20	197:25 198:4	109:2,16
appreciates 59:1	104:5 108:12	asking 47:7	198:23 205:18	159:18 190:16
294:17	234:15	aspect 68:8	213:2 218:1,24	190:16,20
appreciation	argued 88:5	172:16 185:2	222:9,14 226:2	191:23 217:7,8
290:25	202:10	193:14 246:1	236:11 253:23	252:7 255:15
approach 11:7	arguing 119:18	aspects 44:17	282:17 288:2	272:8

audience 70:9 123:2 197:10 294:6	91:8 102:24 107:24 108:8 113:8 120:23 121:2 139:18 139:22 141:14 142:11 143:7 143:17 144:24 145:16 148:17 150:9 153:2 158:15,21 164:10 165:25 168:14 172:8 174:9 189:15 197:21 206:15 211:10 214:18 214:23 228:3,8 229:25 230:4 234:1 241:10 245:14 248:15 248:19 249:23 252:11 256:15 257:20 261:10 261:24 262:19 269:20 284:6 291:8 293:12 294:16	55:10,14,20 147:19 206:23 245:17 254:12	69:25 113:8 268:9	241:25 245:10 246:22 247:14 248:20 249:16 252:15,18 263:20 267:9 291:15
audience's 205:23	barriers 202:14 252:22	Bartlett 80:13	begs 65:17	benefitted 48:9 160:13 215:23 230:25
audit 161:3	based 23:22,24 169:14 170:21 185:14 212:6 215:5 220:5,5 224:13 228:16 231:15 233:6 237:1,9 260:18 265:4	baseball 221:18	behave 125:1 191:7	benefitting 178:3 244:9 278:17 288:15
August 14:12,13 37:3 152:10 169:14	baseline 261:23	based 23:22,24	believe 12:5 40:14 41:2 43:13 44:2,9 51:13 53:6 70:24 94:8 97:7 124:3 132:5,14 134:5 155:10 199:10,21 200:9 202:4 216:7,20 227:6 227:23 228:3 231:5,13 232:15 235:8 243:2 282:16	benign 199:23
automated 17:24 51:19 59:6 62:12,14 123:16 137:23 138:8 216:7 219:14 234:6	basically 89:24 162:7 166:20 172:5 252:18	base 11:21 20:11 20:14 49:11 104:19 253:16 280:20	believes 36:10 38:8 59:21 60:7 129:15	Berkshire 54:14
automatic 291:10	batch 252:6	batch 252:6	benchmark 139:10 208:21 251:12,17 265:2 270:10	beset 203:6
automation 32:24 123:19	baton 26:12	BATS 281:14	benchmarks 39:24	best 11:21 12:1,4 12:6,8 16:13 17:3 28:19,19 28:20 29:4,13 29:16,17,19,20 29:22,23 32:22 35:20 37:15 43:23 44:20 49:12,13,16,17 49:20 54:1,9 55:16,19 57:13 61:6 66:2,4 71:3 74:3,14,18 74:19,23 75:6 75:14 76:3,10 76:14 77:9,15 77:16,21 78:11 79:1,17 81:2,6 81:17 82:2,6,11 82:16 83:15 85:1,7,9 86:3 86:14 88:2,3,5 88:8,9,10,16,19 89:10,16,21 90:3,5,7,24 91:1,2,3,16 93:2,12,15,19 104:22 107:1,2 110:18 111:7 112:24 113:3 113:15 117:12 119:6 120:13 122:8 124:3 128:8,8 134:1
available 17:8 76:20 89:11 125:3 141:7 203:16 236:6 246:9 266:8,8	Battalion 2:22 227:25,25 228:6 275:6 282:15,16 285:8	basis 11:21 20:11 20:14 49:11 104:19 253:16 280:20	beneficial 9:22 125:25 207:17 248:24 255:10	benefit 8:23 13:23 16:9,19 18:8 46:9 164:24 205:23 206:8 215:15 237:25 243:3 247:16,17 255:25 256:2,6 288:8
avenue 42:11	battle 39:25 40:5 40:7	batch 252:6	benefits 19:5 20:7 46:9 48:23 58:10 114:23 114:23 117:15 231:7 232:16 236:25 237:20	
average 37:3 63:11,12,14 66:12 96:7 128:9 233:1	backdrop 108:18 147:21	BATS 281:14		
avoid 40:17 111:15 204:11 255:23 257:24 258:1 261:4	backfiring 288:11	Battalion 2:22 227:25,25 228:6 275:6 282:15,16 285:8		
avoided 57:11 202:9	background 92:14	battle 39:25 40:5 40:7		
avoiding 261:12	backstop 11:25 135:16 144:11 186:20 187:4	battles 193:21		
aware 10:14 11:17	bad 7:12 106:17 143:7 144:14 146:18 187:11 221:15	BBO 157:16		
awesome 180:5 285:12	balance 117:15 142:19 174:20 247:1 274:10	bd 61:19 247:15		
axis 29:4,5,5	balanced 126:18 201:20	BDs 23:22 24:4 25:4,5,20		
<hr/> B <hr/>	balancing 38:12	bear 189:5		
B 109:17 273:7	balloon 58:17 246:2	bearing 73:1		
back 20:2 24:2 33:8,25 53:8 54:13 62:20,23 63:1,2,4,12,19 68:20 81:4 85:3 85:19 86:20 88:20 90:16	ban 73:11 165:21	beat 80:23,24 221:14		
	bank 3:25 55:2	beautiful 265:2		
		beauty 123:14		
		becoming 119:13		
		bedrock 260:17		
		began 103:15		
		begging 135:14		
		beginning 31:5		

135:16,24	better 19:25 20:6	279:21 283:2	blatantly 150:7	brackets 23:3
136:20 141:6	35:22 38:11	biggest 138:2	block 136:7	Brady 2:8 18:12
144:11 149:24	49:1 54:8,22	143:16 144:17	203:17 207:22	30:2,3,4
149:25 150:4	65:18,22 66:10	215:18 217:16	207:24 218:16	brain 149:20,21
150:10 154:17	66:19 77:14,15	257:21	253:22 255:16	brand 105:5
156:4,5,7 183:7	78:8,10,20	bilateral 175:14	255:16,18,20	116:7
183:10,13,16	80:21 85:9	bilaterally 175:16	256:11 288:6	bravo 198:7
183:17,21	88:15 99:23	bill 158:20	blocks 53:12	break 17:22
185:5,13 186:9	133:21 153:8	billing 68:20	178:2 191:19	120:22 197:21
186:13,20,22	168:11 178:1	Billings 2:23	255:13	breakdown 51:8
187:3,17,18,24	191:5,13 196:3	226:1,11,17	blow 111:18	breaking 253:2
188:1,7,13	202:11 207:7	229:4 233:10	blown 101:24	281:21
191:2,4 201:1,3	208:1 223:12	242:4 270:5	blue 7:13	breakthrough
202:13 217:21	229:12 231:2	284:13 285:12	blunt 290:23	90:16
219:23 223:23	234:18 236:9	billion 62:21,22	blur 246:23	Brennan 13:20
224:6,7,12,14	241:17 243:1,8	180:20	BO 238:7	brief 34:20 58:23
224:16,17,20	275:24 290:5	billions 135:18	board 35:24	bring 18:11 53:4
225:1,3,13,14	beyond 202:3	143:14	48:10 68:6	88:20 131:15
225:21 227:14	biased 128:12	bingo 47:13	205:15 257:16	147:3 151:24
228:17 231:15	Bible 52:15	bios 205:25	288:25	174:8 178:6
231:20 232:1,6	bid 19:19,21	Bishop 2:24	Bob 223:18	180:10 245:21
232:12 233:3	27:14 28:19,20	124:9,11,13	225:23 226:14	245:25
234:23 236:7,7	29:4,10,14,17	158:1 177:24	227:14,15	bringing 68:8
236:11 237:2,8	29:20,23 43:23	bit 41:8,13 48:3	228:7 253:11	79:13 148:20
237:9,14	54:1,3 78:8	51:8 53:1,4	253:12 254:22	158:11 210:14
241:12 242:8	201:1 238:18	83:5 92:7,14	261:10 262:19	brings 160:19
242:11,18	238:20,22	106:1 107:9	274:25 275:7	brittle 291:20
243:10,12	239:3 242:6	122:17 135:6	275:19 294:11	broad 31:2 49:11
244:13,17	258:2,8 270:18	139:17 148:11	bolstered 183:21	106:21
248:23 250:10	273:7,8,9,10,14	149:8 157:8,17	book 52:14 65:1	broader 61:16
253:21 255:10	274:20	158:2 161:21	65:1,2 90:6	130:2
256:11,25	bid-ask 20:4	171:9 174:24	96:23 141:21	broadly 32:9
260:18 261:16	bidding 153:5	189:12 195:11	157:17 159:18	140:25 287:9
262:10 264:25	bids 19:17 24:22	209:10 219:3	165:13 213:5	broken 144:21
265:11,23	28:19 29:16,19	241:16 245:14	273:5,8,12,16	145:11 213:5
266:2,5,6,8,8	29:22 257:16	251:2 264:15	275:14 292:15	287:18
269:11,15	big 48:17 80:9	268:2 271:22	booking 7:13	broker 11:18
270:16 275:3	84:23 86:8	276:5 284:2,8	books 64:25	23:11 25:23
275:23 276:2,4	119:6 163:13	288:18	73:13 95:5	57:6 88:9 89:8
276:8,13	168:17 178:9	black 88:13	249:5 260:23	93:1 135:7
286:12,16	184:15 185:25	BlackRock 3:5	borne 32:17	158:22 159:13
289:6,7,8,9,9	186:18 187:14	125:12,16	borrow 16:21	189:10 195:15
289:11,11,13	193:12 211:25	216:12	246:14	235:4 238:19
290:3 294:12	212:24 245:25	BlackRock's	Boston 225:9	238:22 240:24
best- 42:2	246:4 248:17	125:15	bottom 112:16	250:6 253:18
best-before 40:18	254:18 280:10	blame 7:24	212:16 274:7	261:12,17,19
best-ex 38:11	287:20 293:3,6	blaming 159:25	bound 255:12	265:6,6,6
42:2	bigger 26:7 39:18	blank 264:1	boutique 212:5	284:10
bet 117:17	98:23 173:8,8	blatant 77:3	Bowman 197:8	broker's 238:17

239:1	254:2 283:22	buy 146:2,4 176:22 234:17 245:20 246:7	212:24 237:7	causal 70:3
broker- 22:8 24:6 125:3 226:13 267:3	buck 190:12	buying 12:23	capabilities 9:6	cause 214:2
broker-dealer 19:19 21:20 26:9 52:25 55:18 121:7 124:14,21,22 218:12 232:11	buckets 253:21	<hr/> C <hr/>	capability 65:2 292:18	caused 11:2 20:17 62:18 233:18
broker-dealers 9:3 17:12 19:10 20:19 21:23,25 22:5,7,10,13,20 22:23 23:4,8,14 23:20,25 24:15 24:17,20 25:2,9 25:10,13,14,17 25:22 26:1,3,5 26:7 36:6 37:2 65:11,15 68:12 72:23 122:15 191:9 202:24 232:7 236:15 243:11	build 96:23 123:9 154:6 169:6 171:5	call 35:11 110:22 144:1 147:9 175:19 276:20 285:18	capable 13:17	causes 137:25
broker-dealers' 12:1	building 123:9 205:12 285:1	called 15:1 118:21 127:11 257:12	capacity 14:4 18:22 272:15	causing 20:20 246:2
brokerage 96:3 103:14 184:15 212:5 226:11	building's 289:25	calls 34:6 143:25	capital 2:20 11:6 12:14 20:6 35:13,18 39:22 40:12 46:16 129:16 132:16 216:16 256:10 288:1,8	caution 111:14 150:24
brokers 17:14 21:21 22:16,19 57:2 64:7,7 76:18 88:15 89:20,24 95:21 101:20 119:14 158:4,6 159:10 164:2 191:7 217:17,20 233:3 240:20 245:15 246:6 254:9,11 255:2 255:7 273:13 285:11	built 123:12 138:5 150:16 172:15 261:25 267:4 269:2	Cam 253:11 276:23	capitalization 39:15	cautious 107:17 108:9
brokers' 191:4 202:13	bulge 23:3	Cameron 4:6 208:24	caps 32:7 44:21 130:2 246:23 264:18 274:18	cautiously 43:18
brought 148:13 148:23 190:14 226:24 243:25	bulletin 257:16	campaign 47:24	capture 166:6 282:3	caveat 157:1
	bump 103:22 181:22	Canada 39:11 40:3,6,10 41:7 41:8 92:15 102:8,10,23 103:8 105:12 105:16,18,20 105:21,22,23 106:10,13 110:8,17 111:21,21,22 113:18,18 118:8,8 159:6 239:10	card 47:13	Cboe 3:11 42:24 43:6,13 60:3 95:16 97:4 98:3 153:19 155:1 283:3,12
	bumps 192:6 252:6	Canada's 40:12 41:14	care 48:1 130:7 151:2 269:9	celebrate 92:5
	bunch 19:23 84:1 91:5 106:22 171:21 172:23 186:22 241:21	Canadian 40:10 131:1 194:12	career 127:8 128:12	cent 79:20 273:7 273:8,9,10
	burden 131:25 132:2,13 245:12 248:16 255:24,25 256:2	Canadians 39:11	careers 8:4	center 144:1 191:13 220:10
	burdens 288:11	cancellation 240:1	careful 9:20 111:19 278:6 292:22	Center's 197:2
	burials 225:24	cancer 290:23	carefully 40:17 263:9	centers 20:22 129:14 144:3 145:17 191:9
	Burstein 2:25 36:18,20,22 64:16 75:2,13 112:11 113:3	cap 8:14 62:25 96:4 109:3	Caroline 2:5	central 44:2 132:15 259:18 292:14
	bury 224:5		carveouts 97:25	centralized 271:9
	business 9:5 14:21,22 35:16 85:22 135:5 148:14 152:13 152:22,22 153:17 164:12 191:18 219:7,8 239:15,16 252:13,23 256:18,20 257:4 259:5 280:20		case 25:3,21 37:25 38:2 39:13 54:16 68:9 96:13 106:16 161:6 175:1 180:1 191:11 237:9 287:6	cents 19:20 238:19,20
	businesses 219:6		cases 220:15 291:18,20	CEO 127:5 129:5 197:8
	busy 152:14		CAT 101:22,23 101:24 160:25	certain 8:11 71:17 76:13 100:20 103:1 109:9,21 112:1 126:7 248:4 252:15
			catalyst 56:18 138:8	certainly 43:20 54:24 68:3 70:2 83:13 93:8 106:13 119:18 146:11 190:23 219:13 229:5 236:4 242:20

275:12	174:20,20,25	characteristic	Chris 3:11,21 4:7	classic 148:19
certainty 263:11	183:17 185:7	201:10	42:24 43:4	clear 43:22 67:2
263:13	211:1 234:8	characteristics	44:25 58:20,25	68:11 76:18
CERTIFICATE	235:22 244:6,6	86:8	84:3,18 86:18	88:15 114:21
295:1 296:1	244:7,7 251:8,9	characterization	90:22 93:24	155:7 208:3
certify 295:9	251:10 257:21	82:2	96:17 98:10,11	215:7 225:4,14
296:3,10	258:24 266:16	characterized	100:10 108:19	237:25 264:21
cetera 111:3	266:19 267:3	129:16	112:4 115:7,8	273:8 286:20
Chair 35:21 43:2	282:11 283:6	charge 87:12,21	116:7 131:14	clearing 68:11,24
44:22 47:19	286:14 287:8,9	103:2,6,11	134:17,23	110:24 252:18
130:18 149:25	293:4	251:3,5	136:22 144:2	264:19 271:9
189:25 197:7	changed 8:16	charged 71:16	147:12 148:11	clearinghouses
207:23 210:22	34:10 58:2	104:10 158:15	148:13,15	36:7
212:12 218:1	62:16 64:5	charges 163:2	150:9 152:2,16	clearly 107:21
222:9,14	89:18 177:20	charging 41:17	161:14 183:10	116:22 129:11
236:11 253:23	218:18 225:18	72:1 93:13	183:22 190:13	145:18 199:10
288:2	229:2 253:9,14	102:25 182:15	190:13 193:21	251:22 289:7
Chair's 143:9	257:20 263:18	chart 73:14 95:18	193:24	289:12
chaired 189:14	266:16 275:5	Chatham 212:6	Chris's 107:17	client 23:15
chairman 2:3	289:16 293:10	cheaply 125:4	145:21	55:13 82:13
5:13 6:8 15:23	changes 9:15,17	check 264:1	Chrises 93:24	98:18 138:19
18:1 34:5,11,13	9:21 11:9 15:24	check-the-box	Christmas	147:5,9 181:14
38:17 52:24	17:14,17 32:11	184:19	153:14,24	227:16,19
61:8 120:11	32:22,24 40:15	checked 117:17	157:4 188:22	cliente 203:4
121:11 197:22	44:15 45:25	checking 7:11	206:10	clients 35:21
197:25 198:2,3	46:2,4,6,7,14	241:15	Cindy 202:8	55:16 56:11
198:4,23 205:5	46:25 47:9	cherry-picked	Citadel 3:20 50:3	82:20 85:7
205:18 213:2	49:19 51:23	258:18	50:6,6 107:12	125:19 138:24
218:24 226:1	52:4,5,7 54:24	chief 36:23 43:5	Citadel's 207:18	147:13 160:13
chairs 121:7	59:15 60:4,9,11	219:5	cite 7:11	160:18 164:13
challenge 9:11	60:18 62:6,19	child 275:21,24	cites 228:6	164:13,24
53:25 110:3	77:18 83:19	275:25	City 124:16	185:19 207:21
challenges 56:13	98:12 129:23	child's 12:23	clarification	233:4 240:4
78:4 119:4	129:24 133:16	chime 148:10	114:18 243:21	265:23 266:3,9
201:18 204:15	134:7 136:16	153:22 190:11	275:19 276:2	266:11 270:6,7
challenging 9:10	183:20 211:23	193:5,7	clarifications	270:7 272:15
174:12	212:1 215:14	chocolate 259:15	244:25	275:23 286:2
chance 138:18	215:15 244:1,3	choice 38:13	clarified 275:4	clients' 23:11
change 9:22,22	244:24 249:22	202:18 236:23	clarify 92:23	229:25 244:10
11:2 15:14	275:16 276:4	269:22 271:11	112:22 113:3	close 116:11
31:20 36:14,14	276:21 277:2	choices 16:15	202:13	117:20 121:12
43:15 45:24	278:13	219:21 220:1	clarifying 242:12	128:18 152:19
46:3,5,10,11	changing 8:25	220:16,21,24	244:21	176:10,20,21
52:1 62:5 67:1	40:25 45:13	270:3	class 138:23	178:9 194:8
71:13,15 95:2	168:13 187:22	choose 22:5	257:2	211:21 239:18
97:8 98:5,11	212:11 222:2	236:23 252:14	classes 59:5	closed 264:12
100:8 117:3	223:7 248:6	286:14	138:17 184:10	closely 28:1
119:22 133:22	channels 184:14	chose 202:15	189:22 210:16	126:10 131:24
151:10 165:23	184:25	chosen 255:5	222:22 246:15	199:9

closer 53:11 179:5 247:12	235:25 College 124:16	274:15 coming 69:12	44:7 51:22 52:19,24 59:18	31:3 94:23 200:6
closest 23:14	collision 137:23	74:24 96:4	60:15,17 61:3	commitment
closing 5:17 44:22 109:2,16	137:25 collocated 57:6	144:1 148:11	71:9,23 75:22	223:4
117:6 264:3	127:14,15	149:3 181:13	87:6,23 111:14	committed
285:12 289:15	collocating	188:21 192:11	115:18 116:17	204:13
co-chairs 121:8	164:11	251:8 257:20	120:3,12,13	committee 7:17
co-founder	collocation 57:4	264:2 274:11	121:19 122:25	50:8 52:23
124:13 212:4	274:8	command 184:24	125:21 129:25	189:14 213:3
code 270:25	color 29:6	commend 38:17	130:11 133:3	committees 88:10
272:7	combination	40:22	134:20 136:4,6	88:19
codes 31:13	104:22 203:2	commended	136:9,10,14	common 150:6
coding 20:24	combinations	169:10	137:1 140:24	191:3 251:17
171:8	167:13	commensurate	151:5 155:15	268:22 270:19
coffee 120:20	combined 21:9	255:25 256:6	162:7 174:11	293:17
cognizant 62:17	21:12 57:14	comment 16:19	183:14 188:11	community
cohesive 126:1	166:18	74:15,15	194:14 200:1	103:14 226:22
142:1	come 20:8 37:24	100:15 111:13	200:16 202:9	companies 12:14
Coinbase 194:24	39:2 41:24	120:14 143:8	202:15 204:1	34:7 39:17
coincidence	57:22 68:6 69:5	162:21 169:21	204:14 206:24	47:23 107:21
70:12 104:11	86:12 87:14	170:13 228:7	210:21 218:23	110:13
coincident	94:23 112:18	256:14 267:17	222:15 276:17	company 36:24
103:24	119:7 123:20	291:3 293:3,24	278:6 284:7	47:22 139:22
coincidental	125:22 150:9	294:7	286:7 292:23	compare 16:12
104:5 274:4	153:14 158:19	commentary	293:23 295:12	27:13 265:5
Colby 3:4 223:18	162:3 171:1	204:24	Commission's	compared 17:13
223:18,22	172:21 173:11	commentators	7:16 14:1,5,9	28:3 31:8 116:2
225:25 226:15	174:10 181:20	202:17	17:9 34:9 43:10	295:14
253:13 261:23	181:21 183:21	commenting	131:24 162:11	comparing
262:9,21	185:20 210:8	115:19 136:16	223:4	187:20 189:16
276:10 286:12	211:13,18	comments 16:25	commission-free	189:17
collaborating	221:3 224:4	61:7 82:23	207:7	comparison
217:13	240:9 254:24	83:11 106:11	Commissioner	107:22
collaborative	256:20 260:2	116:22 181:4	2:3,4,5 6:12,13	comparisons
9:20	263:25 268:3	183:12 207:23	6:15,19 10:3,4	265:8
collapse 152:13	271:1 278:4	215:5 236:13	10:5,7,8 13:13	compass 251:15
colleague 30:2	287:1 288:25	236:18 238:10	33:18 34:12	253:3
colleagues 223:19	291:17 293:12	244:17 253:22	37:22 50:1,9,10	compete 106:22
223:23 226:18	comes 37:18 42:7	254:7 284:14	202:8 205:11	107:10 109:6
229:5 283:3	64:21 69:1	285:21	205:19,19	132:10 148:24
collect 85:10	70:23 133:18	commercial	282:17	149:6 151:1,2
166:6	162:25 163:16	206:23 209:11	commissioners	164:18,20
collected 101:1	238:21 242:6	commission 1:1	6:12 7:10 13:15	175:21 180:24
collecting 182:14	252:8 259:10	1:24 7:22 8:7	14:7 18:24	180:25 212:14
collective 231:12	259:14 288:21	9:18 11:15	34:24 37:23	229:18 237:17
collectively 31:25	comfort 57:18,21	13:24 14:7 16:1	43:2 47:19 61:1	237:18 240:18
102:1 177:16	comfortable	18:24 30:15	198:24 210:22	240:19
214:22 225:19	189:8 240:5	34:12 38:4,9,14	222:14 226:2	competes 172:18
		38:17 42:16	commissions	competing 66:22

124:22 151:5 158:18 244:2 competition 8:1 16:10 38:3 41:4 43:14 44:19 48:24 61:18 72:25 73:25 94:13 129:9 132:12 137:13 151:11 159:10 160:12 164:17 173:8,13,15,15 174:2,17,19,21 175:25 200:6 200:14 201:21 202:2,14 203:3 210:16 211:20 227:13 230:13 230:16,24 233:6 242:10 242:17 249:24 252:1 263:21 263:22 283:21 283:24 competitive 9:8 13:4 16:8 17:3 38:12 91:25 97:9 98:4 103:1 106:21 107:5 132:15 156:18 158:22 209:2 229:15 242:25 250:13,21 competitiveness 132:11 competitor 154:15 competitors 192:14 complain 207:21 239:14 complains 70:4 complete 42:13 72:21 74:13 295:13 296:4 completely 22:9 95:10 182:23 258:21 complex 10:25	26:4 45:15 50:20 73:9 94:19,20 96:6 99:21 100:9 154:10 165:4 168:5,12,16,21 171:7 190:15 208:11 213:8 244:1 284:22 complexity 7:25 9:7 12:16 20:18 32:19 48:7 51:6 57:24 58:16 64:6 70:5,23 73:8 79:7 99:18 102:4 111:15 111:18 118:11 118:11 123:25 124:5 131:25 132:6 155:9 157:8,11 160:5 160:7 165:1 166:1 167:11 168:7,16 169:2 221:4 230:10 231:4 232:18 242:24 244:19 278:18 286:10 291:15,18 compliance 20:23 32:16 61:13 64:7 67:18,21 67:22 90:12 121:7 157:21 166:19 167:1 170:24 171:1 198:17 232:21 233:7 243:7 255:23 compliant 167:19 complicated 12:17 22:4 190:14 258:7 266:25 281:20 289:16 compliment 226:19 comply 165:17 165:25 171:6	192:24 194:17 264:17 complying 22:12 23:13 170:17 217:23 component 177:12,15 242:15 266:7 compounded 51:4 compounding 9:11 51:24 comprehensive 53:24 computer 124:16 computers 188:8 con 254:2 concentrated 26:9 31:24 139:23 concentration 25:24 61:19 72:22 73:24 concept 178:3 262:5 268:18 286:13 concepts 284:9 concern 40:10 77:10 119:6 152:16 174:24 208:10 concerned 95:25 174:18 201:15 238:18 239:5 267:9 concerns 20:15 37:21 53:15 202:16 211:11 concert 44:18 conclude 294:10 concluding 287:23 conclusion 32:13 58:9 251:22 conclusions 39:2 107:18 108:10 concur 110:15 concurrently 155:18	condition 31:13 270:25 272:6 conditional 78:16 80:15 conditions 243:15,17 244:5 245:7 conduct 115:4 conducted 52:6 Conference 197:2 confessed 291:11 confidence 12:10 12:12 13:1 43:25 208:22 211:24 239:2 263:11 265:21 285:22,22,23 285:24 286:3,4 290:5 confident 13:25 129:20 confidently 236:5 configure 65:21 configured 65:22 confirmation 184:3,5 confirmations 136:2 184:4 conflate 284:16 conflating 81:23 confluence 31:3 conformity 269:17 confused 146:24 confusing 115:1 169:22 confusion 147:2 211:24 248:11 251:19 Congress 200:13 Congressman 162:18 conjunction 47:3 connect 20:20 21:25 22:25 23:20 26:2 45:19 64:8 67:10 68:5	82:18 87:17,18 103:3,5 105:7 158:6 185:16 216:3 217:17 217:19 232:22 248:14 250:3 250:22 251:6 255:4 280:21 connected 17:24 24:13,17 25:7 62:13,15 71:2 105:3 126:10 155:8 245:23 250:8,23 connecting 75:3 105:9 232:24 250:12 254:11 280:25 281:6 connection 23:1 217:23 connections 22:1 160:8,10 281:10 connectivity 32:25 41:18 48:22 64:10 68:15 69:4 70:15 73:18 87:1 103:13 118:1 124:24 125:3 157:21 158:3,10,12,23 158:25 159:3 161:20 162:4 164:3 182:15 202:12 217:16 229:23 230:23 247:9 263:20 277:10 288:11 connects 47:22 Connor 296:3,17 cons 40:24 conscious 160:16 consequence 73:22 consequences 15:7,24 32:20 40:17 46:11 47:6 48:14
---	--	---	--	---

50:21 58:15 61:20 64:18 66:17 67:14 69:7 72:13,16 73:7 74:13 126:15 135:3 143:16 204:6 231:19 262:18 262:24 265:20 conservative 66:4 consider 13:10 18:3 32:20 38:9 49:19 60:12 68:17 71:9 77:17 84:21 87:20 91:7 113:18,24 126:18 136:6,9 136:10 185:2 190:8 227:6 260:9 293:13 considerable 200:2 considerably 193:12 consideration 47:2 60:4 113:21 195:6 201:10 244:5 292:23 considered 38:1 41:23 61:5 97:5 169:7 204:10 263:9 considering 42:10 187:6,7 201:3 232:1 considers 44:17 consistency 265:12 269:16 consistently 24:7 25:4 37:5 217:20 consolidate 277:21 consolidated 171:16 189:7 199:12 consolidation	73:12 276:20 consolidator 30:18 158:18 consolidators 65:14 244:2 consortiums 280:3 conspiracy 251:24 constant 29:14 constantly 128:15 255:12 constituents 218:15 280:3 Constitution 131:11 construct 279:2 constructive 223:13 consulted 184:8 Cont 3:1,3 4:1,3 contemplate 244:3 contemplating 244:22 contend 242:16 contending 242:10 contention 200:17 contest 33:10 contested 41:24 context 52:3 81:17 93:20 118:23 158:2 163:21 183:7 184:23 186:7 187:18 200:1 continually 11:7 continue 17:2 45:20 46:24 59:15 81:18 153:12 163:3 174:5 175:2,20 183:3 227:10 235:14 245:2 263:17 continued 37:25 44:4 59:14 69:3	200:3 201:8 208:17 231:7 278:10 continues 39:25 40:4,7 44:11 57:25 58:17 130:8 217:7 continuing 246:5 continuous 58:5 58:8 180:14 continuously 69:5 97:13 114:15 163:19 contracted 177:19 contrast 100:1 159:5 contravalance 179:25 contribute 11:10 13:22 126:8 238:6 contributed 43:23 contributing 107:25 127:4 176:25 contributions 13:25 control 23:15 115:4 158:23 183:6 207:20 241:16 controlled 158:9 controlling 159:23 controls 71:20 controversial 7:8 7:21 192:23 convening 44:22 47:20 120:12 130:20 226:3 conversation 45:10 47:11 49:11,13,24 89:9,12 147:4 169:19 187:13 187:14 conversations	90:12 cool 61:24 217:13 copy 115:23 copycat 48:20 73:16 114:9,16 115:13 core 164:12 208:20 269:1 Cornell 3:23 52:12 corner 191:11 cornerstone 12:6 corollary 30:23 corporate 27:19 95:6 132:16 205:14 corporates 27:21 128:17 corporation 274:6 correct 33:10 62:11 211:13 correction 199:10 correctly 146:22 149:5 273:18 correlated 70:3 corresponding 46:2 126:21 corridors 7:22 cost 23:12 51:6,9 51:13 57:3,10 57:22 61:5 64:17 69:17 70:4,15 71:5,20 72:22 74:20 75:3 81:16 87:5 87:12 90:12 101:17,24 102:3 104:24 107:20 117:25 118:1,9,11,12 125:5 126:19 157:7,11 158:8 158:14,19 160:5,7,14,22 160:23 161:12 161:22 163:19 169:1,1 170:15	170:17 172:17 211:19 231:3 246:10 248:16 249:23 250:1 253:19 262:4 263:15 267:2 286:10 287:15 cost-benefit 111:10 costly 26:5 111:9 290:24 costs 7:25 15:25 19:5 20:5,8,9 20:19,23,23 32:16 46:20 51:14 53:9 57:4 58:15 61:3,10 61:13,17,21 64:7,11 67:10 67:14,16,19,20 68:22 72:2,13 72:25 73:6,18 73:19 79:14,14 86:21,21 87:5 90:14 92:3 100:13 103:13 104:16,19,22 105:4,6,8 110:23 111:1 118:4 124:20 124:24 126:8 135:21 155:9 157:13,18,21 157:21,22,24 158:3,12,23 159:6,19,23 160:16,19 161:20 162:3,4 162:10 163:3 163:22 186:11 187:9 200:21 202:3 203:2,3 211:19,20,22 211:22,25 223:11 225:6 229:9,19,22,23 229:23 230:3,6 230:23 231:1 232:3,4,21,24
---	---	--	--	--

242:24 243:4,5 246:2 247:9,9 247:15 251:1 252:21 256:9 261:18,19,21 262:3,4 263:20 271:6 278:17 291:14 counsel 36:23 58:25 count 89:8 155:21 169:12 counted 27:8,17 counter 75:6 97:18 109:6 counter-factual 102:14 counterbalanci... 52:4 counterparty 195:14,19 258:18 268:24 counterpoint 76:1 countries 246:15 couple 64:23 71:18 82:3 84:4 88:1 95:3 122:21 219:10 243:22 278:19 285:13 294:7 coupled 227:2 course 41:2,20 63:24 73:10 122:9 128:12 152:1 161:23 170:10 176:3 198:25 199:10 209:4 225:10 244:23 261:3 cover 59:25 coverage 194:4 covered 53:17 COVID 95:20 131:18 272:10 crash 18:18 52:24 crashes 213:13 Cravath 2:16	205:12 crazy 281:17 cream 259:14,25 260:1 create 9:21 36:13 85:5 103:17 105:7 144:11 224:24 251:19 created 37:12 66:3,8,18 104:12 129:6 162:18 165:12 215:21 286:9 creates 277:6,14 creating 62:12 90:6 189:25 241:5 252:8 280:16 creation 277:20 280:12,13 creative 13:10 credit 8:1 176:9 276:16 Crenshaw 2:5 6:13 10:3,4,5,8 13:14 50:1 205:19 crisis 131:19 criteria 48:12 91:5 critical 46:12 204:18 221:13 222:3 269:4 270:20 critically 13:6 criticism 157:10 186:23 Critics 7:24 cross 59:5 117:12 128:1 144:5,9 165:21,22 166:18 172:23 257:7,9 272:13 280:1 cross-markets 30:22 122:10 130:2 140:18 146:1,23 crossed 73:11	135:10 143:17 143:22 146:4 147:12 148:5 166:13 crosses 180:12 crossing 166:7 crux 19:22 crypto 34:13 195:1 CSDs 110:25 CTO 150:16 culminated 36:9 culture 227:3 cumulative 28:15 46:3 cumulatively 182:7 curious 151:15 157:22 170:16 276:23 current 42:12 49:16 67:3 76:14 83:23 130:25 141:3 142:24 146:8 231:17 265:3 currently 9:15 21:7 30:20 33:18 54:20 83:18 121:6 142:6 179:14 192:22 236:9 277:12 custody 184:15 184:25 customer 38:13 88:14 89:17 91:4 110:22 152:23 153:8,9 172:19 227:1,2 243:9,13 284:3 customers 12:8 57:19 76:21,25 88:8 89:9,19 96:1 135:11,12 135:18 136:3 153:5 218:12 231:1 245:5 246:7,8 247:15	customized 184:20,21,22 cutoff 262:7 cutting 247:8 cycling 128:15 Cynthia 7:10 <hr/> D <hr/> D 6:1 D.C 1:25 295:7 daily 28:15 29:2 29:15 37:3 183:1 damage 15:8 Dame 2:22 228:1 Dan 2:10 18:11 18:13,15 26:17 33:9 51:7 61:18 88:25 94:1 228:22 280:23 Dan's 70:11 Daniel 3:7 222:19 231:10 238:11 276:23 dark 34:8 82:25 85:12 106:9,12 106:15 130:5 154:15 173:22 174:5 176:7,8 177:2 178:1 239:20 240:6 241:8 249:15 258:17 data 5:5 16:16 17:7,11,15 18:10 19:8,14 20:22,22 23:19 26:15 28:20 31:6 41:16 48:21 53:5 57:4 64:11 65:8,14 67:18,24 68:15 68:16 69:10 70:16 73:18 85:10 87:1 90:13 102:25 103:2,7,12 104:8,10,14,16 105:14 109:13 109:14 117:13	118:1,9 124:24 125:4 127:24 135:20 137:15 142:2,2 154:7,8 157:21 158:2 158:13,15,18 159:4,6 160:15 160:16,25 161:19 162:3,4 162:9 163:3,10 163:20 171:17 179:13 180:10 182:5,14 189:3 199:17 217:21 219:7 220:4,5 228:10,12 229:23 230:23 232:13 234:4 239:11,23 240:2 243:25 244:1 245:19 246:4 251:4 260:16,19,25 263:19 273:17 274:8 276:16 276:16 277:10 278:10 280:20 285:15 286:23 288:10 data-driven 211:1 date 66:13 69:6 69:14 268:5 295:6,19 296:16 dated 268:2 dates 40:18 Dave 3:18 47:16 49:25 72:11 75:10,25 92:20 110:20 112:23 113:16 118:22 David 13:19 14:11 90:25 day 19:3 21:4 34:6 41:25 55:21,23 65:3 66:12 80:3 96:22 103:3
--	---	--	--	---

104:10 108:11 116:7 121:4 131:11 143:17 143:18,20 144:15 157:4 166:24 178:10 187:12 217:8 226:10 235:23 255:13 272:15 279:16 290:17 days 91:10 152:6 152:8 de 3:5 80:25 125:12,13,13 128:4 165:8 181:6 191:1 230:17 261:12 deal 12:8 19:10 22:6,11 71:24 144:2 145:2 157:15 165:19 165:20 166:12 167:11,14 168:9,11 172:21 187:14 192:15 193:2 196:11 216:8 285:17 dealers 22:9 24:7 125:4 226:14 267:4 dealing 69:19 90:17,18 168:3 170:23 deals 140:19 dealt 104:21 dear 199:7 death 45:20 debate 26:11 106:17 175:9 debated 43:21 debates 124:1 debating 19:4 Debbie 4:9 206:17,21 262:20 275:1 decade 31:2 161:23 decades 17:18	36:15 199:12 204:2,15 223:7 224:19 decaying 269:9 December 96:21 decentralization 42:13 deceptively 199:23 decide 113:13 189:10 250:18 253:18 decided 200:18 248:8 decimalization 56:7 decision 81:19 142:15 252:23 262:12 decision-making 186:16 decisions 32:25 119:22 161:11 220:3 232:10 252:13 decline 248:21 272:7,9 decrement 258:8 dedicated 95:16 dedication 204:18 deemed 109:23 deep 177:21 deepest 46:18 207:3 deeply 43:16 162:11 defenders 7:25 define 91:4 112:15 defined 251:14 251:15 defines 289:8 defining 22:25 289:13 definitely 42:20 54:23 57:7 58:13 101:2 106:17 145:6	154:25 155:14 165:8 181:7 183:18 256:19 257:4 288:12 293:5 definition 80:24 255:17 265:7 265:13 268:19 degradation 74:1 degree 165:16 167:6 168:16 delay 48:12 103:22 106:4 193:1 268:3 279:8 delayed 279:18 delaying 217:23 delays 23:16 51:20 139:9 192:16 236:19 236:19 deliberate 9:20 227:9 delineated 118:4 deliver 223:12 232:12 delivered 200:12 277:11 demand 280:16 demanding 271:12 demands 199:10 demonstrate 172:6 281:5 denominator 150:6 268:23 270:19 denotes 267:22 depend 275:4 276:11 depth 20:5 42:6 78:21,23,24 110:1 136:9 141:21 142:6 157:17 159:17 200:20 208:13 273:5,12,16 275:14 derivative 40:16	derivatives 152:13,22 derive 215:16 derived 28:20 189:2 238:4 derives 224:12 described 34:8 describes 17:11 17:16 describing 247:8 292:4 descriptor 15:3 deserve 245:6 designate 14:23 designed 56:1 144:10 171:6 224:11 desirable 208:19 desired 52:8 desk 168:20 desks 142:14 148:4 despite 56:13 74:16 destination 132:23 destroy 154:12 detail 87:6 98:23 detailed 87:9,22 232:13 270:15 details 112:16 196:20 276:10 determine 8:7 27:16 238:4 250:17 determined 238:7 determines 38:14 determining 40:24 257:17 determinism 87:16 deterministic 96:24 97:12 detriment 215:22 detrimental 235:11 develop 168:24 developed 51:3	56:1 152:15 developing 200:18 development 224:15 developments 11:1 develops 204:9 devil 112:15 devise 217:11 devoting 199:20 diagram 214:5 dialogue 36:12 43:12 130:11 130:22 204:18 223:13 Diaz 3:6 127:2,3 127:5 141:10 169:9 176:6 241:1 dictate 234:24 dictated 82:15 220:15,16 dictating 20:12 differ 148:15 151:22 difference 32:6 147:17 151:16 166:20 168:17 220:2 254:18 267:19 269:24 292:18 293:6 differences 42:20 44:8 45:1 63:16 63:19 84:10 195:20 201:15 220:4 different 7:8 8:21 9:5 23:19 27:9 35:3,4 42:5,21 49:1 60:3 71:1 72:20 79:8 81:24 83:4 84:12 89:17 91:5 93:1,14 94:3,9,14 95:5 95:10 97:3,4 98:10,21 102:12,18
---	---	---	--	---

106:1,23	195:1,25	58:20	102:11 106:2	64:22 65:18
107:13 110:10	219:13 222:23	disagree 82:1	125:22 134:2	67:5 74:4,6,8
110:11,12	diligence 8:25	151:25	discussed 11:15	80:5,10,22
115:21 117:22	243:12 272:16	disappear 225:18	31:19 32:15	83:19 97:17
122:13 138:3	diligent 36:11	discern 15:25	68:5 122:4	129:17 130:9
140:11 149:8,9	185:18	disciplinary	133:19 276:15	135:13 144:25
158:14 161:21	diligently 13:18	224:23	discussing 19:4	175:6,7,9,12,22
171:10 181:13	186:21	disclaimer 18:20	47:6 235:16	179:7,12 182:1
184:10 189:15	diluting 178:12	215:1 224:1,3	discussion 7:2	188:5 200:20
191:14 194:5	dimension	disclose 185:18	8:3 9:24 11:3	215:2,19
195:18 212:24	268:15,16	232:8 271:23	17:8 26:23 34:4	231:25 233:21
213:18 214:7	dimensions 201:8	disclosed 76:13	34:23 35:6 37:8	233:23 238:23
217:1 220:24	diminishes	136:2	40:19 44:2 45:2	246:19 256:21
221:9 231:22	213:10	disclosure 150:4	50:2 61:12	269:8 272:2
235:2 237:18	dip 284:21	185:1,13	84:14 93:20	279:3,7 282:18
237:19 241:7,7	direct 42:7 51:15	189:20,20,21	120:4 127:4	290:8
249:5,6 251:21	55:12 61:13	189:25 190:9	139:15 168:22	displays 37:9
252:11,12,13	64:13 88:12	193:18	173:13 186:14	disruption
258:21 259:12	158:7 171:17	disclosures 77:16	186:25 187:6,8	113:20
260:3 264:23	215:15 220:23	87:22 188:14	191:20 192:1,4	disruptions 208:7
265:6 268:23	220:23 236:2	232:12	192:25 195:9	disruptive 50:20
269:14 270:9	269:18,21	disconnect 71:4	199:21 206:25	290:24
271:10,24	281:9	183:18 185:10	210:23 222:16	disseminated
274:1,16,17,20	directed 238:25	185:11 246:8	227:9,22	57:2 101:19
274:22,22	direction 14:16	246:12 248:13	229:21 254:24	dissent 7:10
283:5,7,10,25	82:23 296:12	250:7 254:10	265:25 285:19	37:22 38:6
284:16	directionally	254:22,25	286:8 292:24	143:9 202:10
differential 84:6	223:25	255:5	discussions 8:6	distinct 18:19
differentiate	directions 45:13	disconnected	13:8 42:20 55:6	30:12
97:15 158:25	directly 17:13	104:20 110:16	204:20 214:24	distinguish
237:3	20:19 25:13	254:14	227:11 266:3	246:22
differentiates	57:23 64:17	disconnecting	284:17 287:3	distorted 274:12
289:3	81:25 102:14	105:1 255:8	disguise 199:24	274:13
differentiation	105:15 108:8	disconnects	disincentivize	distorting 292:2
101:16 237:8	115:19 174:20	106:5	134:8	distortions
237:10 277:21	204:5 218:4	discovery 118:15	dislocations	179:15 199:24
differently 98:6	230:6 281:6	142:7 166:25	235:5	278:16
99:17 125:1	director 6:5	176:20,25	dispersed 15:16	distortive 136:15
195:16 212:22	10:16 14:5,11	178:5 180:15	32:2 140:5,16	distorts 264:21
237:14	14:14 15:25	180:21,23	disperses 213:9	291:21
difficult 42:14	18:15 26:13	192:14 216:25	display 37:19	distribution
50:23 62:4 71:4	33:6 35:18	217:15 238:3	65:2 141:4	28:16
89:9 108:2	130:18 205:17	255:11,14	167:1,24,25	dive 21:1
111:9 115:1,20	205:20 218:24	discrepancy	177:8	diverge 237:17
162:20 214:11	222:14 226:2	32:11	displayed 17:14	diverging 131:21
221:1 289:16	294:2	discuss 10:13	19:12,17,25	diverse 35:2 36:3
digest 133:21	disadvantage	17:23 26:11	24:21 28:14	59:5 129:6
digging 227:20	250:13	30:7 33:3 41:13	37:16 38:3 58:7	231:21
digital 194:13,21	disadvantaged	49:9 54:24 59:3	59:23 60:12	diversity 110:14

divide 163:14,15	235:22	223:8 258:21	economic 46:4	213:23 223:16
divided 27:19	drawing 40:10		61:16 114:22	269:7 277:22
division 2:11 6:6	107:18 108:10	E	115:4 126:22	278:14
10:17 13:17	231:11	E 5:1 6:1,1 121:1	131:3 201:25	efficiently 193:10
14:5,9,10 15:1	drawn 100:1	121:1	228:9 264:6	efforts 9:16 11:11
18:22 198:7	drill 34:22 35:9	E.U 111:6	277:4	32:25
division's 17:5	61:10	eager 8:2 203:19	economically	eight 21:14 73:14
divisions 252:11	drink 21:4	203:23	23:9 146:12	86:13 88:25
dizzying 213:21	drive 213:11	earlier 31:19	256:24	91:11 182:6
DNA 59:24	driven 20:19	44:13 62:2 70:8	economies 26:7	206:3 230:11
DNS 169:13	56:15 73:3,23	72:24 73:14	ecosystem 22:4	241:19 247:25
Dodd- 162:16	94:13,14 104:7	99:6 102:23	68:18 86:25	eight-cent 238:22
dogma 14:20	173:23 181:16	103:12 104:6	96:9,21 97:10	either 42:21 96:5
doing 53:8 92:25	181:17 211:5	104:18 107:24	125:2 129:16	98:23 102:12
115:23 136:5	252:25 265:25	114:7 126:4	132:19	102:17 113:10
149:5 150:18	290:20	139:20,25	ecosystems 43:17	130:6 144:22
163:12 172:9	driver 62:5 70:21	147:19 154:7	edge 291:20	171:16 172:4
172:11 184:18	101:11 137:24	157:23 173:14	educated 95:21	225:15 236:2
198:8,11	283:13	178:23 182:5	education 12:23	291:10
208:10 212:7	drivers 43:15	185:12 215:3	95:14,16	elaborate 232:20
214:23 230:20	driving 175:4	216:13 218:11	122:18 229:9	286:15
240:11 241:20	192:12 280:13	220:8 230:17	effect 27:4 46:4	elaborated 11:19
244:8 249:21	drop 227:8	234:4 235:25	52:8 66:16	Elad 2:16 205:10
252:5 260:14	dropped 15:3	247:3 254:12	108:14 158:10	205:12,16
282:21 288:5,5	27:24 28:2,8	255:15,16	263:21	222:18 226:4
290:10	228:13	269:14 271:5	effective 76:7	288:4 292:24
dollar 25:19	drove 200:6	278:5,24	105:25 145:8	294:4
243:6,7	drum 221:14	280:23 283:4	159:10 284:19	electronic 37:2
dollars 68:25	DTCC 252:19	287:6 288:18	effectively 37:14	48:7 55:9 56:1
119:15 135:19	264:19	290:14	74:19 166:21	59:6 125:14
231:1	dual 74:2	early 103:5 168:8	175:22 185:16	200:2 212:9
dominant 141:17	due 105:14,21	earn 256:20	259:10	266:24
dominated 15:15	158:20 201:5	280:21	effectiveness	elephant 76:4
domination	231:1 249:23	ears 116:9	151:17	eliminate 46:9
39:20	272:16	earth 225:11	effects 40:16 49:7	103:16 105:11
door 150:25	duh 77:6	easier 83:21	61:15 84:6	188:17 191:3
264:3,13	duopoly 114:1	251:16 279:13	159:24 201:22	191:12 280:11
doubles 109:14	durable 9:21	easiest 115:22	228:24	291:6
doubt 58:9	95:22	easily 176:2	efficiencies 13:11	eliminated 70:24
downstream	durations 221:10	easy 9:1 16:22	efficiency 61:17	eliminates 23:12
231:5	Dutch 133:7	41:25 159:15	201:14 208:21	192:3
dozen 247:12	duty 12:1,6 16:1	184:2 188:7	223:11 279:20	eliminating 71:6
drafting 294:12	16:13 122:8	eat 21:4	efficient 11:6	126:15 188:12
dramatic 54:23	202:13 254:16	EB 52:7	13:3 16:9 17:4	232:18
79:7 247:10	274:7 275:3	EBBO 85:5	46:19 96:24	elimination 41:20
dramatically	dynamic 9:2 99:9	ECDF 28:22 29:2	142:7,7 176:21	166:11
44:13 106:5	278:14	29:8,15	193:9 196:4	else's 221:9
218:18 228:14	dynamics 58:2	echo 50:9,10	203:21 207:5	email 245:17
drastically	99:19 145:5	287:2 290:16	211:15,16	embark 270:22
		ECN 179:4		

embedded 43:16	enhanced 57:15 232:6	170:1,2	erosion 74:13	event 13:16 19:6 178:9 206:11 214:20
emerge 203:24	enhancement 261:15	Equitas 48:10	especially 50:20 86:7 93:4 94:22 94:25 105:2 124:20 128:6,7 146:8 148:17 148:17 163:20 195:12 250:11 260:20 270:22 293:16	events 36:13
emerging 47:3	enhancements 159:17 233:5	equities 15:17,19 21:9,24 31:19 32:8,10 42:11 44:9,21 55:9,22 58:11 59:7 60:1 60:2 69:19 70:11 84:15 94:5 95:7,15 96:14,20 97:2 97:16 98:6,10 98:15,21 99:2 99:13,20 100:5 100:7,8,21,24 124:15 129:12 130:23 131:2,3 133:13,23 148:4,18 149:11 152:21 153:10 155:25 173:3,5 189:16 195:4 207:2 219:6 232:25 279:22 282:11 283:7	essential 23:10	evergreen 162:23
emphasis 92:10 231:25	enhancing 57:11 132:14 201:14		essentially 54:18 62:12 104:23 127:14 154:11 162:18	everybody 65:9 113:12 121:2 128:22 142:9 152:5 201:24 224:6 239:15 239:22 241:17 253:6 264:5 265:12
emphasizing 246:4	enjoy 46:20		established 36:3	everybody's 264:10
empirical 28:15	enmeshed 49:6		establishments 277:7	everyone's 18:7 35:8 76:5 116:22
empower 232:9	enormous 58:15		esteemed 90:25 122:16	evidence 108:5
empowers 132:17	ensure 17:2 18:7 41:4 59:13 96:23 130:7 132:21 231:25 278:10 290:18		estimate 51:9 70:19	evident 202:7
enable 16:10	ensures 97:18		estimated 63:6 70:14	evidently 91:22
enabling 45:15 210:23	ensuring 12:9 52:7 132:8 187:13 204:13 255:6		estimates 157:19	evolution 62:8 137:21 200:15 216:4
encourage 52:5 60:10 74:4 114:12,13 175:3,7,8,12 233:23 235:7	entails 155:6	equity 7:17 8:21 10:24 11:13 12:21 21:4,12 30:23 36:9 39:10 43:8 45:1 45:7 47:25 50:7 51:10,23 52:8 52:22 56:6 62:25 108:20 123:15 126:3 140:12 152:7 152:22 153:17 163:15 188:13 206:14 208:18 210:15,17 214:15 222:21 223:1,6 229:6 229:15 245:15 247:13 282:19 293:20	et 111:3	evolve 11:2 149:3 149:6,16,18 195:13 204:12
encouraged 287:4	enter 75:5 98:3 261:22		ETF 212:24 219:8 274:20	evolved 145:22 160:11 276:14
encourages 277:15	entire 120:9 134:20		ETFs 84:9 92:10 92:18	evolves 185:20
encouraging 141:4 144:25	entirety 49:8		ETPs 27:20 28:5 95:7	evolving 160:18 195:22 223:8
endless 170:9	entities 34:7		Europe 42:4 85:4 106:21 107:9 107:16,19,20 110:8,18,25 118:6 148:2,4,5 156:16	ex 42:3 66:2,4 75:6 76:3,10,14 77:15,16,21 88:2,5,8,9,10 88:19 89:10,16 90:5,24 91:1,2 93:2,20 104:22 107:1,2 110:18 111:7 112:24 113:4,15 117:13 119:6 150:10 156:5 183:10,13,16 183:17,21 185:6,13 186:14,20 187:4,17 188:1
endure 57:25	entity 14:23		European 185:12	
endured 34:8	entrant 264:11		evaluate 16:2 62:7 130:1 275:9 285:10	
enforce 225:2	entrants 101:1 263:23,25 277:25 283:20		evaluated 275:15	
enforceable 49:18 77:15,20	entrenched 113:25		evaluating 89:19	
enforced 49:17 77:4 224:21	environment 66:18 97:12 98:2 126:9 229:11 277:24		evaluation 187:24 293:2	
enforcement 76:9 76:12 170:25 172:12 225:16 266:1	envy 18:8 39:12 46:16 208:21 216:17 287:24 289:22 293:20		eve 153:14,24 180:5,6 206:10	
enforcing 83:8	equal 46:5 141:17 166:20 166:21 176:14			
engage 12:10 130:22	equally 8:17	equivalent 8:18 264:3		
engagement 33:4 43:11 59:14,18 204:17 286:25 294:18	equates 70:17	era 30:13,15,18		
engaging 60:15 203:23 291:2	equilibrium			
engine 291:16				
engrained 59:24				
enhance 202:11 223:10 274:7				

188:7,13	154:11 170:22	167:16 168:4	22:1,19,21	241:7,8,19
219:23 227:14	172:14	169:9 170:4,6	23:21 24:3,11	242:25 247:6
236:7,11 237:8	exceptional 152:2	174:7,8,10,15	25:3,13 26:2	247:13 248:1
244:13,17	222:11	174:21,22,23	29:24 31:22,23	248:21,21
253:21 255:10	exceptions 16:4,7	175:1,4,15	31:25 32:2 36:7	250:2,4 251:2,6
256:11 261:16	129:22 139:8,9	178:24 179:2,3	41:5,16 48:8,20	252:7 254:16
265:11,23	139:10 142:22	179:16,18	51:5 57:23 59:6	255:5 257:11
266:3,6 269:11	142:24,25	180:14 181:1	64:8 65:12 68:5	257:12,14,25
269:15 275:3	145:9,10,13,14	181:19 182:4	68:21 69:18	258:1,14 259:3
276:2,4,8 289:6	154:18 218:16	182:10,18	70:1 72:19,21	259:19 260:10
289:11 290:3	271:1	183:5 188:25	73:9,12,14,16	260:22 261:5
294:12	excess 221:4	191:14 192:24	79:9,11 80:5,5	263:17 264:16
exacerbated	excessive 73:18	194:16 195:15	81:17 89:1,3,7	268:11,13
138:1	230:10	195:16 199:14	89:11 91:11,11	272:12 273:23
exacerbating	exchange 1:1,24	201:5 208:24	91:18 100:3	277:5,7,9 278:7
218:8	3:10 4:6,7	208:25 209:2,7	102:5 105:2	278:11 279:10
exact 38:4 95:6	14:11,16 15:1	209:11,16,19	109:19,22,24	280:12,13
255:17	19:20 21:11,18	209:22,24	114:9,16	281:12,15,17
exactly 21:9	22:15,17,25	210:3 211:4	115:14,14,20	281:24 284:7
146:4 152:23	23:4,20,25 24:7	213:18,18,19	116:3 122:14	292:16,19
162:2 163:11	24:13,14,25	219:4 221:5	131:2,3 132:10	exchanges'
166:11 169:6	25:5,7,8 32:3	239:15,16,21	139:20 140:11	267:18
172:1,20,24	48:9,23 57:1	240:3,6,7,15,15	150:14,19	excited 134:21
exaggerated	58:7,21 59:1,7	243:2,4 248:25	151:5 152:25	218:16,19,19
260:6	62:22,24 63:12	252:1,14,19,24	155:5,8,8,21	218:20 262:16
examination	68:25 70:9,14	256:1,18 257:5	156:18 159:15	exclude 109:2,14
32:14 170:25	72:1,3,18 73:3	258:10,20	159:21 164:18	109:15 136:11
examined 26:25	73:12,16,17,23	259:6,13,18	168:13 173:19	excluded 128:3
examining 199:2	74:1,5 80:16,20	260:2,7 269:24	173:20 175:21	267:22
example 16:3	86:24 91:9,15	272:11,20	176:11,12	exclusively 127:6
25:7 34:17	91:21,24,25	273:7,7,9,10,13	178:11 180:15	127:21
76:17 85:21	93:8 98:1 100:5	274:5 276:20	180:25 182:6	excuse 177:21
88:22 113:19	100:6 106:15	277:1,18 278:3	182:13 185:10	263:24
129:21 176:19	106:20,23,24	279:24 280:18	185:11 189:11	execute 20:13
176:21 216:18	106:24,25	281:1,8,22	191:10 192:13	23:11 65:12
217:2 271:3	107:5 108:21	283:3,23	192:19 193:1	82:12 83:24
279:6 287:25	109:5,8 114:3,3	287:15 288:19	195:2 199:4	86:10 143:22
exams 224:22	114:10,15	288:24 290:20	201:7 207:12	179:13 203:17
225:16	115:13,15	291:17 292:4	209:3 210:2,9	236:24 270:7
exceed 248:4,13	117:15,25	292:14,17	210:12,14	executed 11:17
exceeded 80:17	126:23 127:21	295:12	213:11 217:19	21:23 22:14,19
exceedingly	127:22 129:2,9	exchange-listed	230:11,14,16	22:20 24:16
126:4	129:10,12	140:15	230:17,22	25:17,23 31:15
exceeds 109:19	130:4 132:9	exchanges 8:11	232:19,25	80:1 111:3
excel 212:18	134:6,9 139:24	9:3 15:17,20	235:12,12,14	135:11 141:6
excellent 49:5	148:19,22	17:13 19:11,16	235:18,24	160:11 209:21
93:4 293:24	151:3,12	19:18,24 20:16	236:6 238:25	executing 10:15
exception 54:18	154:14 159:12	20:21 21:6,8,11	239:8,14,19	11:19 16:6
140:2 144:18	162:5,25 166:8	21:13,14,16	240:17,19	23:22 80:22

145:23 276:6	231:3,15,21	233:18 277:19	249:4 266:21	135:9 167:14
execution 11:21	232:2,6,12,14	existing 199:13	expert 34:1	extremely 77:12
12:1,4,6,16	233:2,6 234:23	248:23 249:13	expertise 8:25	78:5 80:11 82:8
16:13 20:18	236:8 237:2,2	263:17,22	13:23 199:2	82:9 94:10
22:10 23:12	241:12 242:8	276:2 278:2	experts 10:23	99:13 110:10
26:6 27:14	242:11,18	289:3	13:5 28:25 35:1	110:11 216:6
32:18,23 35:20	243:4,10	exists 106:13	120:14	284:22 294:14
36:24 38:13	245:11,16	244:18	explain 144:6	
43:25 44:20	248:23 250:9	exit 277:22	147:10 265:22	F
46:21 48:15	250:10 255:9	expand 69:24	explains 76:25	F 1:25 121:1
49:1,12,14,16	255:11 260:3	expect 46:10	explanation	272:6
49:17,20 50:6	260:19 262:10	49:13 174:25	136:8	face 105:15 204:4
53:10 54:9	263:13 264:25	191:6 212:20	explicit 76:18	264:16
55:11,16,19	265:5 266:5,9	expectations	81:16 116:23	faced 219:16
56:10 57:14,16	275:9,23,25	44:20	117:8 118:4	faces 26:18
67:21 68:10,24	276:13 278:18	expecting 206:18	174:13 183:16	facilitate 11:6
71:3 74:3,14,18	286:13,16	expedited 162:19	187:7 261:17	26:22 55:15,18
74:19,23 75:14	288:7 289:7,8,9	expensive 20:22	explicitly 83:18	201:19 269:2
78:11 79:1	289:11,13	57:25 159:14	187:10	280:4
80:16,21 81:2,6	execution's 225:3	experience 5:7	explode 213:17	facing 105:16
81:17 82:2,6,11	execution-only	8:19,20,21	exploding 203:2	fact 11:17 39:16
82:16,19 83:7	122:15	17:20 33:14	exploit 56:24	45:17 62:14
83:12,15 85:1,7	executions 80:4	34:2,21 35:9	exploiting 278:11	64:21 70:13,24
85:9 86:4,14	80:17 93:11	37:17 42:23	explore 179:11	76:25 83:22
88:11 89:21	119:14 128:9	48:3 49:10,21	179:12	85:4 143:11
90:3,8 91:4,17	187:21 257:15	64:20 75:8	exploring 16:18	154:13,18
93:12,16 110:1	executive 33:19	77:11 87:8,15	expose 213:12	177:17 209:25
111:2 122:8	43:5	88:6 92:24 93:6	exposed 94:12,15	221:17 240:22
124:3 128:8	exempt 292:17	93:17 97:1	express 24:9	244:18 245:16
134:1 135:16	exemption 31:17	98:17 99:12,16	198:18 290:25	246:7 247:5,12
135:24 136:20	136:7 191:20	99:25 101:15	expressed 183:12	253:24 274:5
138:16 143:21	207:24 220:8	102:17 106:6	200:13 211:12	283:8 288:4
144:11 147:7	253:22 255:16	125:1 127:10	extant 224:24	289:13
149:24 150:1,4	255:20 256:12	127:20 138:24	extend 273:4	factor 26:8 70:6
156:7 159:1,1	exemptions 16:8	146:25 170:24	291:18	75:15 172:17
164:6,22	31:14 94:16,18	175:16 194:12	extending 273:15	176:15 186:15
181:23 183:8	96:11 288:6	207:6 215:6	extends 203:14	195:17 201:3
187:18,19,24	exhaust 203:15	231:3,12 243:9	extensive 85:14	243:4
190:1 191:2,4	exist 72:3 143:21	244:10 285:25	extent 7:14 125:7	factoring 86:6
193:17 195:8	145:14 148:3	286:1	141:5 157:18	factors 31:4
195:10 196:20	156:9,15,16,17	experienced 31:1	173:22 187:21	107:25 113:7
200:25 201:3,6	191:12 217:5	experiences	188:11 260:22	211:23 232:1
202:13 208:1	221:10 234:3	13:23 35:5 39:8	external 110:23	233:7 251:11
217:22,25	235:24 237:8	127:8 194:10	externality 192:7	262:2,2
218:10 223:24	237:24	experiencing	192:19	facts 99:14
224:6,7,12,14	existed 136:18	23:17 56:5 57:7	extract 48:21	failed 202:1
224:16,17,20	168:11 217:5	70:18	extracted 73:5	fails 231:25
225:2,13,14,21	279:23	experiment	extraction 73:20	failure 186:5
227:19 230:25	existence 231:8	142:10 239:10	extreme 73:2	failures 196:1
				fair 11:5 17:3

38:8 109:4	FCC 217:3	182:15 185:23	278:7,8	171:15 223:18
130:3 140:19	255:15	185:24,25	fill 23:16 254:1,4	223:25 225:18
150:20 151:3,4	fear 254:21 255:3	186:3,17 187:7	filled 135:12	226:13,19
151:11 181:18	287:18	187:7 225:5	161:5 242:13	232:6 243:18
194:7 203:21	feasible 23:9	273:13 274:8,9	242:16 272:3	FINRA's 223:23
213:23 221:6	feature 191:17	277:10 278:11	filling 73:25	224:14 241:16
223:15 224:9	featured 7:18	fees' 136:15	filter 127:21	fires 251:25
249:3 252:9	features 97:24	fellow 43:2 52:20	final 157:14	firm 22:23 52:25
257:10 258:24	167:10,11,12	123:1 124:7	205:7,9 206:4	122:17 133:11
258:25 259:20	Fed 197:7	130:19 198:24	266:23 285:5	134:4 137:4
260:8,12,14	fee 8:14 16:15	202:7	finalize 272:23	165:7 167:19
267:20,21	44:21 70:16	felt 129:9	finalized 61:3	172:18 184:8
279:8 292:6,11	87:12,16 130:1	fewer 22:21,24	finally 18:2 56:19	212:6,10
fairly 24:3,4	132:7 140:20	29:13,19	56:20 74:12	222:20 225:4,6
31:10 68:3	149:1 154:25	202:24 250:2	138:12 161:5	225:7 241:1
126:5	155:5,13	FIA 3:7 222:24	208:17 221:14	258:5
fairness 47:25	162:12 163:20	231:12 238:11	271:21 279:21	firm's 127:10
fall 98:13 117:22	264:18 278:6	fiber 220:6	finance 3:18	firms 9:4 24:3,8,8
247:6,7 248:5	282:1 286:23	Fidelity 76:25	33:20 47:17,21	24:16 35:4 37:3
fallout 203:13	fee-sensitive	228:8	123:3 124:18	65:12 122:14
204:24	93:10	fiduciary 84:25	financial 3:16 4:5	122:14 156:5
false 69:11	feed 65:8,13,18	86:4	36:2 45:4	160:8,10 164:9
familiar 7:23	171:17 269:19	field 66:23 132:9	118:16 121:9	164:11,15
26:18 34:1	269:25	252:9,10	131:19 132:18	168:7 172:11
53:14	feedback 33:4	Fields 190:2	197:2 205:14	173:2,2,4 184:9
families 73:17	116:16 210:25	Fifteen 176:9	226:12 243:1	184:15 193:13
fan 248:17	216:19	fifteenth 162:5	285:3	209:20 218:2
fantastic 7:2	feeds 57:5 68:16	fighter 177:5	find 80:3,20	222:25 291:22
120:4,4 121:21	69:10 220:23	fighters 206:9	87:16 110:2	first 7:16 14:9,11
122:12 213:4	220:24 239:24	figure 40:1 61:7,9	134:6 154:23	17:5,19 19:20
far 135:13 137:19	240:2 269:21	119:10 172:24	186:9 209:25	29:3 30:12
174:11 196:20	274:8	174:7 225:8,13	264:13 266:7	32:16 33:21
196:20 199:21	feel 51:17 87:14	240:16	283:25	35:11 37:5
200:11	98:6 112:22,24	figured 107:4	finding 42:14	50:16 55:14
far-fetched	154:16 162:10	108:3	80:15 103:8	56:9 60:10 61:2
195:11	195:15 210:7	figures 157:12	241:2	84:3 92:18
farther 196:21	215:2 240:5	figuring 107:25	finds 211:15,15	93:25 96:21
fashion 99:23	264:9 290:5	file 87:3,23	fine 171:14 187:5	117:25 120:1
fast 46:20 57:2	feelings 241:24	115:16 162:25	233:24 257:6	121:20 123:5
141:21 150:20	feels 209:22	294:7 295:5	286:5	124:22 127:8
198:8 216:6	fees 20:23,23	filed 162:3 282:1	fingers 155:21,22	133:17 136:1
faster 53:10	32:8,9 41:16,19	filing 153:15,18	250:4	136:17 143:3
170:5	52:1 71:16 87:1	161:24 162:5,6	finish 205:16	144:24 145:1
fatigue 209:13	87:1,3,5,21,23	162:24 163:1	213:19	145:25 150:15
favor 40:5 59:12	93:14 100:6,7	176:2	finpolicy.georg...	157:12,19
100:23 201:5	101:1 102:25	filings 87:8	197:3,4,11	161:16 162:10
285:14	104:8,13	115:16 118:3	FINRA 3:4 37:6	165:2 180:3
favorable 200:11	110:24,24	162:12,12,21	67:1 76:17,22	188:21 194:11
243:14	117:12 146:9	162:22 192:22	88:7,14 90:19	206:24 207:11

210:9 212:14	130:4 147:20	30:25 134:16	205:11	233:17 267:14
224:1 227:2	164:19,21	153:19 204:23	formidable 268:4	281:16
233:22 242:4	174:7,25 175:4	241:25	formula 179:14	fourth 51:21
265:21 267:17	181:15 183:2,3	foment 227:13	179:21 277:12	FPGA 269:25
273:24 279:24	193:11 194:1	fomenting 230:19	formulation	fraction 54:10
279:24 284:14	209:21 213:11	footnotes 7:12	261:24	127:17
285:9 291:7,25	220:10 221:11	forbearance	forth 172:8	fractional 119:15
293:5	239:17 240:10	172:21	204:19 248:15	119:19
firsthand 150:5	242:13,13	force 28:21 34:13	Fortunately	fragmentated
fit 55:6 117:3	281:3 282:3,6	56:19 76:9	145:19	202:18
119:16	flows 224:9	192:12 250:22	forward 5:15 6:9	fragmentation
five 21:11 31:25	focus 7:3 17:20	forced 65:25	6:21 8:8 9:23	7:25 20:17
119:21 162:14	92:7 115:13	103:3,5 123:15	10:20 16:18	31:22 48:17,18
238:19 283:19	121:25 133:24	232:22 255:4	18:3,6 38:18	48:18 53:6
five-year 31:7	164:12 173:6	277:9	42:17 44:23	57:24 58:16
fix 71:7 75:17	177:2,3,15	forces 137:13	46:23 47:8,9,11	61:16 70:2
144:22 162:14	178:19 196:12	158:11 173:11	49:23 60:17	72:21 73:2,3
200:18 214:12	196:15 219:4	200:9 229:15	124:19 125:8	114:8 126:8,19
280:6	227:1,2,15,16	242:25 250:16	129:20 130:10	126:24 141:23
fixed 187:7 232:3	233:3 243:16	250:21	132:20 140:9	153:16 173:16
232:24	253:25 254:1	forcing 175:4	141:21 148:16	173:18,18,21
fixing 293:15	267:19	203:14 269:16	155:2,4 204:20	178:7,8 182:3
flag 156:1	focused 90:2	292:9	204:23 205:8	182:11,19
flash 18:18 52:24	140:10 191:24	foreclose 9:18	206:6 210:12	201:22,23
140:9 213:12	194:14	forefront 55:25	219:2 222:12	202:2 213:9,16
flat 30:16 225:11	focuses 16:3	foregoing 296:4	223:13 226:19	221:5 230:2
flattered 209:7	122:18	296:11	227:20,22	235:11 239:7
flawed 162:11,13	focusing 92:2	foreign 173:4,4	280:8 284:11	243:3 247:25
204:2 270:10	149:19	foremost 224:8	286:24 287:3	249:24 259:1
flaws 228:9	folded 76:11	265:21	293:25	264:20 277:23
flexibility 237:17	folks 60:22 67:11	foresee 9:13	foster 16:10 44:4	280:11 281:20
238:13 252:22	75:7 82:5 84:10	foreseen 61:20	44:19 132:10	282:6 286:9
flexible 45:15	84:23 102:20	foretold 15:23	175:20 277:24	fragmented
203:5	115:11 120:14	forget 56:4 63:24	fostering 175:22	141:24,24
flickering 139:11	139:4 140:18	197:11 206:12	fosters 36:13	frame 248:9
flip 111:23	151:16 170:16	forgot 135:4	fought 143:16	framework 42:3
floor 56:19 59:9	170:25 198:17	209:5	found 23:9 31:9	56:22 73:7
98:1 123:22	219:10 239:24	form 8:9 42:12	78:23 79:19	192:3 223:10
157:2	240:19 246:17	73:20 103:21	80:14,16 111:8	231:15 232:9
floors 190:20	248:13 250:3	116:3 160:20	184:12	frameworks
289:25	261:20 263:10	216:2 237:24	foundation 33:20	43:16
Florida 59:9	282:5	formal 111:6	85:7 204:2	Frank 162:17
flourish 218:9	follow 163:25	formally 223:25	foundational	frankly 91:24
245:23	204:21	formation 11:7	43:24 223:5	202:3 235:12
flow 23:18 25:23	follow-up 262:16	44:1,4 132:17	founder 127:5	281:19,22
26:2 40:9 53:17	followed 6:12	180:15 256:10	four 23:21 34:6	fraternal 262:11
76:21 77:2 81:1	199:8 201:23	288:7,8	50:15 59:5	fraud 196:16
85:16 88:12	following 14:15	formed 280:3	152:9,9 162:14	free 20:9 65:9
93:10 98:16,18	15:6 17:19	former 33:18	163:4 224:18	116:3 197:3

252:18 270:2	224:8 265:24	89:20 161:25	36:14 39:20	169:11 178:20
freedom 177:4	277:3	171:20 172:9	51:19 55:20	181:5 186:3,8
206:9	fundamentally	176:9,20	67:4 80:3 94:20	187:2 189:1,4
frequent 128:5	43:22 60:2 94:9	generation 56:9	107:8,10	192:24 197:3
frequently 14:19	97:4 98:21	271:11	112:23 120:15	213:17 214:6,7
16:2	142:14 145:12	gentlemen 33:9	128:12 154:18	215:3 216:8,11
fresh 58:13	203:25 270:9	genuine 277:20	160:6 188:24	225:10 227:5,5
271:19	284:15	278:1	195:12 211:17	228:17,21
frictions 51:3,14	funded 226:22	geographically	219:22 231:3	236:15,15,16
friend 33:17	funds 93:18	36:4	283:23	236:20,23
121:6 189:17	215:11	geographies	gives 127:19	240:15,15
205:11	further 32:14,18	39:13 42:3	194:4 236:22	241:15,21
friends 70:9	51:8 71:22	Georgetown 2:21	238:12	248:7,19 251:1
front 103:13	83:10 97:15	122:23 123:3	giving 23:15	254:25 256:15
171:6 255:21	136:14 192:5	Georgetown's	124:19 209:10	261:10 262:8
fruitful 195:9	216:9,18	197:1	216:12 256:5	262:19 266:7
fruition 37:25	218:10 255:18	Gerhardstein 3:7	270:8 287:17	267:14 274:14
fuel 213:11	277:12 288:1,6	222:13,19	glad 198:14	280:21 281:3
251:25	288:7 296:10	231:11 276:24	214:18 216:10	282:5 284:12
fueled 97:10	future 32:25 33:5	286:17	Glassman 7:10	285:6 291:22
277:4	40:11 198:20	getting 42:17	37:23 202:8	293:2
fuels 132:16	204:13 238:5	75:5 77:8 79:14	glean 107:14	goal 14:17 17:2
fulfill 11:4 204:19	252:17 286:24	80:21 83:11	global 3:11 42:24	41:3,10,14 44:2
fulfilling 244:8	287:3 293:13	107:7 111:3	43:6 55:9	64:4 105:13
254:15	futures 173:2,2	132:6 135:11	122:15 133:11	201:13 290:7
fulfillment 12:4		135:12 137:5	206:22 208:21	goals 28:13 38:12
full 34:14 41:20	G	144:24 158:15	214:15 222:22	131:24 203:20
65:1,8 94:10	G 6:1	158:18 173:3,5	globally 125:17	204:19 213:23
107:11 294:9	gain 49:2	181:25 184:20	133:14 191:22	God's 116:9
full-service 36:6	gained 8:6	184:21,22	233:1	goes 10:15 76:24
fully 43:18 59:6	game 26:6 198:10	191:24 194:8	globe 39:21 84:24	88:4 153:2
59:10	gamesmanship	196:4 237:16	125:18 126:6	156:2 184:6
fun 80:14	202:19 213:8	242:16 280:7	207:3	192:20,25
function 23:10	248:2	287:17,19	go 10:6 19:1	207:14 225:11
28:16 126:3	gaming 291:23	290:9	21:18 25:13	253:11 261:24
150:22 169:22	gaping 79:1	give 7:12 18:1	35:7 36:18	262:5 269:20
170:3,4 200:4	gate 100:2	20:3 34:20	51:16 53:1	273:8 276:3
219:21 268:25	gateways 105:4	52:16 65:16	60:21 70:25	284:6 291:24
functional 172:13	gathered 140:5	77:25 152:1	74:22,25 79:21	going 6:21 19:9
172:13	gathering 40:22	172:2 176:19	81:1 83:10 85:3	19:20 20:14
functionality	geared 165:9	205:24 215:1	85:19 86:18,20	26:14 28:15
115:17 116:5	gears 30:6	219:1 225:20	89:9 93:25	34:19,22 40:2
functioning	gee 184:19	226:20 245:5	112:2 115:11	47:9 49:18,22
147:11	188:19	246:23 257:15	115:17 123:18	60:21 62:16
fundamental	Gemini 194:24	260:24 264:23	123:19 132:2	64:12 71:23
12:9 44:8 58:1	general 36:23	271:8 272:8	143:7 144:4,6	72:3 75:18,20
99:4 132:18	110:9 137:12	275:23 285:2,5	144:12 145:16	76:4 77:13,14
134:4 195:7,23	156:3 256:8	289:18	151:20 164:10	80:3 81:4 82:15
196:15,19	292:12	given 11:24 32:19	166:11,23	83:19 87:25
	generally 59:22			

89:21 90:18	268:21,22	government	78:17,19 99:17	155:19 179:4
91:3,22 98:22	269:18,18	14:22 20:12	132:11 166:21	183:12 185:5
100:16 103:25	271:7 275:17	governor 186:16	178:14 232:25	186:10 194:23
105:7 111:17	280:1,6,10	187:11 197:7	251:24	209:23 236:19
112:20 113:7	281:2,5,18	gradient 29:6	greatest 118:15	237:25 273:9
115:11 116:11	282:2,3,5,8	Graduate 3:23	greatly 8:23 64:1	282:20 292:21
117:4 119:1,9	283:14 284:25	52:12	Green 114:2	guessing 163:10
119:21 120:22	285:17,18	Grail 39:23	Griffin 118:14	guidance 76:22
121:25 122:2,3	286:3,4 289:7	granted 40:21	gross 202:4	276:13 278:8
122:5,6,20	Goldberg 214:4,6	284:22	gross-up 70:17	guide 40:24
123:16 125:8	Goldman's 197:8	graph 280:23	grounds 251:4	200:15
131:13 133:10	good 6:2,19 7:13	grapple 202:1	group 3:7,8 4:7	guidepost 111:22
139:1,12,14,16	10:11 20:5	grassroots 47:24	10:23 15:4 35:1	guys 38:19 80:23
140:17,21	32:21 35:14	grateful 216:20	36:2 40:23	101:3 119:3
144:2,3 146:1,6	36:20 38:23	226:6,7	42:17 58:21	184:18 210:6
147:7 149:8	40:13 45:6 53:8	gravitate 150:5	59:1 80:18	235:16 239:4
151:6 153:2,3	54:3,5,6 55:4	gravitation	81:15 122:19	253:6 286:6
154:19 157:10	58:24 59:22	193:14	129:6 134:25	guys' 94:5
158:24 161:19	62:7 65:18	great 7:1,1 14:22	194:19 205:14	
161:21 163:4	69:21 77:9	18:8 35:1 47:15	205:15 218:15	<hr/> H <hr/>
163:11 164:3	81:15 83:12	57:10 67:12	222:20,24	half 21:9,10
167:24 171:22	86:5 92:20	72:7 76:5 77:22	groups 78:9	31:16 68:25
171:23 172:22	99:16 106:16	86:18 91:9	grow 12:13,22	74:5 94:17
174:20 175:12	107:21,22	101:14 112:20	32:11 44:12	100:17 103:21
175:18 177:8	113:18 121:16	113:12,23	91:20 246:5	104:21 112:19
180:7 181:2	130:18 140:5	119:25 120:19	growing 91:15,21	163:16,17
183:3 184:11	147:1 166:16	122:19 125:10	92:2 261:21	247:6,10 250:4
186:11,25	170:13 171:2	126:25 132:25	287:21	291:12
187:16,22,23	172:19 187:13	134:15 138:11	grown 66:21	hallmark 203:20
189:23 190:7	196:2 205:2,11	138:25 142:21	growth 30:9,12	213:22
193:7 195:10	208:2,23	145:2 148:12	30:16 31:2,4	hamstrung 116:1
195:20,21	209:12 210:20	152:19,20	94:22 95:18,22	hand 23:13 30:1
196:17 197:10	214:14 218:22	156:20 157:6	97:13 107:10	67:23 72:23
197:21 204:14	219:1 221:16	157:20 158:2	145:1 148:19	82:22 227:5,5,5
205:24 207:13	221:25 222:8	159:9,19	152:3 155:3	227:6 258:14
208:10,11,12	222:13 238:7	167:11 168:9	180:13,17	258:15
209:22 210:3,8	240:10 245:13	170:10,14	182:25 222:6	handful 48:24
210:12 215:3,5	249:22,25	172:21 175:16	222:11 279:6	76:10
222:11 234:8,9	256:15 258:16	192:15 193:2	283:17	handiwork 16:2
235:6,13,23	259:6 262:14	197:7,17	guarantee 234:8	handle 154:17
239:15,21	270:18,18	198:12 203:7	guaranteed 49:21	167:19
240:3 242:9	282:24 284:14	204:25 216:17	277:9	handled 237:11
243:16 246:21	293:5	226:17 234:17	guaranteeing	237:11
246:23 247:16	Google 78:9 80:2	235:2 238:16	81:6	handler 270:1
248:20,25	gotten 113:5	247:24 260:25	guess 21:17 61:25	handling 98:18
250:6,7 251:7	govern 224:16	263:5 264:11	64:23 100:16	165:10 186:10
253:18 257:3	Governance	287:25 288:3	106:18 112:11	186:11 200:4
258:15,16,19	205:15	greater 26:7 32:4	113:8 137:5	happen 153:7
261:6 267:15	governed 202:19	44:19 57:20	139:21 148:7	173:10 175:18
				182:10 186:11

188:17 272:10 282:19,22 285:16 happened 31:12 103:24 113:20 143:25 161:3 274:4 happening 54:9 80:7 132:3 179:23 181:25 191:16 192:2 244:4 254:17 happens 106:15 145:4 157:2 163:2 174:10 183:7 194:25 213:17,19 234:10,11 254:14,16,19 282:10 287:19 happy 49:9 51:16 134:10 143:1 146:15 198:13 198:17 216:8 harbor 255:1 hard 9:18 15:25 16:23 49:6 72:14 74:20 78:18 97:11 110:2 170:19 173:3,5 189:21 222:1 250:11 261:7 266:13 266:17 268:13 283:6 harder 263:24 266:4 hardware 20:22 68:19 220:5 harm 96:13 133:18,24 290:14,15 harmed 161:2,6 161:10 234:14 harms 46:8,8 harvesting 100:24 Hathaway 54:15 Haynes 3:9 38:21	38:23,24 92:12 92:19 102:22 106:8 111:13 head 45:7,23 46:14 50:6 55:9 76:23 100:15 125:14 134:23 135:7 148:4 198:6 206:22 headed 271:6 heading 82:23 heads 168:20 health 203:9 healthy 3:21 59:10 95:23 96:9 97:9 98:1 129:15 132:18 134:17,24 187:6 208:16 266:21 hear 6:23,25 8:2 10:5 16:25 17:5 76:5 81:16 110:15 113:10 122:16 124:6 175:2 197:22 198:1 203:24 214:18 246:5 heard 41:7 65:19 66:1 104:17 111:14,16 113:15 124:23 132:21 144:18 147:18 150:12 150:13 157:11 183:19 193:8 194:11,12 199:4 206:9 215:20 220:22 228:24 233:8 233:10,11 261:20 276:22 285:21 289:15 290:14 hearing 10:20 12:2 18:6 73:19 289:5 295:15 heart 136:19 199:7	Heartbreak 225:11 heat 14:19 heavily 88:9 139:23 188:12 hedge 287:19 held 31:25 35:3 57:19 59:16 82:12 275:13 295:12 296:5 help 8:7 31:14 40:24 71:10 135:14 204:19 269:2 284:11 287:15,25 helped 59:22 217:11 helpful 19:6 266:10 276:1 294:15 helping 91:20 205:22 222:4 280:8 helps 91:19 211:20 283:14 heritage 133:12 Herrick 3:10 218:22 267:12 278:19,23 283:1 287:2 hesitant 112:24 Hester 2:4 hey 172:22 240:17 254:25 Hi 124:11 125:13 138:13 206:21 hidden 53:21 79:4,23,24 80:9 80:15,20 81:1 176:12 213:18 246:20,22 260:23,23 hide 79:9 165:17 291:23 high 46:21 55:14 146:5 160:17 160:17 261:17 high-fidelity 127:16	high-frequency 48:5 258:4 high-priced 80:2 84:7 high-profile 39:25 high-tech 218:3 higher 20:23 32:9 39:23 53:10 109:15,19,21 109:22 111:1 128:6 152:11 179:9 193:12 209:23 247:14 251:3 252:21 263:15,19 higher-priced 54:10 highest 27:15 highlight 51:25 181:7 highlighted 60:24 126:4 231:24 233:20 234:2 235:25 highlights 17:7 highly 17:24 19:7 26:8 96:24 202:18 Hill 225:11 hired 168:23 historically 174:12 history 34:9 62:8 102:15,22 133:12 152:7 152:10 210:5 hit 146:17 153:3 160:14 256:16 256:22 257:1,3 273:14 281:3 hits 147:6 166:8 hitting 24:22 HMA 136:16 hold 82:7,8 100:16 109:4 holder 196:14 holders 123:20 holding 122:25	193:1 holds 82:7 147:16 hole 79:1 112:2 holistic 249:21 holistically 182:17 Holy 39:23 home 12:24 21:3 95:19 180:10 honest 67:19 89:24 189:9 honestly 14:19 16:2 honor 18:19 19:25 35:15 127:4 hope 9:24 11:10 13:7 16:25 50:11 135:21 160:25 218:8 278:13 293:1,2 hoped 20:2 217:18 hopefully 19:7 112:13,16 245:12,19 277:17 horizon 220:21 host 6:7 91:23 93:8 hosting 55:5 216:14 hot 7:22 hotly 41:24 hours 27:7 28:2 28:10,22 90:17 178:13 households 288:8 288:15 housekeeping 120:17 Hubert 3:5 125:12,13 126:25 165:5 166:16 168:2 181:5 182:23 190:25 237:17 Hudson 3:22 136:24 137:2,3
---	--	--	--	---

137:6	63:11 114:3	74:14 78:6	135:20 204:4	21:17 43:7
huge 53:19 77:3	128:2,6 141:13	80:11 81:3	218:10 233:2	55:12 59:5
78:6 95:14	202:2 229:2	95:15 102:10	245:11 278:18	61:13 107:17
119:16,23	231:5 245:10	105:24 118:16	283:24	109:1 139:9
125:5 258:12	266:17 278:8	119:8,13	improvement	148:2 158:7
hundred 96:1	280:10 281:18	121:24 128:13	76:19 77:1 99:5	199:15 219:7
213:25	284:10	130:21 131:12	135:8 138:21	232:3 263:14
hundreds 48:1	impacted 50:25	131:16,23	164:23 184:4	inclusion 39:23
hyposeconds	59:7 108:21	132:7,8 162:2	190:16 232:14	incorporate
64:4	177:22	185:2 206:25	232:14	82:19
hypothetical	impactful 99:2	210:23 211:21	improvements	incorporated
88:22	impacting 81:19	213:16 214:24	57:15 74:8	83:24
	impacts 43:19	217:3 218:15	130:23 135:24	incorporates
I	135:20 164:4	220:17 222:16	278:1	83:16
ice 259:14,25	237:21	223:9 226:4	improving 13:10	incorporation
260:1	impeccable	227:12 232:16	159:8 216:18	47:3
iceberg 176:17	131:14	237:23 241:18	in-balance	increase 27:4
177:12	impede 192:14	243:23 252:10	176:23	31:21 41:15
idea 12:7 41:21	192:14	253:2 258:22	in-depth 8:2	48:16 73:8 79:7
174:10 186:20	impediment	263:11 268:6	inability 37:25	81:18 104:8,16
186:21 196:10	155:3,13	269:6 270:20	151:2 272:13	174:6 178:13
255:19 259:6	impeding 166:25	271:1 272:24	inadvertently	200:20 211:25
ideal 225:17	imperative 36:24	290:3,18	166:7	282:18 290:8
ideas 74:25 219:1	208:19	292:24 293:17	incentive 20:3	increased 12:16
identical 73:13	imperfect 143:6	importantly	73:12 115:4	15:21 20:18,21
262:24	implementation	13:21 23:23	236:1 248:21	20:21 29:11,23
identify 31:14	56:3 166:19	37:8 109:11	265:16	29:25 51:6,9
46:1 62:4	171:8 202:3	128:2 210:13	incentives 9:5	64:6 126:8
ides 225:24	203:10 275:10	233:2 278:4	126:23 136:15	230:15
IEX 48:10 118:2	implemented	imposed 199:14	211:6 248:4	increases 28:10
181:21 192:22	32:12 48:5	225:6 231:4	251:9 264:21	increasing 7:24
240:7,8,9	135:25 171:11	262:4	277:4,7 290:21	8:1 159:20
259:22 268:4	implementing	impossible 42:14	incentivize 279:3	203:2 249:24
281:14	129:23 184:9	50:24 162:20	inception 128:4	incredible 42:6
ignore 19:17	implications 42:1	220:13	incidences	95:22 152:14
75:14 236:16	49:20 146:13	impractical	108:16	incredibly 45:14
253:19	implicitly 187:10	143:5,5	include 23:3 36:5	94:24,24 95:12
illiquid 84:8	importance	impressive 10:23	61:13 128:1	96:8,8 141:22
image 30:19	14:21 60:13	39:14 40:23	186:10 191:9	229:10 263:11
123:5	128:22	206:11	220:10	incremental 74:8
imagined 219:17	important 6:23	improve 11:11	included 30:8	242:25
immediately	11:22,24 12:20	47:24 60:18	31:13 143:9	increments
136:5 260:15	13:6 15:11 32:6	65:3 97:13	162:17 278:19	117:13
267:20 268:2,7	39:7 40:19 42:9	202:11 210:12	includes 16:4	incubator 112:18
268:18 282:3	43:18 45:10,25	229:18 233:21	40:5 83:17,17	incumbent 278:7
immense 284:24	46:7,23 49:10	279:20 288:1,6	131:1 134:25	incurred 157:24
immunity 252:19	54:13 55:5 59:2	288:7	138:15 169:15	incurring 64:10
impact 32:19,22	59:19 60:16	improved 64:1	191:10 252:16	246:11
32:24 36:11	65:7 69:14	77:15 97:24	including 6:4	independent
43:22 51:13,25				

126:1	23:17 86:9,10	230:15 233:6	200:22 203:14	intensive 208:11
independently	119:11 135:22	241:9 245:11	209:19 212:5	intent 43:20 46:8
45:16	185:1 203:19	249:15,25	212:17 218:12	intention 27:1
index 38:24	239:23 240:2,3	252:2 256:9	218:13 246:6	intentional 46:3
indicated 296:5	informed 133:14	277:16,25	251:13 287:16	48:12 51:20
indicating 275:22	202:4 232:10	284:6 288:10	institutionally	108:18
indicator 258:13	infrastructure	288:15,21,23	191:21	intentionally
indicators 258:6	42:12 56:24	289:2 292:16	institutions 42:15	115:2
indirectly 230:7	57:3 163:21	innovations	55:19 128:14	intentioned
230:8 243:4	243:25 246:2	56:13 181:10	128:20 177:22	167:21 231:18
individual	247:9 256:5	192:4	191:21 209:16	286:9
111:17,25	infrequent 147:8	innovative 48:8	237:2 240:14	intentions 203:18
161:17 215:8	ingest 220:4	181:22 226:23	241:2 249:7	inter-sweep
215:15 236:8	ingesting 269:25	227:3 241:3	254:4 261:1	169:12
individuals 20:13	initial 158:20	input 13:16	275:11	interact 259:11
237:5	283:15	16:24 226:9	instructed 134:11	interacting 249:6
induces 213:8	initially 14:10	ins 10:13	instructions	interaction
industries 217:1	Initiative 226:19	inside 221:18	134:16 167:17	292:10
industry 3:16	initiatives 284:20	insight 127:19	instructive	interconnected
8:17 18:18	inner 212:13	insights 8:6	105:19	10:25 43:16
32:17 35:16	innovate 115:15	107:14 203:24	instrumental	45:17,22 46:1
36:2 45:4 48:4	115:25 116:3,4	insignificant	125:25	49:5 62:3 88:22
51:9 57:10,22	150:14,19,21	66:14	intact 235:9	123:7,16
59:14,17,18	174:8 176:1	insistence 162:17	241:14	interconnections
60:16,18 68:12	201:8 249:1,8	inspect 28:15	integrate 261:19	123:18
70:4,15 73:1	252:7 267:18	inspired 164:17	integrated	interest 221:23
82:7 117:2	268:14 292:5	inspires 7:7	141:22	interested 12:2
130:12 174:4	innovated 252:4	instance 165:21	integrating 68:17	125:9 155:15
177:16 182:16	innovating 114:4	instances 172:11	126:1	209:25
196:9 201:2	116:1 150:17	InstaNet 212:8	integration 68:20	interesting 26:15
203:6 209:17	252:5	instantaneously	integrity 208:4	78:1,13,16
209:17 210:25	innovation 9:12	146:5	251:12 265:17	183:11 189:24
214:22 216:19	16:11 38:3 43:9	Institute 2:15	intellectual	193:4,4 271:25
232:19 244:17	43:14 44:19	33:19 95:17	149:20	272:11 280:23
254:2 280:3	48:19,22 57:14	instituted 41:9	intelligent 227:4	281:24
284:7 285:17	59:12 97:10	institution 68:4	244:15	interests 11:20
288:11 291:2	112:17 113:19	198:23 205:14	IntelligentCross	interlinkages
industry's 104:7	113:25 114:8	215:6 234:16	2:25 36:19,25	73:9
inefficiencies	114:10,13	236:10	37:1,4,15 38:8	interlisted 40:6,8
62:11	132:23 137:13	institutional	64:25 65:8	intermarket
inevitable 208:18	138:20 148:24	35:19,20 46:19	66:11 75:4	28:13 139:7,10
inferior 11:17,18	148:25 150:13	55:17 57:17	112:17 113:7	147:10 165:11
infinite 45:15	150:18 173:9	82:14 84:11	181:12 279:5	169:12
264:2	175:25 181:8,9	85:8,25 86:7	intend 256:20	intermediaries
influenced 127:7	181:19,24	88:18 90:4,8	intended 17:7	13:2 152:18
info 287:19	192:1,2,6	92:25 93:3,17	202:20 221:3	196:17 203:1
inform 8:19,20	208:18 210:14	93:19 122:14	290:19	intermediary
14:1	216:22 218:10	127:6 128:8	Intensifying	12:8
information	227:4 230:13	178:2 184:6,9	200:6	intermediary's

internal 232:24	investing 13:24	231:22 232:1	272:1,15,24	228:1,2 288:4
internalization	18:9 226:22	243:3 251:13	issuance 132:16	289:18 292:24
118:14 283:17	243:8	256:10 271:11	issue 59:19 71:10	January 34:10
internalize	investment 93:17	286:11 288:14	71:23 72:2 74:7	Jeff 4:8 138:12
186:24	132:23 203:4	290:4 293:21	82:22 93:10	138:14 160:3
internalized	206:23	invitation 206:25	102:2 116:15	164:1 168:6
187:1 283:25	investments	209:6 226:6	146:2 154:22	187:15
internalizer	164:9,15	228:2	155:1 158:6	Jello 76:16
98:16	investor 12:7,11	invite 202:19	161:22 177:13	Jennings 228:8
internalizers	14:18 43:24	242:10	177:25 186:4	Jersey 212:6
183:2,4	46:22 63:22	invited 133:5	192:21 207:23	Jesse 2:8 18:12
interplay 242:24	88:6 99:12	invites 213:8	211:8 247:25	30:2,4 44:13
interpret 223:23	132:12 147:2	inviting 47:10	253:1	94:2,17
interpretation	161:8 207:5	52:19 120:9	issuers 39:21	Jesus 3:5 125:12
174:14 262:10	208:5,22	212:3 223:20	47:23 210:17	125:13,14
interpretations	211:24 213:2	294:3	222:6	165:8 181:6
225:15,20	223:17 227:24	involved 10:18	issues 6:9 7:2	191:1
259:20	239:2 247:16	35:25 36:8 38:4	48:2 54:12	Jim 2:21 122:22
interpreted 151:4	247:17 251:20	93:24 280:8	60:22,24,25	123:2 124:8
interrelate	263:10 265:21	involves 45:21	84:12,12 90:18	137:10 138:7
266:14	285:21,22,23	62:3 127:11	105:14 112:8	144:16 160:21
intersect 12:4	285:24 286:3,4	IOC 166:23	117:23 120:1	187:25 196:6
intersection	investor-focused	IPO 39:25	122:3 125:7	234:11
122:7	134:25	IPOs 40:3	136:18 137:6	Jim's 215:24
intersperse	investors 3:18	IQX 65:9,13	144:7 155:17	Joanna 190:2
139:14	8:2 9:2 11:5,11	Ironically 202:20	155:19 185:25	job 93:4 120:4,19
interspersed	11:12,14,16,20	irrespective 86:2	195:24 203:6	131:14 152:2
208:9	12:9,13,25	128:13	207:10 214:24	187:13 198:12
intervene 162:22	13:11 16:9,12	Irvin 47:21	221:19	241:16
intervention	37:11 44:6	Isaacson 3:11	it'll 238:25	Joe 3:20 4:4 50:3
44:14	46:19,25 47:17	42:24 43:1,4	items 199:2	50:5 52:10,22
intraday 272:8	47:22,23 48:1	90:23 93:24	250:22 256:11	69:21 80:6 81:9
intricacies	50:21 51:6,14	94:7 98:11	iterate 284:8	98:8 100:11
147:10	54:19 57:9,17	100:11,18		107:12 113:16
introduce 33:17	63:20 65:5 73:1	101:6 105:19	J	114:17 116:18
51:19 52:8	77:8 92:25 93:3	106:18 131:14	J.P 206:23	117:19 118:19
122:21 157:10	99:15,15,24	152:2 190:14	J.P.Morgan 4:9	153:11 161:17
introduced 102:4	111:8 122:18	ISE 279:23	Jamie 2:11 6:5	163:10 208:8
103:19	124:4 125:19	ish 23:3	33:23 43:2	212:3 228:23
introduces	132:17 135:9	island 39:5	52:19 61:8	247:2 257:12
114:24	143:6,13,14	ISO 90:6 97:23	77:23 83:25	272:25 274:24
introducing	144:12 146:23	165:11 167:16	101:7 115:19	Joe's 117:21
71:14,20	184:6 187:11	220:8 271:22	120:8,16	242:5
126:15,20	200:22,23,25	272:6,19	121:16,18	Johnson 3:23
127:10	203:7,14 207:6	291:22 292:1	129:4 133:3	52:12
introduction	210:18 215:8	isolated 141:25	134:20 136:25	join 6:13 45:9
38:2 205:25	215:16 216:21	ISOs 97:24	153:14 197:18	joined 121:10
209:13 257:11	221:20 222:6	145:14 169:13	209:6 210:21	joining 10:20
invest 12:22	223:12 231:5	172:3 271:24	212:2 215:2,3	52:20
			216:10 223:19	

joint 8:17	235:19 246:3	135:17 137:10	85:13,15,19,20	174:2,4 175:2
joke 210:6	261:6 287:19	138:2 156:1	86:1,3,7,15,19	175:18 177:4
joking 198:11	289:5,10 294:9	165:12,18	86:21,22,22	178:4 179:3,16
Jon 3:10 267:11	keeping 219:24	167:17 168:6	87:11,19,20	179:17,22
272:21 276:23	221:13 241:14	168:12 170:19	90:24 91:8	180:1,16
280:10 282:25	keeps 9:7 74:24	171:3 179:2,10	92:10,23 93:16	181:24 182:15
Jonathan 3:12	158:15 216:18	181:14,21,22	94:1,10 99:9,11	182:24 183:11
129:1,5 130:14	241:16	181:25 182:1	99:19 100:14	183:22,23
150:11 170:13	Kellner 3:12	185:13 186:12	100:21 101:11	184:3,14,18
173:24 180:25	129:1,3,5	186:14 190:3	101:12,14,17	185:7,10,15,20
181:8	150:12 163:7,9	192:11,17	101:19 102:1,2	186:4,14,18,19
Joseph 14:12	174:1 176:3	195:2 196:1	102:10,20	187:9,17 188:2
judge 88:11	Ken 118:14	209:20 233:11	105:13,20	189:2,7,15,19
judgment 199:19	Kennedy 3:13	233:12,18	106:11 107:21	191:2,20,23,24
201:4 204:8	14:12 16:21	234:4 236:18	108:24 111:11	192:6,15,16,21
262:1	130:16,17	238:7 241:14	112:15,16,24	193:10 195:5
judgments 38:5	148:10 151:21	242:7 244:14	113:4,22	195:10,15,21
juice 248:3	153:25 157:3	244:16 251:14	114:11 118:6	195:22,23
Julie 2:19 35:11	180:3,8 190:11	252:8 259:5,17	118:20 119:2,5	196:3,5,17
35:17 36:17	193:20,24	260:11 264:1,3	119:8,11,19	198:9 206:6
86:19 89:14	Kettig 13:19	264:12,20,22	123:8 133:19	209:11,18
jump 3:8 77:23	Kevin 3:13 13:19	266:1,13	137:6,9,11,12	210:25 211:10
84:2 143:1	130:16,16	274:21 276:25	137:19,22,24	211:19,20,25
149:14 189:12	135:6 149:15	279:17,18	138:7,10	212:9 214:22
222:19,23	150:25 151:20	280:7 281:15	139:18 140:13	216:16 217:21
June 23:2	153:23 155:20	283:14 286:24	140:22 144:25	219:9,12,13,15
jurisdictions 39:8	156:25 180:2	292:8,12	145:4,6,9,15,17	220:3,7 221:8
jury- 123:10	188:10 193:19	kinds 184:9	145:18,25	222:4,10,11
justice 206:1	194:7	Klarna 40:1	146:2,4,9,10	224:23 226:14
justifiable 156:11	key 177:10	knew 56:20	147:4 148:1,17	227:8 229:21
justification	KeyBanc 2:20	212:13	148:20 149:25	230:1,19,19
156:13	35:13,18	knit 202:25	152:20,22	233:22 234:3
justified 156:12	keystone 126:12	know 7:3 20:11	153:3,19 154:5	234:20,25
justify 87:5 231:7	Khandros 3:14	24:22 26:19	154:12 155:4	236:17 237:6
250:11 277:19	216:10 245:9	28:25 61:15	155:13,20	238:20 239:11
	253:21 287:13	64:12,16 65:21	156:9,16 157:9	239:24 240:11
	kick 165:5	66:22,25 67:7	157:14,20	240:21,23
	198:14 216:23	67:19,23 68:7	161:11,12,22	241:20 242:5
Katie 3:16 45:3,7	kid 206:10	68:13,14,15,18	163:11 164:2	243:11 245:2,5
47:12 61:23	Kinak 3:15	68:23 69:3,6,9	165:13,17,17	245:21 248:7
86:19 87:24	214:14,15	69:10,15,25	165:23 167:2,5	249:4,7,20
89:16 91:8	233:8 247:21	72:12 73:21	167:6,9,16,20	250:1,11,16,18
110:5	270:6 288:17	75:1 77:5,13,13	168:6,7,15,22	251:5,9,11,13
keep 6:22 12:20	kind 53:7 68:7	77:18,22,23	168:23 169:19	251:16,18,22
32:7,21 38:14	78:1,16 80:14	78:7,15,21	170:8,17,20,22	251:23,25
57:3 89:24	82:21 89:15	79:14,16 80:18	170:23 171:5	252:2,9,24
108:18 129:21	99:9 108:22	83:10 84:1,2,6	171:11,13,15	253:2 255:13
145:10 153:10	123:10 124:25	84:9,17,21,22	171:16 172:17	256:23 257:5
159:20 180:7	126:12,12	84:23,24 85:4,9	173:1,1,6,9,10	257:11,23
180:22 190:13				
220:25 235:9				

259:13,16	62:15 66:3	117:18 134:13	193:20 246:15	letters 143:9
260:10,12,17	129:9 277:18	154:2 157:5	leave 26:10 41:2	293:24
261:4 263:9,15	278:9 288:20	188:20 193:23	93:15 100:7	letting 27:13
263:16,18	288:24	196:24 197:5	118:24	180:24
264:9,15,19	language 255:2	197:15 198:22	leaves 21:12	level 57:18,21
265:4,10,13	large 24:4 25:2	206:20 228:5	lecturing 144:4	66:22 72:24
266:12,17	54:9 68:4 79:3	278:22	led 26:8 56:8	82:11 85:10
267:8 268:5,21	91:1 94:19,19	launch 86:25	57:23 58:15	111:21 132:8
268:24 269:5	125:16 135:7	114:4 279:24	73:24,24 79:6	139:3 206:2
269:23 271:18	140:3 152:24	283:15	143:25 160:8	237:12 248:25
271:22 273:3	152:24 165:16	launched 37:1	201:1 213:13	252:9 255:7
273:13,16	169:25,25	59:9 96:21	221:4 227:3	262:6 275:24
275:4,11 279:4	177:8 207:21	103:25 104:1	231:20 288:9	292:1 294:17
279:4 280:7	207:24 215:6	136:17 174:3	288:10	levels 28:3 46:21
281:16,23	216:4 237:5	launching 41:11	leeway 106:22	99:18
283:9,9,25	244:12,17	235:19	left 22:15 130:3	leverage 86:13
284:1,3,18	largely 70:5	law 164:5	184:7 200:9	160:9 164:9,15
285:25 288:25	131:20 137:10	laws 220:15	201:4 204:15	leveraging 69:10
290:6,24	170:2 176:1	lay 209:14	244:13	69:11 278:2
291:24 293:9	larger 32:11	layered 204:1	legacy 56:19	levers 86:13,16
knowing 57:19	142:3 200:23	layering 145:10	legal 61:14	liability 246:23
165:14 266:15	203:16 215:9	lead 20:4,16 26:5	196:13	liable 109:5
278:20	237:12 249:9	46:6 138:14	lending 199:2	licensed 65:13
knowledge 206:2	largest 24:14	219:16 227:1	length 45:18	lies 53:25
known 7:4 14:10	46:18 76:23	230:21 236:5	lengthy 7:9	lift 284:24
15:7 30:21	80:18 98:15,16	248:2	lens 128:6,7	lifted 105:20
35:22 284:9	106:20 217:1	lead-in 183:9	271:25	light 204:16
knows 10:24 83:8	lastly 136:14	leaders 35:16	lessons 39:7	244:21
110:25 176:16	220:7 255:21	leadership 6:9	246:14	lighting 239:20
215:20 253:3	late 271:2 275:7	34:11,12,14	let's 19:1 21:1	liked 196:22
Kolchin 3:16	279:23	132:3 149:3	34:18 35:7	233:16
45:3,6,7 61:25	late-night 294:11	181:1	54:14 61:10,22	likelihood 111:2
87:25 110:7	latencies 15:22	leading 56:4	62:20 63:24	201:6
KYC 195:7	228:11,13	222:25 245:16	88:22 110:22	likened 76:16
Kyleigh 295:9,19	latency 56:24	leads 20:21	117:8 136:20	liking 236:19
	64:4 73:4 114:9	248:11 249:14	143:3 149:2,2	limit 20:3 24:21
	218:6 220:20	leagues 252:12	149:12 150:25	57:19 65:1
L	latent 142:13	252:13	153:12 176:8	141:4 144:25
labeled 30:13,14	Lauer 3:18 47:16	leak 240:2	228:20 229:18	145:7 147:5,17
30:17,21	47:18 72:12	leakage 23:18	238:19 239:13	160:23 238:23
labels 257:14	75:11 76:2 91:1	135:22 203:19	242:3 250:16	239:8,8 242:13
lack 37:12 66:10	92:22 112:23	239:23	250:17 257:13	292:14
66:19 73:25,25	113:2,17	leaking 287:19	261:13 283:19	limited 66:20
129:9 153:8	117:21	leaks 240:3	287:10 290:12	203:15 231:6
184:11	Lauer's 82:2	leaning 192:15	294:9	limiting 251:4
ladder 264:4	Laughter 6:18	243:10	letter 74:16	267:25
laid 137:10	19:2 47:14 54:4	learn 21:2 95:20	100:15 148:12	limits 140:20
152:16 262:24	75:12 101:5	212:13 216:25	149:17,18	line 7:23 112:16
271:5	113:1 117:11	learned 39:8	228:7	196:21 218:2
landscape 26:9				
47:1 61:19				

274:7	269:14	257:7,9 272:13	92:1 94:16	39:22 79:18
lines 52:6 71:11	listings 95:7	lock- 166:17	98:22,25 99:18	89:17,19 90:9
192:22 246:24	113:19,25	lock-cross 167:7	101:12,22	100:4,6 107:7
linkage 30:13	114:1,4,10	locked 30:22	102:14,16	109:13 110:21
linked 104:14	181:21 209:2	44:21 73:11	103:16 106:9	111:15,24
154:10 292:7	219:8	122:9 128:1	107:19 108:5	113:6,6 114:12
liquid 46:18 74:9	lit 58:7 85:12	130:2 135:10	108:25 110:21	119:9 124:19
74:11 84:8	134:5 142:9,15	143:17,20,22	113:4 119:20	128:9 139:18
142:16 207:3	173:21 174:9	144:5,9 145:24	119:21 128:11	151:8 159:11
liquidity 17:14	175:17 176:7,9	146:7,10,12,22	130:10 132:20	171:16 187:19
19:12 20:17	177:2,6,15	147:11 148:5	135:14 138:9	187:22 206:6
24:24 25:1,9,11	178:1,1 180:22	165:21 166:12	138:21 143:3	207:19 208:17
28:14,17,23	188:6 239:18	169:20,21,24	144:1 148:16	235:17 272:4
29:3,6,16 37:19	249:15 261:4	170:9,11 218:3	148:17 154:13	279:19 280:19
42:7,14 53:19	literally 52:15	locked-in 140:18	160:18 163:19	284:5 288:24
53:21 56:12	104:1 237:9	locking 170:6	164:21,22,22	288:25 293:25
59:23 60:14	245:16 253:24	171:18 172:5	171:1 175:3	looks 26:24 161:2
64:10 67:5 74:4	literature 67:13	locks 167:25	182:5 184:12	loosely 81:24
74:6,8 79:24	165:2	171:21	185:6 186:18	lopsided 256:3
80:5,15,20,23	litigation 140:23	logic 159:2	192:5 193:10	Los 14:14
83:16 90:9	little 41:8,13	long 40:20 43:9	193:13 194:3	lose 146:17 222:8
129:18 134:5,9	48:21,22,23	121:23 130:7	195:23 203:11	286:3
142:13,17	51:8 53:2 83:5	143:23 159:19	204:20,23	losers 75:23
152:18,19,20	92:14 98:5	162:24 173:6	211:10,22	loss 86:10
155:11 166:2,6	116:1 122:17	174:4 201:12	217:6 219:5,18	lost 48:13 181:25
168:3 170:5,10	131:5,15 135:5	203:9 257:2	222:5 223:12	259:24
174:9,9 175:6,7	139:25 148:11	275:20 292:13	227:20,22	lot 7:1 24:8 26:18
175:9,12,23	149:8 152:1	longer 23:9 50:18	237:3,19	28:24 41:23
177:9,18,20	157:8,17 158:2	89:22 103:23	247:11 250:1	50:16 51:12
178:16 179:8	161:21 171:9	135:6 177:21	251:17 258:16	53:19 54:6,17
188:6 200:20	174:24 184:10	178:16 217:17	262:2 270:11	54:17 65:14,22
202:21 203:15	184:19 189:12	220:20 236:21	270:23,24	65:23 69:11
213:9,21 232:2	194:5 199:24	251:2 255:4	271:19 272:5	71:1 74:7 76:5
233:21,23	209:10 219:3	263:3	274:9 279:2,15	78:5,8,10,20,21
234:24 235:1	238:18 241:16	look 6:9 10:20	279:21 283:2	78:23 81:22,24
236:3 237:7	256:15 258:5	16:18 18:6 19:7	286:21,24	82:5 83:10,17
241:5,6,6 246:9	266:25 271:22	19:9 25:15 27:1	287:2	84:12 85:16
246:10 267:23	276:5 281:2	38:18 39:11	lookback 27:13	86:16 88:4 90:1
268:1 269:8	284:2,8 288:18	42:17 44:23	27:18,22,24	90:11,11,14,16
282:19 290:8	288:23	47:8,10 49:23	28:6,7 127:25	91:11 92:5 95:1
list 106:24 117:10	Liu 13:19	53:23 54:12	137:18	98:17 99:3
117:21 183:23	live 21:18 107:5	58:13 60:17,21	looked 25:12	102:20 105:13
212:16 214:17	128:21 219:15	61:2,15 63:4,11	53:7 66:11 70:8	106:11 108:13
256:12	220:19 268:10	64:19 67:19,20	70:9,14 139:19	110:25 112:20
listed 17:15 37:5	271:17	67:24 75:3,14	143:19 154:7	115:12 117:12
110:13 139:22	lived 106:6	75:19 78:14,16	170:7 180:11	120:5,15
154:14	Location 295:7	78:21,25 79:3,8	219:12 286:23	124:23 135:2
listen 226:8	lock 165:22 167:7	80:2,7 85:18	looking 6:21 9:23	135:19 136:5
listening 152:6	167:22 172:23	86:23 91:18	27:25 29:2,8,15	137:14 139:1,2

143:25 144:8	147:14 159:18	73:16 96:20	Manoharan 2:9	62:13,15,25
145:19 147:15	188:3 230:17	141:20 245:17	18:12 26:13,17	63:7,19,20,21
147:15,17	love 67:25 94:5	246:6 258:9	26:19	64:1,10 65:8,10
150:12,13,18	98:8 147:1	majority 22:5	manpower 90:17	65:19 66:18
150:19 151:6	149:3 153:11	23:8 25:14,16	manual 137:23	67:7 68:15
151:24 153:20	257:7	26:2 31:12 85:1	138:6 171:13	70:10,15 72:19
157:10 159:24	low 21:16 46:20	152:24 169:16	216:6 219:14	72:22,23 73:6
164:2 165:10	90:16 106:14	244:17	291:9	74:10 76:24
166:4 167:6	146:5 220:19	maker 49:3 98:15	manually 56:15	77:19 78:7,25
168:10 169:19	low-priced 84:7	98:18 164:2	Mao 79:18	80:8 86:25 87:1
171:19 172:8	lower 23:16 53:9	171:18 236:17	Marathon 225:9	87:13,17 89:1,3
172:14 173:13	72:24 104:19	238:24 271:7	March 37:5	91:13,14,20,21
175:15 178:7	109:24 132:12	makers 72:19,22	margin 87:6	92:1,6 94:8,20
180:8 181:16	136:14 200:7	72:23 76:24	margins 118:4	94:24 95:10,15
182:24 183:22	229:9 232:21	122:15 128:18	mark-out 257:19	96:14,14 97:14
184:8,12,24	234:17 252:22	145:23 160:9	258:16	98:3,12,15,18
185:9 186:23	lowered 103:20	164:20 166:2	mark-outs 261:1	98:23 99:8
187:1 192:25	lowest 27:14	202:24 230:7	marked 272:6	101:13 103:1,6
193:13 195:6	150:6 268:22	233:12 268:20	marker 15:11	103:11,21,23
198:8 208:9	270:19 281:7	making 11:8 23:4	market 5:7,11	104:8,13,14,15
209:8 210:15	luck 205:2	42:13 45:25	7:17 8:18 9:10	104:16 105:14
217:1 218:7	Luckily 210:11	46:13 52:4 69:5	10:22 11:8,16	106:1,11 107:4
221:10,16	lucrative 193:15	69:13 83:14	11:19 12:5,7,16	108:3,5,25
226:18 228:24	lumped 124:25	86:5 133:11	12:17 13:1,5,9	109:1,22
229:21 232:17	lunch 17:22 20:9	137:3 140:19	13:11 15:2,14	110:11,14
233:19 246:16	120:22	142:12 155:11	16:5,16 17:1,9	111:17,24
247:3,14 248:2	luncheon 120:24	176:6 181:8	17:17,20,24	112:1,14
248:11 249:14	Lynch 55:17	196:16 205:21	19:15,23 20:5	113:19,22
251:19 253:13		209:18 227:17	21:4,13,15,16	114:13,22
254:5,20	M	241:15 249:22	23:3 24:1 28:22	115:3,22 116:2
255:14,20	MacKenzie 3:19	266:10 284:9	30:7,17 31:1,21	117:13 118:1,8
256:7 264:4	133:1,2,6	man 180:7	32:1,3,4,7,19	121:15 122:1
265:1,19 266:4	134:14 147:25	Management	32:23 33:14	122:15,19
267:15 270:24	154:4 156:22	3:24 52:12	34:1 35:2 37:4	123:6,8,15,25
271:3 272:1	156:25 168:19	manager 237:5,6	37:13,16 38:25	124:24 125:2,4
273:17 274:19	188:19,21	managers 36:5	39:2,4,5,10,12	125:15 126:2,8
276:25 278:4	magnitude 52:6	125:17 218:13	39:14,17,18	126:9,20,23
282:5 283:7,9	133:22 141:13	237:19	40:15,20,23	127:12,16,18
287:8 288:3,10	main 19:6 24:10	managing 35:18	41:16 43:17,23	128:11,16,18
290:13 291:15	101:11 129:19	165:9 261:1	44:11,17 45:8	129:6,11,13,14
291:17	141:3 245:9	mandated 190:4	45:11,21 46:1	129:19,23
lots 27:8,8,10,11	maintain 11:5	217:16	47:25 48:11	130:3,9,12,23
27:22,23 28:1,3	44:3 210:17	mandating 190:9	49:2 50:7,18	131:10 133:11
28:6,6,9,11,18	232:20 278:6	200:25	51:23 52:14,14	133:16 137:3
29:3,10,13 58:3	maintaining 69:3	mandatory	52:22 53:11	137:13,16,20
78:14 83:1,17	69:4 159:8	288:10	55:13 56:6,9,15	137:22 139:13
83:20 84:11	232:11	manifests 68:7	57:4,8 58:1,11	139:18,23
85:18,20,23	maintenance	manifold 15:21	59:19,24 60:19	140:11 141:3
144:18,20	69:2,3,16	manner 76:19	61:17 62:2,5,11	143:20,22
	major 20:15 37:2			

144:3,5,5
 145:17,23,24
 146:3,4,7,8,9
 146:12,20
 147:13 149:21
 150:21 152:13
 153:7 155:6,16
 156:2 157:16
 157:21 158:5,7
 158:8,11,13,15
 158:18 159:4,6
 160:9,11,15,16
 160:18 161:19
 162:3,4,9,20
 163:3,20 164:2
 164:16,18,19
 164:20 165:20
 166:2,9,13
 167:22,25
 169:24 170:1,1
 170:6,9 171:17
 171:18,18,24
 172:23 173:10
 173:21,22
 177:2,3,6,14
 179:13 180:22
 181:13,17,20
 181:21 182:4,6
 182:8,14,18
 185:20 186:1,4
 188:24 189:2,5
 191:8,13 192:7
 192:9,19 194:4
 195:3,5,5,13,14
 195:21 196:1,4
 199:13,15,17
 200:9,10
 201:19,20
 202:12,18,24
 203:9,18
 206:14 207:8
 208:4,7,13
 209:8,15 211:6
 211:14 212:11
 212:13,19
 213:9,24 214:5
 215:13 218:9
 218:18 219:21
 220:9,16 221:3

223:5,7,11
 224:2,10,24,25
 225:1 229:15
 229:23 230:7
 230:18,23
 231:4,22 232:9
 232:21 233:12
 236:17 238:1
 238:24 239:11
 243:12,15,16
 243:25 244:1,5
 244:11 245:6
 246:4,13,18,19
 248:3,5 250:14
 250:16,18,20
 250:20 251:3
 251:23 253:20
 255:23 256:21
 256:23 257:20
 257:22 258:13
 259:11 260:16
 260:19,24
 263:25 264:2
 265:3,22
 266:21 267:22
 268:12,20
 269:7 270:2
 271:7 272:4,5
 272:13 274:12
 277:10,11,22
 278:10,12,14
 278:15 279:20
 280:19 282:3
 282:20 284:9
 284:15 285:15
 286:14,15,23
 291:2,19
 293:20
market's 8:19
 87:2 270:15
 291:25
marketable 141:6
marketplace 8:4
 36:5,15 41:17
 60:9,13 72:3
 74:25 102:24
 103:25 111:20
 115:1 132:16
 142:12 147:23

193:18 199:19
 202:23 203:21
 230:14 233:19
 244:20
marketplaces
 86:17 103:5,18
 104:9 105:1,5
 105:12 126:1
markets 2:11,20
 3:11,16,21 6:6
 8:21,22 9:1,7
 9:12,22 10:17
 10:24 11:2,6,13
 12:10,12,21,25
 13:3 14:6 15:7
 15:12,15 16:8
 16:11 17:3 18:7
 18:23 20:6
 30:10,11,20,23
 31:4 35:13,18
 36:9,12 38:3,12
 38:16 39:22
 40:12 41:4,11
 42:21,25 43:6,6
 43:8,10,13 44:5
 44:9,9,21 45:1
 45:2,4 46:16
 47:2,5 48:7
 51:1,4 52:9
 55:7 59:4,13,22
 60:2 62:8 64:5
 66:15,23 73:11
 85:2 87:13
 93:11,12 94:3
 97:2,3,9,19
 99:12,16,22,25
 102:8,11,16
 103:2,9,10
 104:4 107:13
 107:22 109:5
 110:9 116:5
 118:16 125:15
 125:18 126:3
 128:1 129:16
 130:20 131:1,2
 131:9,17 132:1
 132:14 133:15
 133:15,21
 134:18,24

135:10 137:4
 137:23,23
 138:6,8 141:17
 141:22,24
 142:6,10,16,16
 143:17 144:3
 145:17 147:12
 148:5 149:18
 150:20,20
 152:19 155:11
 156:17 165:21
 166:13 169:20
 169:21 170:11
 171:13 173:5
 173:15 175:13
 176:7 179:13
 181:9,10,11
 186:8 188:6
 189:22 190:1
 191:22 192:16
 193:8,11
 194:11,13
 197:2 198:7
 200:4,15,17
 201:14,16,21
 202:12 204:1,5
 204:8,12
 208:16,18,20
 210:15,17
 211:24 212:9
 213:5,12
 215:22 216:3,5
 216:16 218:9
 221:15 222:3,7
 222:21,22
 223:1,6,16
 224:9,10
 226:24 227:13
 228:25 229:6,8
 229:18 233:1
 234:6 238:5
 242:1,20 243:3
 253:8 259:9
 261:4 263:12
 264:2 266:17
 269:1,1,4
 270:20 272:1
 276:14,14
 282:12,22

285:9 287:24
 288:1 291:9
 293:10,17
markets' 141:16
massive 48:16
 101:17 179:15
match 127:18
 228:12
matching 57:1
 90:19 268:16
 291:16
material 31:20
 40:14 103:13
 136:11 139:9
 220:2 281:3
materially 70:25
 141:14 142:3
 177:19
Mathison 2:10
Mathisson 18:12
 18:14,15 19:3
 61:18
Mathisson's 51:8
Matt 2:23 3:19
 133:1,6 147:24
 151:20,22
 154:3 156:16
 188:10 190:12
 226:11 228:22
 231:9 233:10
 242:3 270:5
 284:12
Matt's 151:23
 153:12 285:8
matter 71:24
 72:4 78:15,15
 143:11 158:16
 295:3 296:6
matters 8:22
Maureen 3:23
 52:11,13,17
 55:1 67:13
 77:22 82:9 84:6
 90:11 118:20
 118:25 270:16
maximum 238:13
mazes 214:7
McGinnis 295:9
 295:19

mean 29:1 46:25 67:17 82:4 83:23 105:21 105:25 110:7 112:14 115:12 117:6 146:21 164:23 165:8 174:18 187:19 203:8 220:12 250:10 257:18 264:17 266:6 267:1 269:17 275:10 280:14 286:19	118:22 161:17 208:8 247:2 Mecane's 153:12 mechanics 97:23 200:7 mechanism 268:20 277:14 279:8 mechanisms 99:22 106:23 107:11 207:6 252:6 268:4 medallion 115:5 259:7 268:15 medallions 259:4 259:4 279:22 279:25 283:14 283:24 median 58:4 Meeks 162:18 meeting 7:16 88:8 259:18 278:1 294:21 meetings 210:6 Mehmet 3:15 214:15 216:11 218:11 228:22 247:20 249:18 254:9 270:5 291:5 292:4 member 24:6,8 24:12 205:13 222:24 238:11 members 14:8 18:24 32:17 36:5 45:9 88:2 90:11 110:16 129:1 155:7 194:15 231:13 276:12 281:8 membership 24:10,11 36:4 memory 256:15 MEMX 3:12 129:2,5,6,12,15 130:6 mention 106:19 mentioned 34:24 37:22 44:13	50:1 60:23 61:1 61:8,16,18,23 62:2 64:19 66:9 69:25 70:7 84:7 94:1,2 101:18 102:23 104:6 139:3,25 140:18 164:1,1 183:23 185:22 188:2,14 208:8 232:17 242:21 247:3 252:2 254:12 261:11 263:10 273:23 286:8 294:7 merely 278:1 merit 11:3 41:21 207:11 247:3 254:6 255:14 Merrill 55:17 mess 133:9 214:2 message 105:10 messages 28:20 101:23 messaging 95:8,9 met 122:6 metric 40:9,13 metrics 190:3 232:15 255:19 Miami 59:9 MIAX 4:7 58:21 59:1,1,4,8,10 59:21 60:7 86:23 96:21 97:11 109:13 111:14 mic 106:19 227:8 Michael 2:15 38:23 Michelle 197:8 micromanage 195:10 271:14 micromanaging 196:20 microseconds 64:3 220:3 234:13 Microsoft 143:18 microstructure	52:14,15 221:19 mid-book 64:25 mid-cap 212:25 mid-caps 274:18 middle 70:11 midpoint 127:13 176:12 260:18 mids 212:15 migrate 39:22 migrating 93:8 migration 40:9 Mike 33:18,18,22 36:20 43:1 47:18 50:5 52:18 67:22 120:19 mil 163:16,17 282:1,4 milder 31:1 milk 210:8 Milken 2:15 33:19 million 51:11 55:16 65:3 68:23,25 70:17 70:19 95:4,5,5 99:7,7 100:12 127:23 152:17 163:13 190:18 226:22 237:13 270:8 millions 143:13 215:8 226:24 milliseconds 64:2 161:4 257:23 257:23 mind 12:20 32:7 32:21 81:11,13 81:23 101:9 133:18 153:11 220:25 221:13 247:22 272:25 285:13 minds 85:8 142:11 146:17 minimal 277:13 minimis 80:25 128:4 230:17	261:13 minimizing 141:5 201:21 minimum 8:15 71:14 75:16,17 114:22 142:20 207:16 246:13 288:5 minute 116:11 124:6 205:25 285:5 minutes 54:25 122:21 133:10 253:24 261:8 mirror 8:20 miscategorized 179:1 misnamed 54:2 missed 139:4 142:5 177:17 mission 11:5 41:5 132:15 204:20 223:15 missteps 202:9 mistakes 204:11 mitigate 135:20 mobile 251:20 model 17:4 49:3 70:22 118:2 160:8 211:7 250:15 258:6 259:5 263:18 274:5,6,22 290:21 models 9:5 284:1 289:3 moderate 208:3 moderated 205:10 moderating 34:1 222:18 226:5 moderation 120:20 moderators 2:13 7:1,18 10:19 13:21 199:1 modern 36:12 47:1 48:7 123:23 271:16
--	---	---	---	--

modernization 36:8 56:22	45:24 72:8 90:21 92:8,21	38:24 43:4 55:8 58:20,25	78:24 85:5 97:19 109:20	95:1 96:15 97:8 98:5,11,12
modernize 38:15 47:5,24 223:9	93:23 102:7 118:6 138:8	109:11 123:2 125:13 133:6	117:14 127:13 128:19,20	101:2,15 104:7 105:7 112:20
modernized 60:9 231:14	151:14 153:13 155:1 156:20	134:23 199:23 206:21 208:23	129:17 134:1 175:18,21	112:22 119:11 123:13,24
modest 129:23	172:10 174:25	212:3 214:14	177:11,25	129:11 130:1
modifications 279:1 282:12	175:14 219:2 233:14 244:22	222:19 243:22 274:9	178:4,12,15,19 179:16 180:23	135:4 142:23 142:25 144:21
modified 242:2 253:9	257:22 258:13 261:3 284:11	names 7:7 40:1 74:9 109:9,25	187:19,21 188:3,4 189:2	148:16 149:16 151:9 152:17
modify 289:17 292:22	291:25	110:1	191:25 203:16 210:4 219:24	153:7 154:19 163:21 172:24
modifying 126:16 262:18 270:23	moved 14:17	nanoseconds 64:3	220:11,13 221:9 235:6	163:21 172:24 175:11 178:5
mom 218:14 288:15	movements 45:16	narrow 46:20 231:25	237:24 238:7 249:8 251:11	180:21,22 182:16 183:6
moment 56:18	moves 166:9	Nasdaq 3:13 130:16 131:1	255:12 258:3 258:11 260:17	185:1,6,7,17 186:5 193:17
moments 199:6	moving 45:22 46:23 62:3	131:23 139:21 140:4,6,8 155:1	260:18,19 265:18,24,25	196:12,15 210:16 212:18
momentum 152:3	130:4 132:6,7 219:13	179:1,2 194:15 194:18 283:4	272:17 276:6 285:17	219:24 220:25 225:12,19
money 87:17 146:6 196:18	MSAC 273:20	283:12	NBBOs 251:21	228:17 232:19 240:4,16
218:13 250:6 279:13	multi-leg 94:18 154:10,20	Nasdaq's 140:6	near 199:7 272:9	244:19,23 245:22 249:9
monitor 235:3	multiple 20:22 22:22 45:13	national 14:13 15:2,14 19:22	nearly 31:2 59:11	251:9,25 253:9 257:1,5 259:7
monitored 121:5	59:4 127:17 259:3,4,9	28:18,19 29:4 29:10,13,17,19	73:13 95:3 223:6	260:2,19 263:3 264:22 267:1
monopoly 73:17	multitude 169:4 169:4 260:3	29:22 43:23 54:1,3 62:12	necessarily 14:6 18:23 24:14	269:3,5,5 271:15 276:4,4
monthly 261:18	mutual 93:18 215:11	76:24 111:4 123:8 199:13	25:8 39:10 75:23 79:16	277:25 278:16 289:16,18
moon 258:7	myopic 202:4	200:10 201:1 201:19 256:4	82:16 90:7 99:4 118:11 161:19	292:8,9
Moore 2:16 205:13	myriad 116:23	270:17	169:5 198:19 230:5 256:25	needed 11:8 12:14 38:10
Morgan's 206:23	myriad-minded 14:23 18:9	natural 175:13 178:16 193:14	281:17	104:14 120:21 129:10 135:16
morning 6:2,19 10:11 35:14	<hr/> N N 5:1,1 6:1 121:1	230:21 251:22	necessary 50:18 141:19 145:18	129:10 135:16 243:20 291:7
36:21 37:23 38:23 45:6 55:4	121:1,1	naturally 277:1	145:19,19 168:25 203:17	needs 114:20 118:22 126:20
58:24 122:4 144:19 150:14	N.E 1:25	nature 39:3 95:13 111:3	216:1,2,7 225:20 229:1	156:8 182:10 223:8 227:9
158:3 159:6 160:6 190:17	Nagy 3:21 134:17 134:19,23	188:24 230:12 244:2	necessitate 16:14 need 9:19 32:20	244:25 255:2 265:12 276:13
199:5 208:8 270:16 289:5	143:1,3 149:14 161:15 182:21	nauseam 133:19	36:11 40:16 44:18 49:11,12	290:2,2 negative 57:5,12
morning's 139:5	184:1 189:12 193:7,21 194:7	navigate 48:6	60:14 65:24 83:3,3 84:20	135:20 159:24
Morris 296:3,17	nail 76:16	NBBO 28:21 31:9,10,12 44:3		
mouth 116:9 279:13	naïve 235:20	54:1 60:13 65:3 74:1 77:12		
move 8:7 12:19 45:13,16,20,23	name 6:5 18:15 26:19,20 30:3 33:11 36:22			

192:7,18 237:21 negatives 50:25 108:1 neither 49:17 230:15 nerves 45:17 net 46:4 55:14 228:16 291:9 network 142:2,3 269:22 networks 142:2,2 never 7:13 40:13 75:10 85:8 229:8,9,10 233:16 254:16 291:7 new 3:10 10:25 12:23 15:4 21:18 34:6 41:17 42:11 48:6 54:17 56:8 56:8 75:3 86:25 103:1,24 104:4 104:9 105:5 114:3 115:16 115:17 116:7 139:23 142:24 150:16 158:19 162:6,18 165:9 169:9 172:22 180:5,6 181:20 194:13 196:11 199:15 209:3 212:6 217:19 219:4 232:12 236:5 241:2 248:21 256:18 263:25 264:2 264:11 271:16 277:7,11,25 279:24,25 280:13,17 281:1,16,22,24 283:14,20 288:22 289:1 292:1 Newcomers 245:23	nice 79:18 198:13 285:9 nickel 238:20 249:11 274:19 nine 139:20,20 213:5 273:23 279:22 Ninety-eight 101:22 Nirvana 170:8 Niyo 48:11 NMS 7:4 8:14 14:25 15:6,13 17:11 20:2 22:12 25:25 28:12,23 29:5,9 29:12,18,22 36:10 37:24 44:17 47:5 48:4 49:8 56:3,5,17 56:21 58:10 59:16 61:3 62:10 69:8 70:1 72:15 74:17 125:24 126:11 126:14 127:9 136:12 137:7 137:24 140:12 143:10 144:8 145:4 156:8 179:24 191:16 191:18 192:12 199:5,12,12,17 200:1,21 201:23 203:11 203:23,25 204:9 212:12 213:3,7,10 218:2,4 223:3 273:24 286:22 NMS's 201:13 no-trade-throu... 42:10 Nobel 217:12 noise 10:9 non- 42:1 non-discussions 192:17 non-display	179:23 non-displayed 53:18,21 79:4 79:24 83:16 145:2 182:1 268:17 272:2 279:15 non-exchanges 80:17 non-lit 66:23 non-one-second 127:25 non-protected 82:18 109:8 non-routable 169:13 nondifferentiat... 41:11 103:11 nondisplay 170:5 nonissues 147:13 nonprofit 122:17 nonprotected 65:24 nonsensical 169:23 177:7 nontrivial 171:9 Nope 92:19 north 130:25 251:14,15 253:3 265:7,13 265:18 note 35:3 65:7 105:25 125:24 126:3 146:15 191:2 217:4 224:21 243:23 246:1 254:13 noted 148:4 168:2 178:23 199:11 201:17 219:2 230:16 nothing's 162:15 notice 293:3 Notices 243:21 noticing 235:4 noting 246:16 254:7 notion 41:7 81:17 103:4 141:16	145:23 156:1 177:7 186:6 194:23 195:9 234:25 notional 194:4 notionally 194:3 notions 292:12 Notre 2:22 228:1 novel 127:10 209:3 NPGBO 54:2 NPGO 175:18 270:17 NSCC 252:18 264:19 nuance 221:18 nuances 39:4 number 15:16,19 16:4 17:12 23:22,25 24:4 24:19 25:2,13 27:8,17 28:18 28:19 29:3,16 29:24 39:3,4,5 63:6 70:6,25 71:1 87:4 89:5 104:25 107:13 122:3,13 126:11 134:2 139:8 149:17 154:9 163:13 171:2 178:7 179:8 183:12 190:6 195:4 197:9 202:22 209:22 217:19 218:1 245:18 254:13 258:6 261:20 262:1 263:8,10 270:25 271:24 278:15 285:14 290:9 295:5 numbers 62:17 62:18 63:14,16 64:13 66:13 69:22,23,25 77:25 84:9 86:22 88:24	90:15 99:6 137:16 228:13 247:11,13 281:7 291:11 numerous 16:7 20:20 52:13 59:16 Nunes 3:22 136:23,25 137:2 144:23 146:25 155:19 166:16 171:2 178:21 185:5 191:17 194:23 NYCE 79:20 NYSE 123:20 <hr/> O <hr/> O 5:1 6:1 121:1,1 121:1 O'Hara 52:11,18 54:5 67:16 77:25 119:1 270:17 O'Hara 3:23 objective 11:22 201:16 282:20 objectives 47:5 62:10 122:5 129:18 141:2,3 196:15,19 obligation 156:5 183:18 192:9 242:19 obligations 12:5 32:23 38:11 71:3 117:15 124:3 187:18 191:4 196:14 227:17,18 242:8,11 244:9 obscene 86:23 observations 29:9,18 107:16 observe 161:2 observed 207:7 obtaining 11:21 obvious 76:17 77:3 201:24 obviously 41:22
---	--	---	---	---

41:24 67:7,10 68:8 77:7 91:18 94:11 95:19 105:22 106:19 106:25 107:13 119:6 145:4 187:17 192:21 211:18 239:9 241:12 272:14 273:20 286:20 occur 31:10 127:20,24 242:1 occurred 27:9,15 27:17 152:9,10 occurring 127:22 170:11 176:16 occurs 180:15 octopus 45:12,21 45:23 46:14 47:13 49:4 61:24 116:25 117:1 123:6 206:12,13 octopus's 45:17 odd 27:8,10,23 28:3,6,11 53:19 54:6 58:3 74:7 78:5,8,10,14,20 78:21,23 83:1 83:17,20 84:11 85:18,20,23 136:5 144:18 144:19 147:14 147:15,17 159:18 188:2 off- 70:13 73:25 106:24 148:18 148:21 272:19 off-exchange 15:18 63:14 80:23 94:11 99:20 148:25 151:6 164:18 174:6 180:11 180:19 239:4 256:1 274:14 offense 70:8 254:22	offer 6:14 27:15 38:11 43:24 54:1,3 79:9 147:25 201:1 249:5,6 260:23 270:18 278:1 offered 215:12 238:20 offering 64:9 231:2 232:13 offers 19:17 24:23 257:17 office 2:8,9,10 17:6 26:13 30:4 90:17 228:9 officer 36:23 43:5 219:5 official 14:4 18:22 296:17 offsetting 263:20 oftentimes 165:23 170:4 215:9 oh 94:2 172:3,9 184:18 239:16 259:24 260:1 okay 61:25 75:19 143:4 157:6 167:21 170:14 172:9 196:6 242:9 262:15 265:10,13 273:4 275:17 289:17 old 14:15 33:17 58:12 59:11 123:20 135:5,6 136:15 143:8 189:16 200:3 261:24 older 59:12 omnibus 279:17 on- 63:11 97:25 180:13 on-demand 191:23 on-exchange 60:14 108:25 140:13 180:11	180:12 214:10 onboarded 103:2 104:23 onboarding 68:8 68:13,22 once 23:10 29:17 42:16 73:23 104:21 123:11 143:11 204:17 287:7,12 292:8 294:14 one- 205:24 268:19 one-off 173:7 one-second 27:13 27:18 one-size-fits-all 74:10 231:20 248:23 one-third 21:22 OneChronos 3:14 181:12 216:13 217:13 217:18 218:5 245:14,21 254:12 288:9 ones 24:4 25:6 35:10 74:23 93:4,13 105:5 124:2 128:20 212:18 250:19 281:16 288:24 294:1 ongoing 9:16 32:24 57:14 69:2,15 89:23 104:19 online 6:4 oof 181:22 open 149:4 150:25 152:18 153:11 176:10 opened 190:18 opening 5:3 60:23 61:1 64:20 66:9 67:15 94:7 107:6 108:8 109:2,15	141:12 155:16 190:17 199:18 239:17 openly 202:8 openness 210:24 287:4 operate 37:9 43:6 94:3 95:11 96:23 99:22,22 105:22 106:19 141:25 148:2 232:20 260:11 268:11 operates 9:4 59:4 107:13 108:14 117:14 129:12 155:22 224:23 224:25 245:15 286:13 operating 30:20 37:20 43:5 70:22 85:16 147:22 193:10 operation 188:25 operational 9:6 operations 131:4 138:14 operator 129:10 158:21 opinion 54:21 151:23 233:13 239:6 opinions 7:8 OPP 190:8 opportunities 56:25 76:20 118:18 287:14 opportunity 33:3 33:7 36:21 43:3 50:13 59:2 63:8 96:22 116:4 125:20,21 128:23 130:21 142:5 169:1 210:21 216:15 222:15 223:9 226:8 271:19 283:23 285:3 286:7,18	288:13 opposed 67:21 119:15 127:12 166:20 opposite 24:5 25:16 opposition 83:5 OPR 7:5 70:24 74:18 91:6,19 107:6 123:4 135:17 136:6 182:11 214:25 215:18 216:1,2 216:7 217:4 233:17,17,23 235:1,9,10,15 235:17,21,23 236:10,20 237:15,16,20 237:25 238:5 238:14 239:6 240:17 241:11 241:12,14,18 248:22 249:13 256:19 257:6 259:20 273:4 274:2 280:11 280:15,19,25 281:4,11 283:2 283:3,5 289:9 289:17,21,23 290:3,10 OPRA 31:9 188:25 opt 140:2 optimistic 181:2 222:10 optimizing 265:14 opting 145:3 option 41:1,6,20 94:3 189:17 282:19,21 285:9 optional 65:2 options 8:18,22 15:20 17:15,17 19:14 30:2,7,10 30:11,16,20,21
--	--	--	---	---

30:22,25 31:1,4
 31:6,6,14,20,22
 31:24 32:1,6,8
 32:9 41:1,3
 43:7 44:9,10
 45:2,7 51:10
 59:6,9 60:1,2
 66:21 69:19
 70:13,14,16
 84:15 92:9
 93:16,23 94:4,8
 94:8,12,20,21
 94:24 95:4,12
 95:16,17,20,23
 96:1,9,14,21
 97:2,7,8,12,14
 97:15,17,19,22
 98:3,5,10,12,15
 98:21 99:3,8,13
 99:18 100:6,7,7
 100:12,25
 101:12,23
 102:5,7 129:12
 130:23 131:2,9
 131:13,21
 133:8,12,18,21
 139:12,13,15
 139:16 140:12
 149:9,10,12
 151:15,18
 152:7,7 153:7
 153:17 154:9
 154:13,20,24
 155:4,17,20,21
 155:25 157:2
 188:15,18,24
 189:5,7,11,14
 189:15,16,19
 189:21 190:1,3
 190:7,15 193:8
 193:11,15
 194:4 219:6
 247:13 268:5
 276:14 279:22
 279:25 282:9
 282:12 283:4
 283:21 284:14
 284:15,23,25
 287:13,16,20

287:21
Optiver 3:19
 133:1,7,7,10
 151:23
Optiver.com/in...
 154:24
Oracle 143:19
oranges 189:18
order 7:5 11:4,23
 11:24 12:24
 20:24 22:11
 23:18 24:21
 25:18,24 30:22
 35:8 41:14 44:4
 48:13 49:19
 53:7,17,17
 55:12 56:2,10
 61:5 64:6 65:2
 66:20 73:9,13
 74:3 76:21 77:2
 77:11,17 79:6,8
 79:21 81:1
 84:22 85:2,24
 86:2,8 93:1,9
 94:12,14,20
 95:5 96:23
 97:23 101:21
 102:15 107:1
 111:3 119:14
 119:14 123:7
 123:14 137:8
 138:15 139:13
 143:23 147:5
 147:10,20
 151:17,18
 153:9 154:10
 159:25 160:9
 160:23 161:4
 164:19,21
 165:3,4,9,11,18
 166:4,8,10,22
 166:24 167:1,2
 167:4,8,15,18
 167:19,22,23
 168:17,21
 169:11,17
 175:8 176:17
 177:13 181:13
 183:2 186:21

188:17 190:16
 191:13 193:11
 194:1 200:4
 201:7 206:17
 209:21 212:19
 213:11 215:2
 215:19 216:11
 220:10 221:11
 230:11 232:2
 234:16 235:13
 237:11,13
 238:23 239:1
 239:17 240:21
 240:21 242:12
 242:13 252:16
 257:1 258:10
 258:12 259:10
 261:25 271:23
 272:14 274:8
 275:8,13,24,25
 281:3 282:21
 284:3 289:17
 292:15
order-by-order
 11:21 77:21
 240:1
orderly 11:6
 150:20 203:21
 213:23 223:16
orders 11:16 16:6
 20:4 23:11,15
 54:7 57:19 63:8
 74:1 76:18 79:4
 79:4,7,20,24,25
 82:13 85:23
 90:4,6,8 94:15
 94:19 97:17
 98:2 103:18
 135:11,12
 136:5 139:10
 140:2,3 141:4,6
 144:25 145:7
 145:24 147:17
 152:21,21
 154:10 160:10
 165:11,15
 167:9,9 168:24
 169:4,12,13,13
 169:13 173:16

179:13 191:21
 210:3 213:14
 213:17 214:12
 236:2,24
 237:10 249:9
 256:21 260:18
 260:24 270:8
 272:2,2 275:21
 275:21 283:22
 290:6 291:23
 292:1
ORF 100:13,20
 101:1,3,3,10
 153:13,17
 283:12
organization
 125:16
organizations
 22:22,24 23:3
 122:13
organizing 38:18
original 43:20
 62:10 158:16
 201:25 261:24
 295:13
originally 103:20
 182:2
originated 25:17
 25:23 26:3
OS-0001 295:5
OTC 63:9
ought 14:18 92:1
 188:5 200:15
outcome 200:11
 232:1 233:4
 287:6
outcomes 11:11
 13:11 57:6,8,12
 203:20 208:5
 213:22 223:12
 227:24 255:11
outlier 156:18
outlined 231:15
outright 8:10
outs 10:13
outset 58:10
 125:23 175:6
outside 19:18
 31:10,12 42:12

53:4 87:14
 141:6 179:24
 239:17 249:8
 271:17 283:2
outsource 22:6
 25:15
outsourced 22:9
 25:19
outsourcing
 23:12 25:22
outweigh 291:14
over-the- 97:17
over-the-counter
 116:2 140:14
overall 34:20
 35:8 57:22
 69:17 70:21
 92:6 109:19
 112:14 130:7
 145:25 208:1
 209:23 232:17
 233:3 275:23
 275:25
overarching
 201:13
overestimated
 141:12
overhead 172:14
overlook 283:16
overly 270:14
overrides 241:13
overriding 290:4
oversee 130:25
oversees 55:11
oversight 201:18
 202:4 278:6
overview 34:20
overwhelming
 169:16
overwhelmingly
 176:8 177:22
Owens 2:14
 121:5,16 124:8
 125:10 126:25
 128:25 130:14
 132:25 134:15
 136:21 138:11
 138:25 142:21
 143:2 144:16

147:24 148:9	159:5 165:2	paper 79:18	63:8,19 65:10	parties 23:18
149:12 150:9	170:18 173:14	154:23 223:2	65:19 66:19	partner 121:6,18
151:13 154:3	178:23 182:25	231:16,24	87:13 108:13	205:12 212:4
156:20,24	183:19,20	papers 78:2	110:14 127:17	parts 45:24 112:1
157:6 160:2,21	185:12 194:11	228:2	129:7,11 155:6	114:13 144:9
161:14 163:6,8	197:17 199:6	parabolic 41:15	162:21 192:7	230:13
163:24 164:25	205:8 206:6,7	104:8	192:20 201:4	party 68:18
166:15 168:18	219:10 222:18	parallel 73:13	202:12 219:21	pass 26:12 67:21
169:8 170:12	226:7 233:9	224:15	220:16 231:4	158:17
173:12 175:24	236:17,18	parameters	231:23 232:10	passage 56:17
176:5 177:23	254:21,23	211:17	232:19,22	passed 20:1
178:20 180:2	271:5,23	paramount 14:20	235:7 237:4	22:10 52:2 58:3
181:4 182:20	273:20,23	parcel 85:6	256:23 277:11	187:9 190:12
183:9 185:4	274:23 284:14	parent 22:23	278:17	passive 203:4
187:15,25	284:18 290:11	36:24 237:12	participants'	Patel 3:25 55:2,4
188:9 189:10	panelist 18:18	275:21,24	17:20 33:14	55:8 68:3 84:20
190:10,25	90:25 205:25	parity 268:10	156:2	101:10
193:4,19 194:8	panelists 2:18 3:3	part 11:5 34:18	participate 36:22	path 15:12 130:6
196:6 197:13	4:3 6:25 7:1,18	48:19 49:12	43:3 59:2 120:9	280:8
197:16	8:3,23,24 10:19	50:7 53:6,25	128:24 222:16	paths 18:3
owns 93:18	12:3 13:22 19:4	65:20 66:1	226:7 238:2	129:20
	21:5 33:24	67:22 79:11	242:22 286:7	patience 240:11
P	34:19 52:21	80:24 81:14	286:18	patterns 15:9
P 6:1	60:23 90:25	83:22 85:6,6	participating	Paul 2:3 7:11
p.m 294:21	112:12 116:12	86:14 91:13,14	18:5 44:23	15:5
pace 9:11	120:18 122:20	91:20,21 92:1,2	71:15 130:10	pause 98:7
page 5:2 7:10	123:1 124:7	95:14,18 96:20	197:17 214:19	pay 105:8 195:17
17:10	130:19 139:2	113:15 114:19	participation	paying 87:18
pain 90:14,20	197:19 199:1	140:6 146:21	42:7 44:5 63:22	96:5 150:17
painful 87:5,9	205:6 212:23	146:22 156:13	99:13 107:20	payment 76:21
pains 57:9	219:1 220:22	166:1 185:22	229:7	77:2 93:9 194:1
paired 20:8	294:5	185:24 186:13	particular 11:12	Pearl 109:13
pales 107:22	panels 26:10	186:25 187:8	13:18 28:23	peek 19:14 24:19
pan-European	32:15 116:17	187:12 189:3,6	42:6 57:17 67:3	Peirce 2:4 6:12
106:20	120:6 129:8	207:1 222:3	71:7,9,19 72:10	6:15,19 37:22
panel 5:7,10,15	203:25 207:4	238:1 254:7	85:15 92:10	205:20
17:19,22 18:2	207:10 219:10	256:4 259:19	120:10 125:24	Peirce's 34:12
33:12,14,21	220:8 226:9	269:4,6 280:4	128:7,22 158:4	50:11
34:1 41:13	229:22 233:20	285:19 286:21	159:11 162:13	pencils 264:10
52:20 62:9	263:1 267:5	part-time 124:15	173:18,23	pending 192:23
101:3 112:23	269:14 278:5	partial 251:18	202:1 265:22	penny 200:7
113:9 120:1	278:25 286:20	participant	268:4 275:20	274:21
121:4,10,12,14	286:25 290:13	125:18 128:15	292:9	pension 215:10
121:21,25	Pankil 3:25 55:2	220:9 223:8	particularly 12:2	pensions 135:1
122:12 123:5	55:8 58:18 68:2	267:22	25:6 44:5 46:14	people 6:23 20:3
124:23 126:5	69:21 70:18	participants 5:7	47:1 54:10	21:5 50:17 56:4
129:7 134:3	84:2,17 91:6	12:18 16:5 17:1	145:16 200:22	61:16 65:17,21
141:1 144:19	92:24 101:8	34:2 35:2 37:13	212:11 267:18	66:3,9 78:3
145:1 157:3,12	147:18	40:10 56:9,23	279:15	79:16 83:11,15
157:20,23				

83:24 84:2,20 90:17 91:2,16 91:22 94:11 95:19,25 96:4 99:23 100:22 104:3,25 105:13 113:5,9 113:11,14 141:23 142:8 142:11 144:4 145:3 147:1 154:20 156:3 164:10 165:12 168:10 175:16 177:8 181:13 185:9 193:15 197:9 210:1 220:21 221:11 226:24 228:16 235:1 240:7,8 241:4 254:20 257:16 260:17 260:25 269:14 270:2,13 280:15,21 281:1 285:5,10 287:17,21 289:6,10 292:9 292:19 percent 21:12,13 21:15 22:9,14 25:18,18,22 27:23,25 28:2,7 28:8,10,11,22 29:5,9,11,11,12 29:14,18,20,21 29:23,24 31:11 31:13,16,16 32:1,3,4 37:4 39:15,18 40:8 55:21 58:3,4,6 58:8 62:22 63:20,23 66:14 66:22 70:10,11 70:12,12 73:15 75:20,21 78:7,8 78:10,19,24 79:25 80:1,4 85:17,22 89:1,2	89:3,4,6,7,11 91:9,10,12 96:2 96:2 101:22 103:20,23 104:21 106:10 109:17 111:2 112:14,19,19 112:19 136:13 137:17 143:20 144:19 146:10 147:6,16 169:14,15 176:8,10,17,18 176:24 178:24 178:25,25 179:16,17 180:17,19 182:6,8 183:1 207:17 209:21 209:23 213:25 232:25 236:1 239:18 240:10 241:20 246:18 246:19 248:2,4 248:10,14 255:23 272:10 279:16 291:12 percentage 104:13 106:14 109:21 176:16 215:9 perch 39:11 perfect 183:9 perform 46:13 performance 235:4 266:24 performed 85:20 period 29:21 30:8 30:16 31:2,7,21 87:2 103:10 293:3 periods 30:12,15 108:14 178:17 permitting 167:1 177:11 permutations 264:23 persist 253:16 persisted 56:14	person 10:10 217:11 person's 177:4,5 177:5,6 personal 87:7 personally 124:3 perspective 37:18 52:17 53:5 86:24 94:5 95:8 97:8 98:9 110:22 124:20 124:21 125:9 131:15 133:14 147:4,15 148:1 148:7 170:24 171:8 174:16 236:10,25 238:17 250:25 264:7 perspectives 10:21 173:17 173:22 203:24 pertains 157:2 pervasive 82:13 Peter 3:9 38:21 38:24 42:19 46:17 92:9 102:7,9,19 105:21 110:16 111:11 petitioned 162:13 Ph.D 52:16 phase 68:13 291:3 phenomenon 283:19 philosophical 20:11 philosophy 86:14 phone 147:9 physics 220:15 pick 80:3 193:21 234:9 281:25 picked 234:18 picking 75:22 picture 173:8,9 279:22 piece 45:24 62:4 160:14 207:19	236:7 269:8 pieces 32:13 45:22 46:2 62:3 155:24 pigeonholed 259:19 pillars 132:18 pin 67:17 pipeline 63:6 Piwowar 2:15 33:18,23 36:17 38:20 42:19 44:25 47:12,15 49:25 50:9 52:10 55:1 58:18 60:20 64:14 67:12 68:1 69:20 72:7 74:22 75:25 77:22 81:9,14 84:1 86:18 87:24 89:14 90:21 92:8,16 92:20 93:22 96:17 98:8 100:10 102:6 105:17 107:12 108:19 110:5 111:11 112:4 112:10 113:16 114:17 115:7 115:10 116:10 116:25 117:19 118:19,25 119:24 place 12:13,21 19:12 27:16 34:1 38:15 40:20 48:13 49:14 76:6 88:17 91:3 93:11 103:9,16 108:2,11 143:12 154:19 163:22 168:25 171:25 187:8 191:16 192:11 211:6 235:1 244:13 259:19	260:4 271:12 291:8 292:4 293:19 placed 239:2 placements 119:14 places 147:5 187:2 plan 8:18 30:21 30:23,25 31:14 94:3,4 139:14 139:25 151:19 158:19 257:4 planned 136:12 planning 10:15 plans 100:21 215:10 platform 55:9,10 55:17,20,21 68:9,10,11 147:5 platforms 47:4 96:4 101:19 181:11,20 202:23 229:9 286:1 play 34:17 70:2 131:5 145:6 185:21,23 269:11 players 274:13 playing 11:25 66:23 132:9 252:9,10 266:20 283:18 plays 75:15 99:10 164:5 187:20 219:20 264:22 276:11 please 10:6 33:13 93:21 148:9 173:20 205:6,7 205:16 pleased 6:6 10:12 33:25 34:17 203:22 pleasure 33:17 35:15 plug 206:11
--	---	---	---	---

plus 104:22 110:23 118:2	241:8	43:19 47:9	prefer 190:23	243:14,16
pockets 230:1	poorer 109:25	59:15 60:4,18	preferencing	244:5 245:6
point 49:15 51:17	pop 212:20	61:5 108:22	284:10	prevent 191:4
51:21 63:18	218:14 288:16	113:24 135:22	preferred 240:6	278:11
75:17 89:25	popular 203:5	136:16 158:19	prefund 271:7	prevented 174:17
90:20 104:17	209:1	208:12 211:25	prefunded 271:8	preventing 252:4
111:5 113:4,14	port 20:23 163:2	247:8 262:18	premarket 27:6	prevention
114:19 117:16	274:9	277:2,3 286:21	premier 132:23	190:22,23
134:3,11	portal 262:4	potentially 23:16	premise 256:18	196:16
142:18 145:21	portion 65:10	23:17 50:20	269:1	prevents 151:5
147:2,14 148:1	94:19 198:15	60:8 64:8 71:5	premium 96:5	174:14
156:22 166:16	position 75:22	92:3 114:25	prepare 131:20	previous 25:12
169:7 170:8	223:2 231:16	159:25 201:22	prepared 18:21	52:2 149:24
177:3 178:9	231:24 278:12	203:18 247:9	296:12	182:25 233:9
182:21 194:7	positions 35:4	247:10	prescriptive	233:20 236:18
196:8 198:17	167:3 227:22	pounce 203:19	16:10 132:7	284:13
209:13 212:23	positive 36:14	power 73:17	149:1	price 3:15 11:18
218:11 221:6	77:12 227:23	149:20,21	presence 222:21	16:3 27:14
227:19 234:11	229:11 278:8	powerful 224:18	present 17:6	28:13 43:25
240:14 244:25	positively 44:12	224:20 286:13	30:14 198:21	44:3 49:22
245:22 251:13	positives 50:24	practical 20:14	223:9	59:23 74:3
272:23,24	69:12 108:1	43:21 145:15	presentation 5:5	76:19 77:1,9,9
274:16 280:24	possibilities	246:14	17:19 18:10,21	78:9 79:17
281:23 284:6	260:4	practically	19:9 34:25	80:18 88:3
290:5 291:10	possibility 42:10	171:14	72:24 108:9	97:21 110:22
pointed 61:8	possible 17:1,3	practice 121:8,9	160:6	113:6 118:15
79:12 216:4	74:3 77:9	200:24 219:20	presenters 199:1	139:7 142:7,18
236:12 250:3	118:17 155:12	practices 128:8	preserve 179:10	144:14 147:6,7
pointing 108:3	159:3 217:6	200:5	208:19 270:11	156:4 164:23
228:9 244:18	243:14 264:14	practitioner	preserved 267:10	165:17 166:22
points 50:14,15	possibly 16:20	55:25	preserves 138:23	166:23,25,25
64:24 71:19	23:16 60:11	practitioners	president 33:19	167:23,25
90:14 107:24	105:3	39:13 40:23	43:5 124:13	168:1,4 171:14
154:6 181:7	post 20:3 127:9,9	praise 224:4	226:12	176:20,23,25
216:23 252:1	137:16 166:24	praising 225:23	presumption	178:5 180:14
policies 76:6	236:2 238:24	pre 46:21 127:9	272:4	180:21,23
107:2 170:20	257:16 258:10	137:16	pretty 39:14 54:3	184:4 186:9
204:6 232:8	282:6	pre- 185:25	85:13 113:25	190:16 191:5
policing 97:20	post-611 278:9	pre-NMS 185:25	135:9 140:5	191:13 192:14
policy 16:15	post-trade 46:21	pre/post 108:10	189:8 206:11	194:24,25
18:16 36:23	posted 85:22	108:11 137:19	215:25 226:14	195:18 200:24
41:9 185:14	152:21,23	precipitated	234:2 238:7	201:2,11 207:8
199:8 265:11	258:2	202:18	245:13 255:24	210:5 214:16
policymakers	posting 24:21	precise 45:15	259:21 261:21	215:7,17
204:7	85:21 234:22	precision 171:14	261:23 262:21	216:25 217:15
polite 254:21	238:18 258:11	predict 283:6	270:18,18	221:17,19
pools 151:7	258:11	predicted 70:1	287:9	228:18 229:18
203:17 239:20	posts 238:22	predictions	prevailing 31:9	231:25 232:13
	potential 18:3	211:11	146:3 235:6	234:18 236:14

237:9,14 238:2 243:13 245:5 249:8 253:25 254:5 255:11 255:14 256:25 257:17 261:3 261:12 266:8,9 268:15,22 270:12,16 271:8,13 283:23 288:7 289:9,12,14 292:1,9 price-time 218:7 priced 165:24 249:11 prices 11:17 19:25 31:8 53:11 54:8 65:4 79:12 86:5 89:10 127:17 135:13,13 141:16 143:7 146:3 150:20 168:13 186:22 189:3 228:16 235:2,5 257:3 271:10 pricing 90:4 146:9 178:3 191:18 200:7 248:4,6 268:20 268:24 Primarily 97:3 primary 28:13 43:15 50:15 93:9 106:14 127:8 137:24 201:18 principal 3:7 222:24 250:25 principal-only 250:19 principle 133:17 224:8,21 principles 224:13 227:2 237:1 principles- 231:14	principles-based 243:19 244:15 245:3 prior 27:15 170:18 191:18 207:4 212:8 219:10 271:23 287:22 290:13 293:6 priorities 16:6 129:19 priority 16:4 152:24 153:8 205:21 284:3 291:24 prism 138:10 private 20:12 privilege 18:20 24:11 55:25 privileges 24:10 Prize 217:12 pro 254:2 284:2 probably 54:22 65:15 90:25 96:14 99:21 100:17 105:20 117:22 125:23 145:24 179:5 187:5 206:1 209:12 215:21 216:1 230:21 234:1 237:1 269:6 272:3 290:22 291:7 probing 46:12 problem 48:17 71:7 77:3 79:22 95:9 138:3 148:18,20,21 148:21 149:11 151:2 153:16 162:7 180:20 190:24 207:20 211:4,9 228:14 246:4 251:10 252:25 280:6 282:7 287:20 290:19 problematic	56:16 74:21 108:6 199:22 problems 54:20 137:14 204:4 211:16 261:7 274:3 287:11 293:15 procedurally 162:20 procedures 76:6 88:17 170:21 185:14 232:9 proceed 43:18 proceeding 296:10 proceedings 295:11 process 36:8 83:9 98:4 108:6 115:18 156:13 162:7,11,15,19 171:4,20 176:2 185:18 187:20 processes 167:21 244:7 processing 96:24 proclivities 75:7 procurement 68:19 produce 111:9 232:15 produced 26:23 producing 127:16 product 186:9 219:5 productive 9:24 products 55:11 98:17 133:13 215:11 professional 36:2 68:11 131:9 professor 123:3 124:15 214:3 270:17 282:14 285:7 professor's 289:24 profiled 267:24	profit 136:12 274:6 profitable 159:12 159:13,21 profound 261:21 profoundly 93:18 program 13:18 198:15 programs 284:9 progress 14:17 155:4 292:11 progressive 151:24 prohibited 146:11 prohibition 37:18 44:20 122:1 125:23 126:10 137:20 165:25 166:12 166:18 186:3 228:25 263:24 prohibition's 17:23 121:14 Prohibition's 5:10 prohibitions 1:6 5:8 6:4 10:14 10:22 12:3 13:9 14:2 16:7,12,14 17:21 18:4 32:21 33:15 34:3,21 37:24 38:10,15 42:22 43:11 46:15 59:8 60:5 64:21 64:23 66:3 97:2 122:8 141:2 182:12 199:8 211:2 217:4 222:17 231:17 282:13 295:4 296:8 proliferation 12:15 15:19 19:10 20:16 21:15 31:23 51:5 57:23 70:1 103:9 105:12	106:12 115:13 126:23 155:24 165:3 173:20 182:18 207:12 211:5 230:10 230:14 252:25 260:6 276:21 277:1,5,15 280:14 281:12 288:19 290:20 prolonged 59:17 prominence 30:10 prominent 43:7 promote 28:14 59:23 130:8 223:15 233:5 promotes 201:20 promoting 279:8 prompt 7:9 277:17 promulgated 61:21 promulgation 203:10 pronounce 26:20 pronunciation 33:10 proof 2:24 124:9 124:13 158:8 245:22 PROOFREAD... 295:1 prop 23:5 206:10 238:13 prophylactic 143:6 proponents 41:9 proportion 159:23 proposal 194:15 291:3 proposals 244:12 propose 232:5 proposed 67:1 103:20 157:9 proposing 74:17 proposition 134:7 221:1
--	--	--	---	--

proprietary 9:3 23:5 222:25 228:11 238:11 239:23 240:2 274:8	51:18,20 53:7 53:18,24 59:23 61:5 77:11,17 79:6,21 82:24 82:25,25 84:22 85:2,24 86:3 97:23 102:2,15 107:1 123:7,14 132:12 136:10 136:11,12 137:8 139:7,13 143:6 145:3 151:17,18 153:9 159:25 175:8 207:5 216:21 235:13 251:18 252:16 255:7 263:23 282:21	158:24 166:2 249:10 provides 55:11 65:8 152:20 175:15 277:8 providing 12:14 86:3 89:21 90:7 97:23 109:25 150:20 155:11 166:5 258:11 258:14 285:25 provision 27:12 134:9 199:22 provisions 126:11 218:4 224:15 262:11 proximity 57:1 proxy 178:1 Psaros 197:1 PTG 231:13,16 238:12 public 13:24 14:24 16:19 18:9 34:16 37:10 40:2 43:25 44:3 47:22 61:7 120:13 134:25 135:15 196:2 221:22 258:12 258:15 274:6 publicly 232:8 published 17:7 111:7 139:7 223:2 publishing 169:10 pull 151:10 266:15 pulling 263:7 264:4 punchline 22:18 punishment 190:22 PureStream 3:6 127:2,5 181:12 241:4 252:3 purpose 12:12,25 48:21 55:7 74:2	200:19 245:2 purposes 42:2 pursuant 31:15 pursued 44:16 purview 219:23 push 115:20 193:14 285:10 pushed 67:7 pushing 118:8 put 19:18 48:12 82:3 84:4,12 87:9 100:16 102:15 110:19 117:24 123:9 123:11 137:15 154:9 163:10 163:21 171:2 189:21 191:16 194:5 208:15 213:4 233:17 234:3 236:14 240:21 248:2 255:2 260:20 279:13 puts 75:22 236:11 putting 10:18 20:13 103:16 118:5 121:20 167:20 214:20 216:14 233:22 259:22 293:18	217:22,25 218:11 221:11 230:25 232:14 233:2,6 245:11 245:16 246:10 253:25 254:4 255:9 275:9 278:18 286:1 288:7 quantified 136:2 quantify 74:20 170:19 quantitative 48:6 83:6,10 92:25 168:23 quantity 79:4 quarter 21:7,21 21:24 22:8 27:1 272:7 question 27:3,5 65:17,19 77:23 81:21 83:25 98:24 100:9,11 144:24 170:15 182:2 183:5 188:24 194:2,9 221:7 228:22 242:5 247:22 249:2 253:5 257:8 258:23 261:12 262:3,6 265:7 267:13 269:12 273:1 287:22 292:21 questioning 231:6 questions 14:18 16:19 38:19 41:23 42:18 46:13,24 47:8 93:20 139:2 188:9 195:8,8 206:3 218:21 228:21 235:6 263:4 267:14 272:22 274:25 quick 88:25 90:23 92:22 102:22 111:13
---	--	--	---	---

Q

QQQ 143:18
qualify 85:24
88:23
qualitative 83:11
quality 38:13
43:25 48:15
49:1 57:16
80:16 83:7
88:11 93:13
110:1,12 125:6
138:16 159:8,9
164:6,22
177:25 178:12
178:15 187:19
190:1,9 193:18
195:8 197:2

114:18 149:14 163:12 213:1 216:23 218:2 281:23 288:17 quickly 69:9 112:5 116:19 148:6 156:24 156:24 166:9 267:15 287:13 quietly 190:5 quip 177:4 quite 40:12 48:3 49:4 69:17 88:9 90:19 105:3 106:1 107:9,16 113:21 161:25 167:13 168:5 203:22 212:7 251:2 264:10 quo 203:12 quotation 165:22 quotations 191:5 202:11 quote 28:20 37:14,15,16 60:12 65:24 66:6,11 75:4,8 75:20 76:7,22 78:10,20 79:13 82:16 87:15 88:24 91:6,12 94:13 100:22 100:24 112:13 113:9,11,15 114:20,23,25 115:6 118:14 118:17 141:7 165:25 166:3 171:25 175:17 191:14 192:9 213:1,4,19 218:2 225:5,6,7 234:8,12 236:16 238:3 247:2 252:9 253:16 258:20 260:13,20 263:23 268:8 268:19 269:25	275:8,14 277:8 279:7 quote-driven 95:13 101:13 quoted 99:6,8 110:23 189:22 259:11 quotes 37:9,10,11 37:20 38:1,1,5 51:19,19 53:20 57:2 64:22 65:5 65:6,18,23 67:1 67:2 71:12 101:18 124:1 139:7,11 140:20 165:14 172:2,4 179:15 228:12 238:6 260:12,15 288:3 quoting 117:13 190:13 277:13	26:24 27:21,24 28:1,5,8,9 81:18 193:11 ratio 142:17,17 rational 256:24 rationale 137:8 137:11 146:22 179:10 253:15 rationalization 277:18 raw 68:16 69:10 reach 170:8 reaches 71:17 reaching 34:14 90:9 reaction 266:22 read 18:20 148:11 149:16 161:23 162:24 213:1 readily 37:10 65:4 260:13 reads 52:16 243:11 real 15:7 22:2 57:9 88:25 90:23 92:22 133:20 149:14 154:22 155:13 217:2 225:7 realistically 71:6 reality 12:15 76:8 85:19 183:13 189:18 realize 54:13 227:7 244:4 252:11 realized 18:25 26:7 61:10 168:10 211:14 212:10 realizes 244:14 really 6:20 33:3 54:2 56:17 67:17,18,20 69:21 72:6,15 72:18 77:2 78:18 86:13,15 87:20 93:5	102:10 119:8 119:10 120:8 120:13,14 122:19 123:7 125:5 131:17 131:18,23 132:7,8 133:4 133:23 134:5,6 135:21 136:19 137:22 138:18 140:10 144:10 146:15 147:16 151:9,23 154:8 155:3,6,10,17 160:13,16,16 160:17,17,25 161:10,11,12 165:19 167:7 177:1,3,10,13 178:4 180:23 181:2 182:17 184:12,21 185:2 187:6 188:4,4 189:19 190:8 194:14 195:9 196:11 196:12 197:6 198:13,13 204:23 210:24 211:5 212:18 216:20 217:13 219:20 221:13 221:15,24 222:3 224:16 224:20 233:16 234:3,13,21 237:20 238:9 246:14 250:15 264:3,12 265:14,17,17 266:17 268:6 269:6 270:20 271:19,25 272:21 273:18 273:25 275:21 277:3 280:13 281:15 286:19 291:7,18 293:13	realtime 41:16 104:8,13 127:12 220:17 reason 39:7 40:19 90:1 104:3 106:14 131:12 146:17 214:2 235:9,18 239:11,21 240:18,19 245:25 251:8 254:9 262:9 267:1 274:2 289:20 290:9 reasonable 243:12 262:1 reasonably 158:9 158:23 reasons 38:7 71:1 91:23 93:9 137:10 179:24 214:10,11 217:17 233:17 249:23,25 282:17 reassess 290:18 reassessment 203:23 rebate 166:6 169:22 170:3 282:2,4 rebates 79:15 rebuffed 200:16 rebuttal 193:25 recall 135:10,12 135:14 146:22 receipt 275:8,13 receive 33:5 51:20 received 11:18 33:4 226:10 receives 243:13 recess 120:24 197:24 recognize 16:5 44:8 128:14 230:24 recognized 129:8 207:2
	R			
R 6:1 121:1 rabbit 112:2 race 56:23 73:4 164:14 218:1,3 218:6 219:16 raised 20:15 37:21 182:3 raises 53:15 ran 88:25 215:3 random 53:11 range 55:11 106:21 112:6 211:22 ranging 10:21 122:13 rapid 9:11 30:12 rare 135:18 147:8 161:17 rarely 85:24 170:2 rata 284:2 rate 31:9,19 63:22 127:25 234:4 rates 17:12,16 19:11 23:17				

recommend 44:16	127:12,13,19 164:10	223:2 227:14 243:21 244:13	216:21 227:4 288:13 292:18	released 244:12
recommendati... 204:10 207:18	referring 70:5 93:2 248:17	244:16 253:22 255:21 264:17	regulations 11:1 20:9 59:12	releases 74:17
reconcile 109:10 110:2,3	289:10,12 refile 163:1	286:22 regard 277:11	204:12 regulator 40:24	relevant 19:7 35:5 61:21 99:2
reconfigure 65:24	refined 126:19 237:23	285:9 regarding 9:16	275:6 regulators 36:11	124:17 210:13 252:17 271:4
record 100:19,19 118:13,17	refinements 208:5,6	13:8 14:15 193:8 229:21	48:20 82:8 103:15 104:12	relies 265:18
135:15 143:8 219:25 239:24	reflect 14:6 18:23 38:16 60:9,19	242:5 284:14 284:18	111:5 280:7 regulatory 43:15	rely 125:5
295:12	198:19 reflecting 195:3	regardless 232:23 269:10 279:7	44:14 56:16,25 70:16 73:7 88:6	relying 42:1 188:12
recorded 296:11	reflections 198:16 204:16	242:18 regime 12:7 67:4	110:20 130:8 131:25 132:1	remain 18:7 36:11 132:22
recording 295:15	reflects 278:15	76:14 110:19 118:9 130:8	132:13 150:22 154:25 196:12	203:12 remainder 206:4
recordings 204:24	reform 43:19 100:20 101:2	150:23 158:9 158:14 248:8	203:3 204:6 206:22 223:10	remained 28:3 29:14,20 31:10
redistributed 41:19	122:18 153:13 180:4 260:9	248:23 249:13 285:1	227:18 229:16 233:7 244:9	remaining 31:15
reduce 51:14 77:18 117:25	283:12 285:15 286:22	regional 39:3 regions 110:9	248:8 264:15 278:2,16	remains 7:21,21 7:22 46:23
118:10 159:15 159:24 161:19	reforms 129:20 199:15 208:19	110:8 112:12 116:14 215:4	278:2,16 reiterate 89:15	remarks 5:3,13 5:17 6:10,14
163:19 200:21 202:14 211:20	223:2,10 232:15 286:21	215:14 233:12 reiterated 236:13	110:8 112:12 116:14 215:4	13:16 14:4 18:1 94:8 117:7
223:11 232:18 247:15 248:16	refresh 199:3 271:20	register 197:6 registered 15:17	215:14 233:12 reiterated 236:13	141:13 170:18 198:3 205:18
249:24 278:17 287:15	refreshed 245:18 refreshing 59:20	15:19 21:21 226:13	215:14 233:12 reiterated 236:13	268:9 287:23 289:15
reduced 20:5 201:9 229:19	170:5 291:4 Reg 7:4 14:25	registering 256:17	215:14 233:12 reiterated 236:13	remember 135:7 143:15 287:10
230:2 245:12	15:6 20:2 22:12 25:25 28:12	Regrettably 200:16	215:14 233:12 reiterated 236:13	remembering 252:20
reduces 23:12 76:19 105:3	36:10 37:24 44:17 47:5 48:4	200:16 regular 26:25	215:14 233:12 reiterated 236:13	remind 14:3 142:17
reducing 131:25 230:22 243:2	49:8 56:3,4,17 56:21 58:9 69:8	27:6 28:2,9,21 108:10	215:14 233:12 reiterated 236:13	remiss 290:25
256:9	70:1 72:15 117:14 125:24	regularly 63:21 290:18	215:14 233:12 reiterated 236:13	remove 39:16 71:24 129:25
reduction 61:17 230:3,22	126:11,14 143:9 144:8	regulate 9:9 292:10	215:14 233:12 reiterated 236:13	150:3 168:16 169:16 175:11
242:24	151:7 191:16 199:11,12,17	regulate 9:9 292:10	215:14 233:12 reiterated 236:13	208:15 255:12 283:5
reengaging 59:18	200:1 201:23 203:11,25	regulated 13:2 34:7 195:5	215:14 233:12 reiterated 236:13	removed 229:17 257:6
reevaluate 11:7 185:19	204:9 212:12 213:3,7,10	regulation 11:8 15:2,13 43:14	215:14 233:12 reiterated 236:13	removing 50:19 50:22 51:12
reevaluating 223:5		60:16 61:3,4 74:17 121:8,9	215:14 233:12 reiterated 236:13	150:7 151:1 208:14 263:23
reference 128:3		190:21 196:16 199:5 200:14	215:14 233:12 reiterated 236:13	renaissance 34:15 116:10
referenced 167:4 168:6 207:13		201:13 202:5	215:14 233:12 reiterated 236:13	rent 73:20
referencing			215:14 233:12 reiterated 236:13	

rents 48:21 73:5	105:5 136:1	94:25 97:11	212:21	207:19 211:7
reopen 218:20	145:12 232:7	243:19 285:25	retail 11:12,14	215:16 247:1,2
repeal 161:18	274:17	resold 158:10	36:6 42:7 44:6	251:7 252:19
184:2 232:5	required 41:17	resolved 263:4	46:19 47:22	253:1,1 260:16
repealed 8:10,13	56:16 68:20	285:20	48:1 49:20	263:18 274:11
133:22 231:14	103:17 219:23	resort 210:4	50:21 55:15	277:9,12 279:2
repealing 9:9	232:13 264:17	resource 208:11	57:16,19 63:20	280:20 290:21
60:12 277:17	277:19 283:22	respect 8:17 14:1	63:22 77:8,11	290:23
repeated 74:16	requirements	39:2 42:6 53:19	78:5 79:2 82:14	revenues 182:14
repeating 204:11	104:23 231:22	53:21 98:20	84:11 85:8,22	274:10 286:24
replace 263:3	232:7 253:8	104:10 105:4	88:18 90:2 93:5	reverse 206:17
replaced 74:19	278:2	105:13,21	93:18,18 95:21	reversed 216:10
231:14	requires 13:2	183:15 192:10	95:22,25 96:3	review 26:14
replication	24:24 170:21	194:20 268:3,5	98:16 99:12,15	40:22 59:10
127:16	292:22	respects 157:15	99:24 101:14	88:17 96:15
report 24:6 60:25	requiring 185:16	respond 11:9	107:20 119:13	100:23 115:18
235:3 265:11	requoting 118:23	118:19	119:23 122:14	117:9 162:21
265:15	rescind 233:14	response 81:15	128:16 138:19	249:21
reported 271:2	235:21 278:25	278:20 282:24	138:24 145:24	reviewed 31:6
reporter 296:1,3	286:5 289:17	responses 288:17	146:13 147:3,9	44:10 60:5
296:17	292:22	responsibilities	147:13,20,22	96:16 111:4
reporting 34:7	rescinded 242:2	241:13 252:15	152:20,21	reviewing 59:12
106:24 266:25	253:10 267:8	responsibility	160:17 161:8	60:16 162:11
295:15	rescinding	84:25 86:4	164:19,20,24	248:9
reports 89:23,23	229:13,14	290:4	182:25 183:1,2	reviews 88:10
89:23 170:22	233:10 237:20	responsible 35:20	184:14,25	111:7 204:9
172:14 184:20	249:22 270:23	38:24 138:15	187:24 188:1,7	revision 239:25
265:1,2,3,5,9	rescission 227:7	239:7	207:6 209:15	revisit 121:24
represent 31:18	229:17 230:20	rest 20:1 22:12	227:24 229:25	210:24
47:25 122:13	242:23 285:18	40:14 112:23	230:4 231:1,5	revisited 44:18
138:19 215:9	research 2:8,9,10	restricted 200:24	235:7 238:17	156:9 255:17
219:19 270:15	17:6 26:14 30:5	restriction	238:22 239:1	revisiting 71:11
represented 29:6	38:25 53:2,8,14	236:14	242:6,12 243:9	247:4 276:7
representing	78:2 108:23	restrictions 16:16	251:12,20	288:12
32:3 35:2,12	125:14 131:3	229:17 236:11	265:23 270:5,6	revisits 118:8
36:19 38:21	134:24 228:15	result 42:12	271:11 283:17	revival 34:17
45:3 47:16,21	research-driven	99:24 126:2	287:15	revolutionized
134:21 161:7	222:20	169:24,25	retain 153:7	56:11
218:14	researcher 48:6	202:22 208:7	retained 8:10	reward 179:12
represents 22:21	researchers	227:23 229:20	60:8	180:21,22
31:16 45:23	168:23	242:16	retaliation 255:3	rewarded 179:19
215:8 222:25	reshaped 200:7	resulted 73:17	retirement 12:23	rewarding 247:4
270:19	204:1	76:14 231:19	123:20 215:10	rewards 179:14
Reprice 234:17	reshaping 277:3	resulting 40:15	return 229:14	277:13
repurposed	residual 39:17	47:8 57:24	revealing 203:18	RIAs 36:6
231:2	166:24	242:23 277:22	revenue 70:20	rid 107:7 111:6
requests 291:3	resilience 145:17	279:9	71:11,15 75:18	123:24 132:6
require 19:24	208:13 268:12	results 49:2 72:25	159:21,22	186:2 208:3
24:25 51:15	resilient 44:11	73:5 204:7	179:14 193:12	234:25 237:16

238:12 241:11	267:25 268:21	272:21 274:24	223:20 224:4	41:6,10,14,15
241:19,21	269:1,19 270:6	276:18 282:8	226:3 245:17	41:22 42:10
250:17 266:19	270:19 271:9	282:24 284:12	287:25 293:4	43:17,22 45:22
290:10	271:10,12,14	285:2 293:22	294:3,10 295:3	48:10 49:7,14
rigged 123:11	272:2,11	role 5:10 7:11,14	296:8	49:15 50:15,18
251:23	273:11 277:6	10:21 11:24	roundtables	50:19,22,25
right 10:8 18:14	279:3,25	12:21 13:8	10:15 16:20	51:4,12,18 52:3
18:25 19:3	280:21 281:15	17:23 35:19,21	18:17 59:17	54:18 55:6
33:16 36:17	282:16 283:21	35:23 39:1	122:25 206:14	56:21 57:17
52:10 54:1,5	285:8 288:17	77:17 121:14	214:23 291:2	59:3,11,15,21
55:1 60:20	292:10	121:25 125:7	294:16	60:1,8,19 61:6
67:17 68:1,16	rightfully 193:2	130:25 131:4	route 17:13 63:8	61:20 65:20
70:11 74:4	rightly 200:13	180:9 187:20	66:5,6 76:18	66:18 67:1 71:7
77:24 78:6,18	rights 196:14	283:17	186:22 189:11	71:25 72:14
78:23 79:2,5,9	rigorous 46:13	roles 36:4,11	191:15 228:16	73:10 74:2 79:6
79:24,25 80:6	83:8 88:10	126:22	260:5	81:25 82:10,11
80:16,25 85:2	ripe 58:12	room 21:6 76:4	router 281:4	83:3 86:15
85:17,18 86:8	rise 81:18 162:9	82:5 94:10	routers 20:24	88:14 92:3,14
92:20 93:22	rises 80:1	138:20,21	55:12 56:2,10	96:20 98:20,24
97:16,20 98:9	risk 9:6 50:22	149:21 210:1	65:21,22	99:1 102:16
101:15,17,23	86:9 96:4 130:4	275:18 282:5	101:21	103:4,19 104:5
102:9 103:6	195:14 208:12	rooms 261:25	routing 22:4 23:4	104:11,12,18
108:19,23,24	208:16	rooting 152:12	26:4 42:2 64:6	105:11,25
115:9 116:24	risking 96:6	roughly 31:18	65:15 66:20	106:9,13,25
118:25 119:8	263:19	68:22,24 69:15	68:4 71:3 81:19	111:15,20,23
119:17,24	risks 202:1 263:8	70:17 80:3	93:1,10 97:24	115:16 121:22
143:7 153:23	River 3:22	127:25 140:14	97:24 138:16	121:24,24
163:6,11 166:3	136:24 137:2,3	140:14 168:21	160:9 167:3	122:5,10 123:7
166:4 172:9,11	137:7	169:14	200:5 232:8	123:14 125:25
172:20,25	road 255:3	round 27:8,10,22	236:21 250:9	126:7,16,18
173:19 176:1	Robert 2:22 3:4	28:1,6,9,18	Rowe 3:15	128:5 133:15
178:18 181:12	80:13 227:25	29:3,10,13	214:15 215:7	133:25 135:3
181:15 183:15	274:25	54:17,17	215:12,17	135:23 136:17
186:24 190:7	Robinhood 2:23	147:15 269:24	216:12	136:19 137:8,9
191:18 192:8	77:1 226:12,12	rounds 209:18	Rube 214:4,6	138:2,4,5,10
194:13 209:23	226:21 227:1	roundtable 1:6	rule 6:24 7:3,4,5	139:6,8,24
211:13 214:6	230:5,12	6:3,14,17,21	7:6,7,8,15,20	140:1,7,19,21
219:22 220:4	robust 87:2 99:14	10:12 11:10	7:24 8:4,8,9,13	140:21 141:11
220:14,18	130:8 155:3	12:19 13:7	8:15,15,17,19	142:22 143:4
221:5,18	178:5 191:19	15:11 17:9 18:6	10:12 11:15,23	144:8,10,21
235:11 237:24	237:1 289:11	34:16 36:13	11:25 16:3,17	145:10,11
238:1,15,23	Roisman 2:16	38:18 44:23	16:22 19:5,11	146:23 149:23
239:12 241:5,9	205:10,17	47:20 55:5 59:3	19:13,16 20:1	149:24 150:1,8
248:12 252:5	206:13 228:20	59:25 101:4	20:11,15,19	151:17,18
252:20 253:17	231:9 241:23	120:5,12	22:12 23:8,13	154:12,17
255:19,22	245:8 247:19	121:20,21	24:24 26:4,23	155:16 156:7,7
257:3,15 258:2	249:18 253:4	130:21 153:24	27:2,4,12 30:24	157:9,14,14
258:3 262:6	261:9 262:16	199:20 205:21	32:7,11 36:16	160:1 162:8
265:3 267:21	263:5 267:7	214:19 216:17	38:15 40:21	165:10,19

166:11,22	58:14 73:22	safely 206:9,14	123:12,17,24	137:15 144:6
170:20,21	90:1 102:18,18	sake 254:23	138:7 215:25	149:3 150:1
171:7,11	103:16 104:9	265:12	289:25 290:1,2	160:7,25 162:6
173:14 174:13	108:1 116:23	sale 31:13 176:22	scalable 44:11	162:13 170:25
174:14 176:2	117:4,8 122:9	sales 35:19	scale 26:8 30:9	171:15 198:3
181:16 183:15	122:10 126:14	Saluzzi 4:4 212:2	scaling 249:23	198:19 199:11
188:18 189:4	130:1,3 132:5	212:3 238:9	scared 156:14	199:18 200:18
191:2,3,8,12	133:17 134:2	273:2 281:23	scenario 271:4	201:17 204:19
192:13,18	135:19,25	289:24	scenarios 291:17	205:11 212:2
194:20 199:16	140:18,22	sample 79:19	scene 62:1 209:14	214:19,20
199:16,17,22	142:20 148:3	171:22	schedule 282:1	224:15,17
199:23 200:12	151:3,9,10	samples 171:23	School 3:23	225:18 226:3
200:20,24	168:25 169:3,5	Saperstein 14:11	52:12	229:14 234:3
201:9 202:20	175:3 183:7	14:14 16:1	Schwab 4:8	249:2 284:19
203:14 208:10	194:17 199:13	Sapphire 59:8	138:12,14	289:1
211:11 212:1	199:17 202:19	sat 48:10	233:9	SEC's 127:25
215:21 219:19	204:2 208:9,14	satisfied 172:4	SCI 253:22	210:24 223:15
222:16 223:14	210:25 211:3	save 71:5 250:1,6	255:21 256:7	262:10 291:1
223:24 224:5	213:13 217:24	saves 135:18	256:12 259:12	second 17:22
224:14 227:7	218:20 223:5	249:23	264:17	21:7,21,24 22:8
229:1 230:10	224:11,17	saving 143:13	science 124:16	26:25 27:15
230:20 231:13	225:17 243:24	206:4	scrap 144:22	29:16 40:15
231:20 232:5	253:8 257:8	savings 12:13,22	screaming	55:17 66:1
233:14 235:13	262:23 263:2	143:13 215:10	123:21	120:2 121:4,10
242:1 243:7,10	264:20,24	saw 21:22 25:14	screen 237:15	127:10 139:3
243:18,19,25	266:13,14,16	30:8 48:14	screw 136:20	141:5 162:16
248:3 249:21	266:20 283:21	65:11 69:11	script 74:24	164:16 224:3
249:23 250:18	289:16,18	72:24 73:13	scrutinized 88:9	239:13 261:11
251:4,19	290:18 291:6	84:3 94:22	scrutiny 168:9	269:12
252:16 253:7	293:18,19	95:18 103:25	278:10	seconds 34:5
257:1 260:10	run 45:18 62:16	113:19,20	se 119:19	171:12,12
261:24 262:10	73:12,16 84:23	137:14 160:6	search 39:22	285:5
270:24,25	85:11 88:10	172:2 182:5	searching 40:11	secret 258:5
272:13 273:18	91:18 112:22	190:2 191:15	seat 100:4 233:11	section 59:5
276:2,21 277:2	130:4 173:6	206:10	269:10	162:16 199:13
277:6 278:8	196:18 204:22	saying 82:24 83:2	seat- 123:19	securities 1:1,24
282:18,21	214:15 224:2	89:16 100:7	SEC 2:3,4,5,7,8,9	2:19 3:9,16,20
285:23 286:21	249:12 258:19	108:4 111:21	2:10,11 5:13	14:15,21 15:2
291:3,7	267:15 269:7	148:8 178:10	11:4 18:16,20	17:3 38:22,25
rule's 231:6,7	running 81:22	180:22 215:7	26:21 28:12	45:4 47:2 50:4
rulebook 7:21	155:22 225:10	227:7,14	34:6,7 40:22	50:7 55:10,20
199:3	285:4	228:14 233:13	45:8 47:7 51:22	152:17 194:16
rulemaking	runs 64:25	239:16 248:12	55:5 59:16	194:21 199:14
291:1		269:15 272:19	71:21 83:7	200:13 226:13
rules 8:14 9:1,9	S	283:4	115:23 116:6,8	295:11
19:23 20:2,7	S 5:1 6:1 121:1,1	says 19:16 91:16	117:2 126:17	security 35:12,22
40:18 41:21	121:1	213:7 259:15	127:3 129:18	36:1 121:8
44:15 51:24,25	S&P 39:16,24	SC 3:23 52:11	130:7,20 132:4	243:13
53:7,18 54:17	saddled 204:14	scaffolding 123:8	134:8 135:14	see 21:1,15 22:2,3
	safe 255:1 293:21			

25:1 26:9,18	106:3,5 107:9	262:8,15 294:2	258:15 259:22	130:22 131:5
49:10 63:16	114:7,14 150:5	294:4	260:7,25 261:5	131:22 134:10
77:12 85:15,20	172:10 173:1,4	send 166:22,24	services 50:6	139:23 140:5
86:5 92:17	179:15,22	167:9 171:22	55:16 68:4	163:17,23
93:11 95:1,8,10	181:9,18,21	183:3 259:15	84:23 106:25	182:7 230:18
95:22 96:3,10	182:24 191:22	272:15 292:1	servicing 226:21	246:13,18,19
96:11 100:1	213:10 214:4	sending 165:15	serving 164:12	251:7 279:2
104:25 108:15	276:19 280:14	167:15	221:22	282:4 293:8
114:6 120:23	288:20,23	sends 183:2	session 58:5,8	shared 158:3
132:2 134:7	segment 55:15,18	senior 18:16	121:3 139:5	280:6
147:16 154:1	181:14 228:21	58:25	196:22 205:7	shares 25:17,18
155:14,25	segmentation	sense 64:18 96:12	205:10 294:12	37:6 57:20 58:6
162:4 165:2,8	249:5 252:6	106:3 125:24	sessions 12:20	111:17,25
171:21,21	267:25 268:17	126:3 182:4	27:6,10,22 28:4	119:15,16,19
174:5 175:14	segmented	188:4 207:25	108:16	163:15 176:22
182:3 190:23	258:17	246:12 255:20	set 35:2 93:14	176:23,24
197:9,25	segmenting	256:8 259:17	112:8 139:4	177:1 237:13
198:13 207:8	260:14	260:5 273:6,11	189:25 204:19	274:19,20
211:9 219:24	segments 55:13	280:5	222:10 225:1	sharing 179:14
221:20,21	select 109:18,25	sensitive 257:19	232:15	198:16 219:3
229:25 236:3	selection 230:21	sensitivity 192:16	setter 62:1	sharp 264:10
237:20 239:22	selective 208:5,6	193:3 257:24	setting 132:8	sheets 274:10
244:24 245:10	self- 97:19	sent 172:3 245:19	133:4 149:1	shelf 250:23
245:17 246:4,7	self-directed	272:1	settleable 271:8	shift 92:6 179:23
246:14 247:8	226:21 236:8	sentences 134:12	settlement	282:9
247:14 248:20	237:4,11	separate 49:7	110:24	shifted 15:9
249:17 255:13	self-help 139:9	50:24 141:25	setup 175:14	shifting 71:12
256:8 257:21	145:14	separated 27:5,7	seven 48:11 63:5	shingle 224:13
261:3 275:15	self-interest	27:10	73:14 86:13	261:14
279:18 281:18	156:3,4	separately 44:10	152:10 207:12	shipping 186:10
283:9 287:14	sell 146:3,5	60:6 96:16 97:6	Seventy 14:25	186:11
288:12 289:2	209:19 259:13	139:16	85:17	SHO 117:14
292:16	261:2	September 1:13	shape 45:13	shocked 184:11
seeing 49:23	selling 210:8	131:10 225:24	177:20 229:15	shops 23:4,5,6
69:22 74:6,7	Selway 2:11 6:2,5	295:6 296:6	264:12	184:13,17,24
81:2 113:14	10:2,6,16 13:13	series 28:16	shaped 8:4 43:22	shoring 178:19
145:6 165:6	18:11,15 33:7,9	94:14 199:15	223:6	short 6:22 60:7
180:8 181:10	33:16 93:15	serious 53:15	share 21:14,15,16	74:2 199:17
181:11,20	101:3,8 116:7	serve 12:12,25	21:23 22:16	203:8 221:10
219:24 251:21	117:6,17 120:8	13:24 48:21	23:1 24:1 25:15	256:12
257:20 271:18	120:18 121:2	55:8 169:22	32:1,3,5 37:4	short-circuit
seek 12:8 89:10	130:19 153:23	245:2	40:8 48:11 49:2	162:19
210:25 221:12	154:1 180:7	served 43:9 141:2	54:16 70:10	short-term
seeking 91:16	197:19,25	servers 20:21	77:19 89:1,3	208:12
seeks 120:13	198:4 205:4,9	service 36:2	103:23 104:15	shortage 241:23
seen 15:14,18	205:18,20	55:14 88:16	108:25 109:1	shortcoming
25:25 37:19,21	206:12 218:24	125:3 159:3	109:22 112:6	141:20
48:16 49:1 70:2	222:15 223:21	172:20 229:19	113:22 114:22	shortening 133:7
73:8 74:13 76:8	225:23 226:2	245:5 258:12	115:3 126:20	shortfall 275:10

shortly 218:17	105:6 125:17	251:6 252:19	slippage 90:7	182:13
shortsightedness	129:17 141:14	252:25 253:1	177:6	solutions 13:10
202:7	179:4,4 195:24	260:13 263:18	slow 56:15	158:7 211:15
shout 216:13	222:21 231:19	265:4,17	104:15 105:11	211:16,18
226:20	234:1 235:4,9	269:18 273:12	192:12 216:6	274:17
show 28:22 87:5	243:24 244:1	277:12 279:2	slower 170:4	solve 120:2
87:6 112:7	244:22 255:24	286:23 290:21	192:16	149:22 190:24
154:5 158:5	279:1	290:23	small 7:11 15:16	261:7 287:11
171:18,23	significantly	SIPs 119:7	20:20 21:16	solved 137:14
172:4 188:3	57:15 62:16	269:21	24:4 34:18	somebody 22:11
228:16 279:16	247:18 248:22	sit 143:23 151:21	48:24 51:10,10	238:21 254:24
showed 53:9 84:9	similar 19:14	269:10	65:9 89:5 91:11	259:14 291:15
228:13 280:23	28:3 69:22 99:9	sits 261:14	108:21 124:14	somewhat 104:14
showing 280:24	99:17 122:3	sitting 54:7 74:5	124:21 158:22	108:17 118:6
shown 30:11,19	126:11 148:13	142:14 152:12	159:12,13	209:3
94:17,25	271:4	153:11 167:12	212:15,25	soon 100:19
shows 63:21	Similarly 85:25	174:6 240:5	237:6,7 274:18	247:12 269:5
144:21 217:21	136:4	248:12	smaller 15:22	sophisticated
279:17	simple 76:17	situation 37:13	25:3,6 26:5	56:23 93:4
shrinking 91:13	221:16 225:2	66:8 72:17,20	99:6,8 105:22	sorry 83:25
203:3	226:23 259:22	85:19 144:13	128:19 283:20	155:11 156:22
side 21:20 68:22	265:1	204:7 210:12	smallest 25:8	178:20,21
68:25 69:2,3	simpler 225:3	situations 27:2	smart 20:24	181:6 191:1,17
79:2 85:25 86:7	simplified 157:15	six 29:22 35:24	55:12 56:2,10	204:22 213:20
88:15,18,23	simplifying 132:5	55:22 89:2	94:10 101:21	272:21
89:17 98:6,6	simply 7:5 19:16	131:2 150:15	198:9 218:9	sort 53:15,23
111:24 117:22	19:18 40:12	size 8:15 27:25	Smith 4:5,6	76:4 78:13
133:23 140:4,8	53:16	58:5 63:11,12	208:23,24	79:21 84:2,6
146:7,14	simultaneously	63:15 71:17	210:20 249:20	93:17 94:4,13
151:15,19	57:13 208:14	107:8 111:3	256:14 263:7	103:17 107:14
160:15 163:20	259:9 260:23	129:24 191:24	280:9 290:16	116:20 125:2
166:3 167:7,7	266:20	225:7 232:2,14	291:5	139:19 141:5
196:2 209:19	single 22:25	size-fits-all	snapped 250:4	154:15 158:5
216:23 234:22	45:18 49:7	268:20	snapshot 171:25	158:11,11,17
234:23 245:20	143:17 161:24	sized 191:21	172:3	159:9,14,23
246:7 255:10	167:15 201:10	sizes 52:1 200:23	social 270:12	165:6 173:17
268:5 283:3	SIP 41:18,19	skeptical 281:2	software 220:4	178:4,9,13,16
287:14,16	69:11 71:11,15	skip 253:20	269:25	178:18 183:12
sides 82:22 160:5	100:22 102:23	skipping 22:18	sole 62:5	189:6 190:22
208:2	117:13 125:6,8	Slack 291:9	solely 232:20	191:11 204:6
sidestep 169:18	127:14,15	slash 246:9	Solgan 4:7 58:21	205:24 210:4,4
SIFMA 45:5,8,9	136:5 158:19	slicing 23:19	58:22,25 84:3	211:22 259:8
sight 222:8	158:21 159:7,9	slide 79:16	84:18 86:20	260:10 270:10
sign 113:12 143:8	159:14,17,21	165:17,24	96:17,19 98:11	272:23 279:24
166:20,21	159:22 171:16	291:23	108:19,20	280:2 285:3,4
signal 258:9	180:4 182:14	slides 25:12 79:9	112:5 115:9,12	292:7,10
significant 69:18	189:14 211:7,8	sliding 168:13	116:9	sought 56:24
72:25 100:1	220:22 237:23	slightly 93:14	solution 138:3	66:25
102:3 104:25	238:2,4 247:1	102:17 195:18	148:20 182:11	sound 86:22

163:13 245:12	232:2 252:6	34:7,25 60:24	141:8 151:19	stayed 95:19
sounds 89:5	268:11	84:8 87:6 94:2	153:1 157:25	steady 31:1,11
source 193:12	speeds 46:21	95:19 115:19	172:25 173:17	steal 149:10
221:17	53:10 57:1 64:1	115:20 120:6	173:24,25	steered 200:10
sourced 168:7	spelling 116:21	121:19 125:21	183:25 206:16	stem 46:2,10
sourcing 68:19	spend 226:18	130:20 133:3	219:3 242:3	204:5
space 11:12 33:1	spent 8:3 243:6	137:1 154:8	253:12 254:17	step 14:1 252:10
48:23 73:3	spin 110:20 194:6	160:7,25	255:8 267:11	284:25 285:10
82:14,14 101:2	259:7	162:22 201:17	281:1 282:14	293:5
101:12 102:2	spinning 240:12	203:22 204:9	285:7 292:8	steps 242:25
109:7 124:22	241:7	210:22 218:24	293:1	steward 43:9
133:19 148:25	spirit 221:23	222:15 225:15	started 34:18	stick 133:10
160:12 178:19	spite 289:23	225:19 226:3	35:7 48:4,9	stifled 38:2
181:19 188:13	splintered 202:21	278:7	95:20 209:18	148:24,25
188:15,17,18	split 71:11	staffing 61:14	212:7,10	stipulate 261:13
190:15 194:1	140:13	stage 51:16 205:7	273:24 280:2,2	stitch 19:23 85:3
195:22,25	spoke 202:8	stages 48:8	starting 117:16	stock 3:10 4:6
249:16 263:23	spoken 79:5	stakeholder	starts 154:11	23:11 48:8
287:20	246:16 275:2	128:14	startup 124:14	54:15 111:17
spans 48:3 127:9	sport 252:12	stalemate 169:21	state 49:17	139:24 143:19
speak 50:13	spot 210:10 288:3	stand 29:9,18	162:23 186:12	146:3,20 169:9
141:9 154:22	spots 213:18	99:3 145:5	283:13	194:18 195:2,3
170:17 173:20	spread 78:17	196:5 244:6	stated 28:12	208:24 209:11
215:20 285:16	166:7,8 178:13	253:15	200:19	209:19 214:5
speaking 14:13	178:16 238:19	standard 49:16	statement 6:22	219:4 234:7
15:4 32:9 64:2	238:20 239:3,3	77:20,21 82:6	50:11 61:1	238:21 240:13
82:4,5 90:1	242:7	82:12 185:17	64:20 66:9	257:5 261:2
93:5 148:3	spreads 20:5	215:1 251:16	67:15 107:6	280:18 281:22
168:20 188:1	46:20 128:19	standardization	214:1 284:23	stocks 17:11
197:7 223:24	142:16 146:16	16:16	285:3,12	21:22 22:8
speaks 25:24	146:19 164:5	standardized	statements 60:23	27:19 28:23
specific 34:23	177:17,18,19	188:14	74:16 183:16	29:5,10,12,19
35:10 42:1	274:19	standards 77:15	270:24	29:22 39:16,17
60:22 72:13	sprung 70:6	83:14 115:16	States 30:11	54:11 74:11
137:6 177:25	spurred 230:15	225:4,14	132:21,22	80:2,10 84:7,7
276:5	SPX 63:2	234:24 249:4	172:18	84:9 111:25
specifically 50:1	SPY 179:17,17	253:17	statistic 95:24	140:12,15
61:23 72:14	271:8	standpoint 66:17	statistics 37:7	212:16,20
90:13 93:5	SRO 161:24	99:1 166:19	65:11 95:3	238:21 263:14
specify 31:17	162:12 240:25	Stanford 80:13	164:21	274:17
spectrum 107:11	278:8	Starr 4:8 138:12	stats 39:14 66:11	stood 243:20
200:22 217:3	SROs 139:20	138:13,14	91:9 245:18	244:16 245:1
255:15	240:23	147:3 160:4	status 203:12	257:10
speech 6:24	STA 15:4 35:23	164:7 187:16	207:4,17 277:8	stop 41:15 64:12
258:23	35:25 36:7,10	start 10:16 21:3	279:12	67:9 72:6 104:7
speed 73:4	36:15	34:4 61:22	stay 154:19	118:22 145:23
103:22 111:2	staff 2:7 8:25	62:20 102:19	204:22 254:8	225:22 261:6
181:22 192:6	10:17 14:8	122:22 123:21	255:22 290:2,2	stopgap 236:14
201:5 218:3	18:19,22,25	131:10 140:25	294:12	stopping 41:11

71:25	39:3 40:15,20	subject 7:16	suggesting 106:8	69:24 72:9 81:9
story 189:24	44:18 45:8,11	37:20 64:22	115:3	83:15 86:5
straight 23:24	45:21 46:1	98:4 115:15	suggestion	87:25 100:24
stranger 269:2,3	47:25 50:8	140:22 199:6	114:21 133:24	115:12 124:4
strategies 94:20	51:23 52:23	264:18	suggestions 51:15	126:13,14
154:21 168:24	56:6 57:8 58:11	subjective 38:5	149:17 178:13	138:22 140:19
strategy 40:14	59:19 60:19	220:14	290:11	141:10 143:2
96:6	62:3,5 63:21	submitted 16:25	suggests 127:24	152:5 166:3,5
streaming 127:11	67:8 72:15 94:9	231:16 293:25	193:16	174:1 187:23
127:11	106:1 107:8,20	suboptimal 222:5	suit 128:20	193:22 194:23
streamlining	111:23 122:2	subpar 57:8	153:19	196:16 201:12
256:7	123:6,10	subscribing 57:4	suited 133:21	210:1 225:9
street 1:25 57:25	125:15 128:11	subscription	sum 278:13	227:17 241:15
102:25 259:16	128:16 129:20	262:4	summarize 50:14	244:8 264:14
260:5	129:23 130:3	subsequent	161:24	266:21 267:12
strength 133:20	130:13,24	229:22	super 209:1	273:2 280:12
strengthen	133:16 149:21	subsidies 100:20	super-efficient	281:12 282:4
130:12 202:20	150:22 154:13	subsidize 283:15	234:6	283:1 293:19
strengthening	154:16 155:16	subsidized	super-knowled...	293:25
11:13 150:4	160:11,18	235:12	226:9	surgical 211:8
177:11	165:20 166:14	subsidy 159:15	superior 56:24	290:22
stressed 131:17	181:17 199:15	277:14	supplant 199:18	surprise 228:16
strictly 77:1	201:20 206:14	substance 225:20	support 17:8	228:17
159:2	209:8 212:11	substantial 15:14	67:3 112:23	surprised 197:13
strikes 95:4 98:19	212:14,19	203:17	154:25 159:10	238:9
101:14 152:17	215:14 223:5	substantially	181:3 208:6	surprising 39:21
190:18	224:9,10,24,25	58:2 64:5 98:2	223:15 224:11	80:19
stringent 82:8	225:1 229:16	substantive	229:13 230:12	surveillance 69:6
91:2 107:3	244:11 248:6	277:25	278:14 288:22	69:8,13 170:22
strings 266:15	265:4 268:13	substitute 74:18	supported 201:13	survey 63:21
strong 20:3,10	277:22 278:14	199:18 204:7	225:4	survive 217:10
44:3,11 46:22	286:14,15	succeed 132:17	supporters 20:2	245:24 250:17
94:24 99:14	structure's 59:24	success 40:14	supporting	susceptible 57:5
129:17 137:8	structures 195:21	118:7	225:17 262:23	suspect 201:7
145:7 175:20	struggle 49:2	successes 217:2	276:16	suspended 162:6
227:1 241:23	StubHub 40:1	successful 129:21	supportive 59:10	163:2
281:13	stuck 248:7	173:2,4 217:7	130:6 153:19	Swaine 2:16
stronger 229:10	student 52:16	241:2	233:9 283:11	205:13
229:12	studies 46:5	successor 190:2	supports 36:16	swear 295:10
strongly 51:17	study 30:8 46:2	succumbed 203:1	132:16 134:1	sweep 90:5
structural 58:14	124:16 228:10	sudden 234:25	supposed 77:7,8	139:10 147:10
207:9 211:17	stuff 20:24 84:15	suddenly 123:18	179:7	165:11,13,13
structurally	92:9 116:14	suffer 142:6,7	supposedly 91:19	169:12
158:13	120:5 123:11	suffering 23:16	suppress 169:17	sweeping 244:11
structure 5:11	256:16 279:14	suffice 129:24	sure 13:4 28:25	switch 30:6
7:17 9:10 10:22	style 114:20	sufficient 124:4	39:12 41:7,12	symbol 112:6
13:5,9 17:10,17	sub-penny	suggest 52:3	43:21 48:17	symbolism
17:25 21:4	122:10 140:21	126:17 182:9	64:16 66:5	141:10
32:19 38:25	199:16	211:7	67:10 69:5,13	symbols 109:18

109:21	204:10 211:7	253:24 255:14	technically	106:9 111:18
sympathy 87:21	211:21 218:20	264:25 266:13	273:16	140:23 142:5
synonymous 24:1	234:24 235:23	267:4 268:12	technological	157:24 158:3
synthetic 85:5	236:2 237:12	269:21 271:23	9:12,14 56:7	159:17 164:5
system 15:14	244:4 271:19	273:19 275:22	63:25 219:16	176:19 178:7,8
19:23 62:12,13	272:8,9 284:25	276:25 282:10	technologies 11:1	211:23 225:23
123:8 126:2	290:1	284:2	40:1 57:11	251:2 256:1
171:25 172:6,7	taken 15:12	talking 9:25	technology 9:4	265:20 268:11
172:13,13	40:21 120:25	49:12 73:6 81:4	36:14 47:4	280:11,18
199:13 200:11	183:4 236:13	81:5 82:21	56:23 57:15	terrorist 177:5
201:19 243:1	272:24 282:23	84:21 90:3,3	61:14 68:19	test 52:7 243:20
257:2	taker 49:3	91:10,14 92:23	87:15 89:18	244:16 245:1
systematic 56:8	takes 51:7 130:7	92:24 131:7	96:23 97:10	testimony 296:5
systems 9:2 69:6	160:20 171:7	135:2 139:6	115:17 129:13	testing 68:19
69:8,14 95:9	264:23	147:19 155:20	150:16 164:9	Texas 4:6 181:20
124:17 167:2	talent 206:2	175:25 209:19	164:14 170:22	208:24 209:11
171:5 172:15	talk 20:14 30:2	214:3 220:7	203:2 223:7	209:18 257:5
191:11 200:3	34:5 41:8 53:1	221:18 257:11	229:19 257:15	280:18
232:20 267:3,4	53:20 54:8,14	261:11,14	278:3	thank 6:8,20 9:23
	64:17 72:14	269:23 274:18	Ted 13:19 120:10	10:1,19 13:12
	78:11,25 84:10	279:5 281:13	134:20	13:13,15,17,21
	90:13 92:12	293:9,14	tee 75:18 116:17	16:24 18:5,14
T	102:7,8,9 108:8	talks 138:7 142:9	120:1	26:17 30:3 33:6
T 3:15 5:1,1	122:5,7 131:13	242:8	teed 116:15	33:7,9,16,23,23
121:1 214:15	131:20 132:1	tally 68:21	183:14	35:14 36:17,20
215:7,12,17	135:21 139:16	tangential 119:12	teeing 42:23	36:21 38:19
216:12 225:12	140:17,21	tape 83:20	teeth 276:6	42:16,19 43:1,1
table 84:5 116:13	147:22 153:12	100:21 109:17	tell 23:7 161:1	44:22,24,25
151:25 236:22	153:20 154:5	189:7	172:1 174:2	45:6,8 47:10,12
TACK 228:10,12	157:17 160:23	tapes 109:19	217:20 239:17	47:18 49:23,25
tacked 225:5	167:8 169:1	targeted 129:22	258:5 266:4	52:9,10,18,19
tackle 285:16	175:24 178:6	223:2,14	294:16	55:4 58:17,18
take 8:9 19:7,14	185:9 196:7	task 9:1,8,17	telling 210:7	58:24 60:19,20
24:19,20,24	204:25 209:7	34:13 42:14	240:7 246:8	61:25 69:20
25:2 33:20 34:5	209:20 214:9,9	198:6 199:2	tells 272:18	115:9 116:6
49:14 58:13	218:16 221:12	289:19	temporary	118:18 120:8
61:9 65:10,13	247:5,23 257:9	tax 57:25	123:10	120:11,18,19
65:16,17 66:4	271:21 272:14	TCA 89:23 184:9	Ten 7:15,20	120:20,23
75:7,13 88:22	273:3 287:8	184:18	tend 67:20	121:16,19
111:25 113:11	talked 93:7	TD 3:9 38:21,25	165:10 173:6	122:24,25
113:14 119:4	100:22 103:12	39:1	tendency 175:13	123:1,1 124:7,8
120:22 121:13	114:7 116:14	team 55:10 120:9	tenets 40:20	124:11,12
122:21 123:12	119:4 152:3	131:3 132:3	tentacles 45:12	125:10,10,20
123:17 125:20	157:20 159:16	153:12,12	term 203:8,9	126:25 127:3
133:9,23 139:3	165:18 182:25	205:21 209:6	268:3	128:23,25
149:9 151:2	185:12 194:10	291:16 294:17	terms 50:8 67:18	129:3,3 130:14
161:21 163:14	207:4,10	teammates 13:17	69:22 74:12	130:19 132:24
167:17 174:11	211:14 213:3	teams 138:15	79:15 83:14	132:25 134:14
175:24 176:8	229:5 230:9	technical 9:5	89:16 99:21	134:15,15
176:21 185:6				
190:8,15				
196:18 197:21				

136:21,21	134:19,20	76:13 78:13	66:12 67:6	145:9,11,13,15
138:11,25	136:25,25	79:5,10 80:14	68:14 69:7,15	145:21,22,25
142:21 147:24	138:13 147:25	81:7,22,24 82:3	69:17 70:25	146:1,6,7,8,13
151:13,13	151:21 161:15	83:5,17,20 84:4	71:6,8,10 72:2	146:18,18
158:1 160:2	188:19 210:19	84:16 86:12	72:12,16 73:21	147:18,21
163:5,6,24,24	228:1,19	88:1 89:17 91:7	74:14,19 75:5,6	148:12,12,15
164:25 168:18	249:18,20	91:24 99:19	75:16,19,21,24	149:4,16
170:12 173:12	253:4 287:2,12	101:25 108:3	76:3 77:5,16	150:17 151:9
173:12 182:20	theme 254:8	115:21 117:24	78:1 79:6,12,19	151:16,24
183:10 185:3	284:22 286:19	118:23 119:2,7	81:5,15,16,19	154:6,12 155:2
190:10 197:12	themes 145:1	122:10 123:6	81:22 82:5,10	155:17,22
197:16,17,18	Themis 4:4 212:4	124:23 131:16	82:13,18,21,23	156:14,15
197:19,19	212:4	132:10 134:1	83:4,6,9,13,16	158:4,9,13
198:4,5,25	then- 50:8	137:25 138:22	83:19 84:20	159:8,16,24
204:16,25	then-Commissi...	143:16 144:23	85:9 86:1,1	160:4,4,15
205:2,4,17,18	15:5	149:16 150:5	87:11,20 89:20	162:13,16
205:19,20	theory 52:15	151:22,25	91:1,8,15,23,25	163:18,18
206:24 209:5	224:13 261:15	159:16 162:5	92:5,6 93:3,19	164:7 165:16
210:20 212:2	Theresa 13:19	162:10,24	94:1,23 95:7	166:1,17,17
214:13,20	they'd 185:10	164:8,23 167:7	96:8,14 98:4,22	167:8,10
216:14 218:21	209:20	167:10,14	98:24,25 99:3,9	168:11,15,19
218:22,23,25	thing 7:12 20:8	168:12,13,15	99:20 100:8,18	168:22 171:3
222:12,14,18	53:8 71:10 72:5	178:14 180:16	101:2,8,11,13	172:10,12,16
223:19 226:1,4	79:23 84:20	182:13,16	101:16,23,25	174:1,2,16,19
227:21,24	101:20 102:11	183:24 184:23	102:1,10 104:3	175:1,5,7,11,13
228:20 229:4	108:7 112:21	187:5 195:7	104:19 105:10	175:19 176:3
231:9,11	113:17 116:21	196:1,10	105:19,24	177:1,10,16
242:19 245:9	119:25 121:23	203:11 204:3	107:7 108:2,13	178:14,23,25
247:19 256:13	128:10 142:10	210:11 214:17	108:17,17	179:1,9,9,11,18
267:7,12	146:18 147:18	218:9,16 222:5	110:7 111:19	179:19,20,22
274:24 276:18	163:9 164:11	230:12 234:23	112:2 113:17	181:1,8,18,25
276:24 286:6,6	164:16 167:12	237:22 240:22	114:5,11,24	182:2,5,25
286:11,18	167:13 172:10	241:15 244:2	116:20,21	183:6,24
292:20,23	172:11 178:22	245:12 247:1	118:10,16,22	184:22,23
293:22,23	179:7 184:19	247:17 253:25	119:3,8,9,20,23	185:1,6,8,8,14
294:2,4,4,6,14	185:22 186:18	254:19,20	120:6,6,15	185:20,24
294:19	221:25 222:8	256:12 263:8	121:22 125:7	186:2,5,6,12,15
thanked 223:19	230:9 234:1	264:12 267:15	125:23 126:9	186:19,19,20
thanking 10:16	235:8 237:23	270:9 271:15	127:15 128:11	187:3,3,5,6,14
33:2	249:22 260:21	278:23 279:12	128:13,21	188:16,23
thanks 38:20,23	262:13 265:2	279:19 285:13	131:14,16,17	190:18,21
42:23 43:2	266:23 269:11	287:18 288:5,6	133:16,17,20	191:6 192:1
47:13,18 50:5	270:21 273:22	288:18 289:5	134:12,17	193:2 194:3,25
55:1 58:22	281:12 283:11	293:15	137:7,9,11,12	195:2,3,6,12,22
67:12 68:1 72:7	283:16 293:8	think 6:22 40:2	137:17,18,21	196:11 206:8
93:22 107:12	things 12:17 53:3	41:3,22 42:9	138:2,6,9,20,23	206:13 207:11
112:10 119:24	61:15 67:4,6	50:17,23 51:11	140:6 141:10	207:16,18,24
119:25 130:17	68:14,17,21,23	53:3,13 54:2,14	142:2,19	208:3,15
133:2,2 134:19	69:12 71:8,18	54:15,21 64:19	144:20,24	210:11 211:10

211:21 212:22
 213:15 214:1
 214:18,21
 215:19,21
 216:1 217:8
 218:6,8 219:9
 219:11,19
 220:1,25 221:2
 221:6,12,22
 222:1,3,7
 223:19 225:24
 229:2 233:8,13
 233:19 234:5
 234:11 235:10
 235:20 236:5,9
 239:6,11,13
 241:11,11
 242:1 244:24
 245:21,24
 246:25,25
 247:3,11
 248:20,24
 249:14,16,21
 250:5,16 251:1
 252:10,17
 253:1 254:4,20
 255:8,18
 256:23,25
 257:3,13
 258:22,25
 259:18 260:9
 260:24 261:17
 262:17 263:7
 263:12 264:9
 264:13,22
 265:21 266:1
 266:10,12,23
 266:25 267:1
 267:14,17,20
 267:24 268:3,6
 268:7,18,25
 269:11,20
 270:3,4,21,21
 271:6,18
 272:11,23,24
 273:2,3,22
 274:1 275:2,18
 275:18,20
 276:1,3,4,7

279:4,14 280:9
 280:10 281:4,7
 281:11,11,13
 281:18 282:2,8
 282:11 283:1,2
 283:5,7,11,18
 284:5,13 285:8
 285:15,16,19
 286:3,4,19
 287:5,9 290:10
 290:12,13,14
 290:15,17
 291:6,19,21
 293:1,8,16,17
 293:18 294:11
thinking 5:15
 8:16 51:22 52:3
 175:20,23
 183:22 188:11
 188:12 205:8
 227:3 254:3
 269:13 271:3
 285:14
thinks 141:1
third 18:2 51:17
 68:18 121:11
 205:7,9 226:7
thirds 70:20
thirty-eighth
 131:8
thorough 82:9
 87:9
thought 19:6
 32:18 35:16
 40:16 45:11
 67:25 75:10
 81:7 92:13
 108:6 112:20
 142:10 175:8
 188:23 191:3
 202:16 209:8
 209:12,13
 213:4 215:24
 217:24 255:19
 259:24
thoughtful 13:8
 43:11 51:24
 114:14 117:2
 167:21 199:4

223:10,13
 227:9 243:19
 288:13
thoughtfully
 202:16
thoughts 108:23
 134:10 137:5
 142:23 164:4
 165:6 187:15
 189:13 194:22
 206:5 270:22
 285:6
thousand 95:6
 230:11
thousands 48:1
thread 263:7
 284:17
threaded 133:25
threat 178:15
threats 118:15
three 5:15 27:6
 29:13 39:5 40:3
 41:1,20 73:16
 131:2 205:8
 216:23 218:1
 245:9 253:21
 253:22 256:11
 261:8 267:5
 272:22 281:16
three- 11:4
three-second
 137:18
threshold 8:11,12
 8:13 41:6,9,14
 41:22 48:12
 71:14 75:16,17
 77:19 88:23
 89:6 90:15
 92:14 103:17
 104:11,18
 105:11 106:2
 109:12,23
 110:3,18
 111:15,20,23
 112:6,8,19
 113:22 114:22
 114:24 115:3
 126:20 207:16
 239:9 241:20

247:7,7 248:10
thresholds 90:16
 108:22 246:13
 247:23,24
 248:18 273:3
 288:5
thrilled 198:5
thrive 43:13
 245:24
throughput
 142:8,8 177:1
 177:14
throughs 127:23
 137:17,21
 171:22 234:5
throw 117:7
 184:2
throwing 26:6
 257:14
Thursday 1:13
 295:6 296:6
tick 8:15 52:1
 78:17,18,18,19
 129:24 176:13
 225:7
tides 258:7
tie 87:25
tie-in 116:24
tied 81:25 124:23
 169:4
tiering 282:2
tiers 23:22,23
tighten 239:3
 242:6
tighter 20:4
 128:19 142:16
 177:17
time 10:25 15:15
 15:21 18:16
 28:16 29:4,12
 29:24 33:6
 40:21 52:5 53:1
 56:14 57:5
 58:13 61:6 69:9
 75:11 78:7,9,10
 78:20 80:24
 87:2 96:2,3
 108:15 112:22
 113:21 124:18

137:7,19,22
 138:3 141:11
 141:20 143:24
 145:16,20
 146:10 147:6
 153:21 162:5
 162:21,25
 168:8 171:25
 172:2 173:3,5
 174:5 178:8,10
 178:14,17,19
 179:3,5 194:8
 200:2 202:6
 206:4 211:12
 212:7 218:25
 220:20 227:6
 235:23,24
 236:4 239:25
 240:1 243:20
 244:16 245:1
 248:9 254:11
 254:15,17
 256:15 259:23
 269:24 274:4
 275:8,9,13,20
 278:21 279:10
 279:18 285:6
 291:6 292:13
time-weighted
 28:17
times 65:3,23
 66:12 86:25
 109:17 127:23
 132:22 153:4
 158:16 183:19
 226:18 294:8
tiny 76:10,11
 78:14
TMX 102:24
today 6:7,10 7:19
 10:10,20 13:5
 13:12,23 14:4
 16:22 17:5 19:4
 21:8 26:10
 33:21,24 35:21
 36:12,13,22
 37:8 43:3,21
 47:1,6,9,10
 50:13 58:3,4,6

62:23 63:1,3,5 63:7,9,13,15 85:10 91:9 95:4 109:3 120:14 122:6,12 126:2 126:4 129:8,12 130:11 132:22 133:4 135:3,18 137:11 138:19 138:24 139:20 140:9 141:22 143:12,21 145:18,23 147:4,6,8,14 149:22 152:1 156:12 157:24 163:10 175:15 178:25 184:4 186:19 196:23 197:1,10 198:14,18 199:20 203:22 204:4 215:5 218:25 219:15 221:12 223:14 226:7 228:24 229:7 232:18 242:14 244:19 247:6 254:15 255:18 261:14 261:20 264:5 268:4 273:25 274:3 275:22 276:25 286:19 287:21 289:6 289:15 292:25 today's 6:14,25 7:3 8:6 10:12 11:10 12:2,19 13:7,9,18 15:11 17:8,24 18:6 26:22 34:16 38:16,18 50:18 59:25 60:19 121:15 122:1 126:9 198:15 222:16 Today's 5:11 toe 284:21	Toennies 4:9 206:18,21,22 265:19 275:17 292:21 token 42:11 196:14 tokenization 9:16 293:16 tokenized 194:16 263:14 293:20 tokenizing 196:7 196:9,10,13 tokens 194:17 told 46:17 186:8 189:17 228:17 tolerances 9:6 tomorrow 113:12 235:22 242:14 250:5 283:6 ton 96:12 123:25 240:8 tonight 294:12 tool 266:1,2 tools 250:10 284:19 top 7:23 21:11 30:19 31:24 100:14 118:5 152:6,10 167:12 220:8 233:1 285:13 topic 7:22 10:1 11:14 33:3 41:25 50:12 72:8 149:13 157:7 183:25 226:4 259:23 281:21 topics 122:4 139:2 286:25 Toronto 39:1 tortured 291:11 total 21:10 25:19 31:17 37:6 39:15,20 62:25 65:12 70:20 89:2,4 109:1 140:11 246:8 totally 189:15	touch 122:2 139:1,12 171:9 185:24 273:21 touched 6:23 139:19 157:8 257:7 263:15 263:16 273:4 touches 55:22 touching 23:18 tough 89:12 210:10 267:13 tough-to- 212:15 towel 26:6 town 204:23 toxic 239:22 240:16 257:12 257:18 traced 162:10 trade 1:6 19:18 19:20 21:22 24:9 27:14,16 31:8,8 37:14 40:4 49:22 58:5 63:11,12,15,17 63:17 97:20 99:16 100:23 106:15,24 110:13 127:22 128:17,17 133:12,13 134:25 136:2 138:6 140:12 142:18 152:25 154:20 156:3 169:25 170:1 172:22 184:3,4 194:16,24 196:20 200:23 200:25 212:15 212:16,19,22 233:1 234:12 234:16 237:13 238:13,21 240:9 241:3 247:2 255:13 258:19 268:21 271:2,7,17 275:9 287:14 287:17 295:3	296:8 trade- 13:8 17:11 33:14 37:17 50:14,17 59:25 60:7 64:20 71:6 77:18 82:10 94:17 126:9 127:22 128:4 137:16,20 138:9 141:1 151:18 161:5 171:21 186:2 188:17 234:4 trade-at 105:25 106:9,13 trade-through 5:8,10 6:3,24 7:4 8:16,19 10:13,21 12:3 14:2 16:6,12,14 17:16,21,23 18:3 19:11 26:15,24 27:16 27:21,24 28:1,5 28:8,9 32:21 34:2,21 37:12 37:24 38:9,14 41:21 42:21 43:11,17 44:15 50:19,25 51:4 51:12,18 54:21 59:3,7,14,21 60:5 64:22 66:2 66:17 67:4 71:25 81:5,6,25 82:10 83:3 90:18 94:16 96:19,25 97:1 98:20,24 99:1 102:12,13 103:4 119:5 121:14 122:1,7 125:22 133:25 137:9 138:1,4,5 139:24 140:7 143:4 154:17 156:11,11 161:3 166:18 166:23 167:5	179:6 182:12 184:3,5 186:1 189:1,4 192:13 192:18 194:20 199:7,16,23 200:12,19 201:9 203:13 211:2 217:4 222:17 224:5 228:25 231:17 232:21 234:5 234:14 235:8 263:24 282:13 282:18 trade-throughs 27:3,9,18 31:18 46:15 96:10,10 108:16 127:20 127:24 128:5 135:17 136:1,8 141:13,14 154:9 156:2 161:13 173:7 228:10 233:25 233:25 234:2 234:20 291:8 291:12 traded 21:8 22:7 22:16 23:1 24:18 25:19 37:6 56:11 57:20 62:22 85:25 153:6 154:14 160:24 161:1,9 163:16 194:18 234:7 234:12 239:1 239:18 258:18 tradeoff 264:1 trader 48:5 78:5 133:8 215:6 238:11,13 traders 2:19 3:7 14:13 15:3 35:12,22 36:1 128:17 212:17 222:24 trades 20:13 22:14 24:16
---	--	--	---	--

26:25 27:6,7,25 31:7,10,11,17 54:10 55:22 58:3 71:12 78:5 85:18 100:4,5 127:12,19 128:3,3 137:4 144:12,19 147:7 179:18 203:17 207:22 207:25 209:16 247:4 258:12 260:20 271:22 271:25 272:5,8 272:19 279:4,9 279:15 283:25 trading 2:11,24 3:8,22 4:4 6:6 6:16 9:3 10:17 13:1 14:6,10 15:1,9,16,21 17:12 18:22 19:24 20:5 21:10,11 22:7 22:15 23:6 25:15,25 28:2,4 28:10 31:22,24 32:1 35:19 37:3 40:8 42:4,5,11 42:13 55:9 56:1 56:8,8,20 59:9 63:4 64:9 66:9 71:13 72:18 73:23 74:5 79:15 80:1 84:11,11 93:7 94:12 97:10,12 97:18 98:1 106:10,12,23 107:11 108:10 108:11 109:11 109:20 110:3 123:22 124:10 124:14 125:14 127:11 130:20 131:8 134:5 136:7 137:3,3,4 137:7 140:4,6 140:13,14,15	142:3 143:20 148:22 152:7 153:1 156:6 157:2 159:2 172:5,19 174:5 174:6 175:16 178:2 180:12 180:14,16 184:8,14 186:7 190:20 191:5 191:10,19 198:7 200:3,8 201:16 202:23 203:4 207:6,7 209:4 212:4,5 213:12,22 214:10,15 215:16 218:13 219:14 220:9 220:20 222:20 222:20,25 229:8 237:6 239:4 251:20 257:2 258:5 261:4 266:24 269:3 274:11 277:14 287:15 291:22,22 traditional 202:24 trail 161:3 train 259:24 training 61:14 transaction 46:20 200:21 232:3,3 transactional 219:6 261:18 transactions 53:9 transcript 116:16 120:5 295:14 296:4,5,11 transformation 200:2 transformations 56:6 transformed 229:7 242:21 transient 220:14 translate 187:23	transparency 46:22 57:16 124:20 195:7 196:2 213:10 232:13 263:13 279:20 284:19 285:1 transparent 13:4 200:5 271:15 transport 220:6 269:23 treasure 152:14 treat 201:2 treating 256:3 treats 256:1 tremendous 58:10 142:13 trends 200:10 TRF 109:1,14 283:9 trials 85:11 tricky 67:16 93:19 tried 48:25 118:6 210:9 triggered 56:22 trillion 63:1,2,3 trip 269:24 trivial 253:19 trouble 15:6 troubled 203:10 true 25:6 41:12 42:2 47:1 65:15 77:7 106:17 191:6,25 221:23 224:16 251:14 255:14 265:7,13,18 277:15 295:13 296:4 truly 56:11 179:18 200:9 trust 44:4 195:18 211:23 221:21 263:10,12 270:13 try 9:14 50:24 51:14 58:23 61:7 87:4,22	114:10 139:14 144:6 150:25 174:8,11 210:2 216:2 221:24 221:25 233:23 255:23 267:15 291:24 trying 46:9 48:6 56:14 76:16 111:25 112:7,8 113:8 117:25 147:9 155:20 172:24 174:7 175:7 190:24 220:12 225:13 231:7 240:20 240:21 257:24 261:1,3 285:15 TSA 89:22 tuned 294:12 turbulent 153:4 turn 25:3 33:8 67:11 120:16 144:5 199:6 253:6 turned 274:5 TV 76:24 81:10 tweaked 142:25 tweaking 60:11 twenties 65:16 Twenty 62:13 Twenty-nine-a... 282:4 twice 117:17 162:6 twins 262:11 two 5:10 14:15 20:15,18 21:18 24:1 28:17,17 29:19 30:12,15 36:15 39:4 41:6 45:19 50:8 55:13 64:25 68:7 70:20 72:19 83:4 88:2 103:21 104:21 107:15 117:24 120:2 121:14 127:7 129:18	134:12 140:22 141:3,17 154:4 160:5 162:10 164:8 176:11 180:13,17 192:22 199:12 203:25 204:2 204:15 206:7 207:4,10 217:15,15 223:6 226:13 228:2 247:12 251:20 260:11 278:23 288:17 289:5 291:12 two-minute 34:20 two-off 173:7 two-way 165:16 type 165:1 181:22 271:23 types 38:4 73:10 79:8 94:15 154:11 165:4,4 165:9,11,18 166:4,10 167:4 167:9 168:17 168:21 169:11 169:17 181:14 201:7 230:12 240:21 272:14 274:8,16,17 <hr/> U U.K 42:4 106:20 111:6 U.S 1:1,24 31:1 36:8 37:2 39:5 39:10,12,14,16 39:17,22,24 40:5,6,7,9,12 41:19 42:5,8 43:8,10 44:10 46:16 55:22 62:25 95:4,12 96:9 97:13 98:15 105:15 105:21 106:2 107:8,18,23 108:5 110:11
---	---	--	---	--

111:23 113:21 114:1 123:15 124:15 126:3 130:23 133:17 148:18 149:11 152:7 173:3,5 207:2 208:20 216:16,18 222:21 223:1 229:6,15 232:25 242:20 245:15 247:12 287:24 295:11 ultimate 242:18 ultimately 20:6 57:10 87:3,12 187:9 218:14 227:23 229:25 230:3 245:1,4 247:16 256:8,9 256:10 278:16 286:10 288:8 288:15 unabated 95:23 unable 10:10 57:3 277:20 unanticipated 11:3 unavoidable 71:23 unbelievable 99:25 unbelievably 99:15 uncertainty 264:16 unclear 145:8 uncrossed 148:6 underlying 189:23 underpinned 207:5 underpins 88:5 underscore 9:19 undersigned 295:10 understand 12:15 50:16 51:2 80:12	86:21 100:3 141:23 146:24 153:5 210:1 212:19 229:22 238:10,16 267:21 understandably 71:21 Understanding 253:7 understands 152:6 understated 141:18 understood 271:17 undertake 9:14 undertaking 129:19 undone 267:6 undue 57:24 102:3 unenforceable 76:15 unexecuted 143:23 144:12 unfortunately 57:21 100:25 141:19 201:2 201:24 288:2 289:8 unhealthy 213:11 unintended 32:20 40:17 46:11 47:6 50:21 58:14 61:19 64:18 66:17 67:14 69:7 72:13,16 73:7,22 74:12 126:15 135:2 143:15 204:5 231:19 262:18 265:20 unique 95:12 127:19 241:5 252:5 254:16 289:1 uniquely 177:12	uniqueness 288:21 United 30:10 132:21,22 172:18 universal 251:12 265:18 universe 195:1 University 2:21 2:22 52:13 228:1 unlocked 148:6 unnecessarily 213:7 243:6 unnecessary 58:16 157:11 223:11 229:16 286:9 unneeded 124:5 unprecedented 30:9 162:9 202:22 unpredictable 15:9,24 unprotected 54:7 74:6 75:8 85:17 251:5 264:16 unquote 37:14 252:9 unraveling 222:1 263:8 unsafe 96:1 unsettle 200:3 untrue 145:24 up-front 104:22 105:6 upcoming 32:15 update 69:9 258:20 272:17 276:17 updated 278:9 updates 223:14 updating 83:9 upgrade 58:12 upgrades 69:4 uphold 221:25 upholding 223:16 urge 12:20 44:7	97:5 278:5 urged 16:1 Urvin 3:18 47:16 usage 271:24 use 95:20,22 97:25 110:18 141:23 160:9 160:10 164:2 168:21,24 169:11 220:22 228:11 243:11 265:2,12 268:20 269:18 269:18 289:24 useful 194:12 uses 129:18 158:8 160:25 271:9 usually 96:11 146:2 204:7 usurping 162:7 Uyeda's 34:11 <hr/> V <hr/> vacation 12:24 vacuum 16:18 145:4 169:7 179:24 286:22 validation 217:14 valuable 13:16 16:24 179:19 260:21 valuations 39:23 value 25:19 28:23 60:12 87:14 92:13 97:18 134:4,6 151:23 232:23 270:12 277:11,20 281:6,9 vanilla 259:14 vanished 190:5 variety 13:22 45:14 122:2 various 48:8 79:10 158:7 201:6 222:22 262:25 vast 10:14 22:5,5 23:8,8 25:14,16 26:2 31:12	vehicles 203:5 vein 149:24 262:17 vendors 36:6 venue 37:19 66:21 71:5,17 75:4 86:10 106:4 107:17 109:9 110:24 113:5 181:21 232:23 245:23 246:10,11 250:12 267:23 267:24 277:15 venues 12:16 13:1 15:10,16 15:18 19:25 32:4,18 48:13 48:24 51:5,10 51:10 56:8 63:4 63:9 64:9 68:9 70:6,10,21,22 71:2 82:19 83:4 85:12 99:7 104:20 105:18 105:23 136:11 136:13 143:21 143:21 151:11 155:2 158:6 164:19 165:15 165:16 178:7 178:11 202:22 213:22 217:22 218:7 236:20 236:21 239:18 246:21 250:7 250:17,23 254:10 255:22 256:1 260:6 272:20 274:14 277:13,18 278:15 280:17 283:20 284:2 venues' 246:9 Venuti 13:19 120:10 verbose 270:14 version 94:4 156:10 251:15
---	--	--	---	--

versus 24:20 49:7 63:5,7,13,15 84:7,8,9,15 86:10 92:2 94:13 95:6 97:2 99:3 100:22 107:19 108:11 109:1 115:5 168:4 173:15 177:2 178:1,1 180:11 182:1 195:16 212:24 237:11 246:10 247:2 269:25 288:19	Vlad 3:14 120:20 245:8 248:16 253:11 289:21 vogue 94:23 voice 138:19 volatility 53:10 213:12 Volkswagens 189:18 volume 8:11,12 21:10,11,12 23:24 25:16 40:4,6 58:7 66:15 71:14 80:1 88:23 89:2 89:4,6 107:19 108:22 109:3,5 109:9,11,14,18 109:25 110:17 112:14 140:6 140:15 142:18 169:14,17 176:16 178:24 179:2,3,4,17,18 240:8,9 279:17 volumes 15:21 55:22 62:20 63:17 109:20 110:14 183:1 voluntarily 25:10 votes 129:25 voting 136:12 VP 226:11 VWAP 271:1 275:10	88:17 89:12,25 90:10,22 92:9 98:25 102:6,9 102:20 104:3 105:6,17 110:5 111:12 112:2 113:11 114:5 115:7,14,25 116:13,15 117:24 118:19 119:2,18,21 120:8,11 122:24 124:6 126:13 131:4 131:15 134:7 138:22 141:8 142:8,11,15 148:16 149:10 149:15 151:9 151:10,14 152:1,5,25 153:4,13 154:3 155:14 156:1,3 156:20 167:18 167:18,22 169:20 172:17 173:24 175:19 178:6 179:12 180:3,10 182:17 183:5,6 184:1 193:14 193:19 195:17 195:17 206:24 208:7 211:1 215:7,14 218:23 222:7 224:6,7 225:8 229:25 234:16 236:23,24 238:12,14 240:14,15,24 240:24,25 246:1,3 247:23 256:17 257:1 259:15 260:23 261:2 264:7,13 267:19 270:6 271:21 273:18 276:8 281:25	283:13 284:16 284:21 285:2 286:2 291:5,25 292:23 293:11 293:12 wanted 25:1 32:13 71:21 74:15 75:1,2 84:5,17 86:20 92:12,17,17 114:21 118:14 121:19 125:20 131:22 139:3 140:25,25 156:23 157:7 158:1 163:25 173:16 181:6 191:1 193:5 194:19 209:5 213:1 267:17 wants 72:9 77:22 84:19 86:19 97:20 111:11 118:20 214:23 236:18 warned 38:6 warrant 50:22 195:6 199:3 warranted 11:22 Washington 1:25 197:1 295:7 wasn't 57:6 81:12 179:2 190:4 206:18 291:10 watched 48:11 174:3 watching 6:4 waterfall 259:10 watershed 56:18 way 10:4 21:17 23:2,19 41:19 56:11,19 69:5 77:6 89:22 91:25 100:25 113:23 115:22 125:2 133:25 138:23 139:15 142:12 154:19 159:11,15,22	160:19 161:10 167:19 168:11 183:13 189:14 219:18 234:15 234:21 235:11 235:20 239:4 241:5,14 242:7 246:14 247:10 264:13 270:4 271:16 279:17 285:11 288:20 ways 9:13 11:3 15:9 45:14 68:7 96:1 97:16 114:13 135:19 163:19 223:14 237:18,19 241:2 249:6 252:7 262:25 264:4 268:14 271:25 284:5 we'll 35:7 41:8 54:24 66:5 67:10 74:25 84:14,15,18 86:18 92:16,21 93:23,23 98:7 102:8 113:12 120:23 122:22 131:20 150:9 153:20 154:1 157:3,25 180:5 180:5 185:24 198:1,9 214:9 226:19 227:10 227:15 239:19 239:20 262:19 286:15 we're 20:14 28:14 29:2,15 52:4 53:12 54:22 62:8,21 62:23 69:19 73:6,19 74:4,6 74:7 75:8 76:4 81:5,23 82:21 83:2 84:21 85:21 86:5,6 87:14 89:17,25
vibrant 9:8 97:9 129:15 132:15 vibrating 128:19 vice 33:19 43:5 video 6:13 10:4 294:6 view 128:2 160:6 164:8 171:24 176:6,20 177:3 177:13 211:4 220:10,13,17 221:8,9 249:25 272:16 288:9 viewed 109:12 138:2 194:25 viewers 21:3 viewpoint 161:18 views 14:7 18:7 18:23 99:4 125:22 127:7 130:22 131:21 134:22 198:18 vigorously 201:12 violate 237:15 Virtu 4:5 virtually 127:15 176:13 visible 37:10 65:4 238:3,6 258:2 visit 291:22 visually 28:15 vitality 11:22 VIX 152:11	wait 267:13 waited 161:4 waiting 170:3 waive 87:1 wake 23:7 25:25 walk 171:3 264:22 287:6 wall 76:16 want 6:25 53:1 61:2 64:14 67:5 72:1,9 74:22 75:17 76:1,8 79:16 84:2,10	W <hr/>		

90:2,3 91:10,10 91:13 92:2 98:14,16 100:16,19 109:20 113:10 113:14 115:10 116:11 117:25 119:21 122:2,4 122:6 131:12 132:11 133:10 134:24 135:2 138:8 139:6,14 140:10,20 142:19 145:6 147:21 148:19 149:4,5,19 151:8 153:2,3 153:17 155:7,8 155:10 156:18 159:25 163:4 171:13,23 173:9,11 176:6 178:10 180:10 181:1,10,11,25 186:12 187:22 187:22 188:11 190:24 194:8 195:10 209:6 212:6 219:16 221:18 227:10 235:4,6,13,15 237:8 242:9 243:16 244:22 245:18 247:7 248:7 249:20 256:17,24 257:6 261:13 266:20 271:6 274:14 280:1 280:19 281:18 282:8 283:11 285:4,17,18 286:3 290:9 293:9,14,15,18 293:25 we've 30:11,21 33:4 40:3 48:16 48:19 66:1 68:16 70:2 73:8	74:13 80:12 87:4 100:18 104:17 107:9 113:4,15 114:7 116:14 122:12 122:16,17 131:18 132:21 140:10,11 148:14 149:17 149:20 150:12 150:15,16 152:15 157:8 159:16 160:15 160:19 164:17 165:18 168:22 172:10 173:3 174:3,3 177:16 179:15,22 180:16 181:9 181:21 183:11 188:2 191:22 194:11 199:4 204:15 206:9 207:3,10 212:6 214:7 216:5 220:21 221:3 226:9 228:15 228:24 240:8 246:16 259:12 259:12 261:20 264:12,25 266:13 269:20 273:25 275:10 276:19,25 280:14 282:10 288:20 weakening 135:23 weaker 137:11 website 17:9 206:1 week 40:2 59:8 196:25,25 206:11 231:16 weekly 37:6 weeks 21:19 weigh 64:14 72:9 75:1 84:17,19 90:22 92:9,18	102:6,20 105:18 110:5 111:11 115:7 weighs 286:10 weight 26:25 weighted 128:9 weird 76:2 welcome 6:2,11 10:12 43:12 116:4 121:2,3 132:4 223:21 welcomed 214:22 287:10 well- 167:20 well-earned 12:24 well-functioning 13:3 went 34:25 64:2 72:17 133:4 157:16 207:12 258:17 weren't 112:5 172:11 250:5 whacking 19:21 wheel 240:12,13 wheels 250:10 white 88:13 whole-in 286:1 wholeheartedly 184:2 wholesalers 230:7,25 275:12 wide 55:11 127:12 200:21 238:20 274:21 wide- 10:20 widely 32:2 37:1 126:5 207:2 wider 177:21 286:22 widespread 97:25 213:8 229:8 willing 149:2 155:10 WilmerHale 2:14 121:7,18	win 33:10 39:25 40:7 window 137:18 winners 75:22 winning 40:13 wireless 217:3 220:6 255:15 wisdom 8:23,24 wise 107:9 wish 236:12 withdraw 163:1 won 217:11 225:8 wonderful 9:7 120:19,19 wooden 123:22 word 66:10,20 115:11 141:23 153:8 213:15 words 111:12 123:4 133:7,9 185:7 239:19 244:3 work 10:14 17:8 33:5 39:10 59:13 80:12 97:11,13 133:4 133:6 155:1 167:23 184:8 193:17 198:8 204:18 225:19 233:24 234:10 246:6,17 262:14 276:17 284:7 286:15 287:10 289:18 workable 145:13 worked 13:18 48:5,7 143:12 144:14 158:5 164:24 175:10 212:8 working 8:4 60:17 74:10 92:24 130:12 132:20 136:17 160:12 167:24 179:8 284:8 290:19 291:16 292:19	workings 212:13 works 39:9 42:3 62:19 77:6 143:12 144:14 172:7 217:9 243:1 250:19 284:1 world 17:4 18:8 22:2 39:15,19 39:20 43:7 46:17 48:25 80:9,10 85:17 93:2 95:11,11 96:25 123:23 137:4 138:23 148:2 156:10 156:15,19 171:12,13 185:14 189:19 190:4,7 192:17 208:21 216:17 217:2 219:11 219:14 220:2 220:19 221:7 221:20 222:6 257:2 260:12 268:10 271:5 271:16 273:6 279:6,11 281:5 287:24 289:22 293:21 worried 159:20 worries 149:19 149:22 150:7 worry 50:19 71:22 81:23 153:1 196:19 263:19,22 265:15 266:20 worse 97:20 99:24 135:13 271:13 worst 287:6 worth 55:14 87:17 116:20 195:2 207:19 231:6 242:17 244:21 246:16 254:3,7 255:18
---	--	--	---	--

276:7 281:6 287:16 288:12 290:22 worthy 40:22 203:20 213:23 wouldn't 100:1 110:10 144:12 144:13 146:24 166:10 217:5 217:10 235:18 254:10 293:11 293:12 woven 253:7 writing 9:9 87:8 written 52:13 wrong 179:1 186:8 wrote 154:24 201:17 228:2,7 wrought 199:25	154:25 162:1 163:16 Year's 180:5,6 years 7:15,20 9:25 14:25 15:8 15:13,20 17:15 17:21 26:1,21 34:3,6,22 35:4 35:24,25 36:10 37:21 39:1 48:11 50:10,12 52:25 55:24 57:13 58:12 59:11,16 60:10 61:4,9 62:6,13 63:25 74:9 87:4 89:18 95:1,17 104:2 105:24 111:5 119:21 121:21 131:18 150:16 152:15 162:14 163:4 180:13,17 193:20 196:9 199:9,25 203:9 203:12 204:11 207:13 209:9 213:6 216:5 217:12 218:19 219:12 222:4 222:11 231:18 233:19 235:16 235:16 236:6 240:8 243:24 261:8 264:9 269:21 276:19 277:5 283:19 288:2,4 293:10 293:12 yelling 123:21 yep 84:1 226:15 226:15 yesterday 127:23 131:7 yield 13:7 99:5 York 3:10 15:4 139:23 162:18 169:9 219:4 281:22	<hr/> Z <hr/> Z 29:5 zero 30:14 31:3 64:4 66:22 73:4 94:23 146:16 146:17,19 215:16 <hr/> 0 <hr/> 0.06 28:2 0.08 28:10 0.25 28:10 0.5 89:3,6 0.55 27:25 0.6 28:8 <hr/> 1 <hr/> 1 14:12 21:14 23:2 31:16 32:4 68:23 70:11 73:15 75:20 89:1,4 91:12 112:19 136:13 182:6 207:17 246:18,19 248:2,4,10,13 255:22 1,000 54:16 255:13 1,050,000 176:24 177:1 1,124 21:23,25 22:7 1,200 161:25 1,300 63:14 1,366 123:19 1.1 31:11 1.5 152:17 1.6 31:11 1.7 152:17 190:18 1.8 95:5 10 9:25 17:15 22:19 25:10 35:25 50:10,11 63:2,7,20 80:4 91:9 104:2 106:10 139:21 178:24,25 233:1 235:15 235:16 238:20	264:9 273:7,24 10-plus 236:6 100 1:25 22:9 57:20 207:15 270:7,8 274:19 100-share 140:2 11 21:13 29:25 152:6 11:35 120:24 11A 199:14 12 26:21 140:12 12:45 120:23 121 5:10 14 55:21 140 63:13 15 29:11 32:4 55:21 62:25 78:23 133:9 1546 243:21 16 21:8,9,25 22:20 23:21 26:2 29:25 63:5 64:8 140:11 180:17 207:13 230:11 241:7 247:12 269:5 289:25 1633 273:25 17 62:21 131:10 214:7 241:7 17,984 22:1 17.17 152:11 172 24:15 177 152:8 18 5:5 25:18 152:10 18th 1:13 295:6 296:6 19 15:5 1934 14:12,16 36:3 1936 14:14 1960s 224:14 1975 200:14 198 5:13 1987 131:11 153:2,3 <hr/> 2 <hr/> 2 70:10 75:21	95:4,4,5 112:19 137:17 240:10 241:20 246:18 246:19 2,000 96:6 2.1 28:7 37:4 66:14,22 112:14 2.4 27:23 2.5 103:22 2:00-ish 121:11 2:30 197:22 20 15:13,20 17:21 22:24 26:1 29:14,23 32:3 34:3,22 35:4 36:10 37:21 58:4,12 59:11 59:16 60:10 61:4 62:6 63:22 63:25 89:18 121:21 203:9 203:11 204:11 207:13 216:5 218:19 219:12 222:4 231:18 233:19 264:9 269:5 276:19 277:5 281:8 288:2 293:9,12 20- 23:2 20-plus 222:11 20-year-old 118:23 200 63:15 99:7 100:12 257:23 200,000 69:16 2000 30:13 2000s 228:8 2002 212:7 2004 56:5 62:20 63:5,12,19 91:9 178:25 2005 7:9 20:2 21:7 47:4 48:4 54:13 58:4 139:19 212:12 216:2 223:8 234:1 253:23
---	---	--	--	---

273:23 281:22	28 25:18 140:11	40-plus 95:17	610 8:15 32:7,11	214:1 217:9
2006 102:24	29-and-a-half	143:20	185:15 251:4	218:8 219:19
2007 15:5 103:10	282:1	400 196:9	286:23	221:2 222:1,17
2008 53:5 190:2	293 5:17	401(k) 161:8	611 7:4,15,21 8:5	223:14 225:17
2009 30:13,17,25	2Q 63:7	41 21:12	10:13 11:16	227:7 229:1,13
57:7		42 78:19	16:3,17,22 19:5	229:14,17
2010s 168:8	3	44 22:18 179:16	19:12,13,16	230:1,10 231:1
2012 96:22	3 21:13 55:16	44- 7:9	20:11,16,19	231:13 232:5
103:10,15	70:12 89:2	440 63:13	22:12 23:8,13	242:1,23
213:5	137:17 182:7		24:24 26:4,23	244:23 246:2
2015 7:15 28:16	235:25 240:10	5	27:2,4,12 30:24	249:21,23
29:11,21,23	3,000 21:21 55:19	5 29:23 103:20	36:16 40:21,25	250:18 251:19
52:23 201:17	3.80 153:6	106:10 176:24	41:3 43:22	252:16 253:7,9
273:20	30 23:2 39:1 58:7	267:13	45:22 48:10	254:2 262:18
2016 41:9 79:19	63:23 171:12	50 63:3 79:20	49:14,15 51:23	262:22,23
103:18	179:5 183:1	91:10 127:23	55:6 56:17,21	263:8 265:25
2017 31:24	235:17 253:24	168:21 169:3	57:17,22 58:2	266:6,10,19
2018 37:1 74:15	272:9 285:5	176:8,10,17,18	58:13 65:20	267:5,8 270:23
2019 30:14,17	30-plus 69:18	209:21 279:16	70:5 72:15	275:5 276:3,5,9
129:6 278:7	30-some-odd	281:9	73:10 74:2	276:21 277:2,6
2020 31:5,7	241:8	50,000 176:23	84:22 86:15	277:17 278:25
180:13,18	30-year 127:8	274:20	88:21 92:3 94:4	282:11 285:18
2021 213:2 218:2	31 19:20	50/50 62:23	105:14 107:1	286:5,8,21
2022 244:12	32-cent 19:19,21	140:14	108:11,14	292:22
2024 32:1	33 5:7 63:7	500 39:16,24	116:24 117:3	611's 231:24
2025 1:13 27:1	140:12	257:22	121:24 125:25	612 8:15 140:21
28:16 29:21	35 39:18 179:5	500,000 68:24	126:7,16,18	63 39:15
31:7 37:3,5	236:5	176:22	127:7,20	
58:6 66:13	35-plus 235:17	50x 95:9	129:21,25	7
169:14 295:6	350 232:25	5130 185:7	135:3,23	7-Eleven 210:7
296:6	36 65:12	53 209:23	136:17,18,19	7.7 180:19
2027 101:4	362 22:13,14	5310 243:10,18	139:6 142:22	70 31:25 40:7
205 5:15	37 169:15	244:3,13,18,21	143:11 144:8	58:3 144:19
2112 243:21	375 51:11 70:17	261:14,23	144:10 149:23	72 25:22
22 22:20,21 26:1	70:19 99:7	54 78:8 169:14	150:1 151:1	75 31:13 58:6
26:3	163:13	550,000 176:22	161:18 162:8	762 22:8
223 22:16	377,000 66:12		165:3,10,19	77 58:5
24 21:18 24:17	38 89:7,11	6	166:11 169:5,7	
25:9 105:6	39 79:25	6 5:3	169:18 170:17	8
207:14,14		60 63:1 78:7	171:1 173:23	8 273:8
24/7 155:11,12	4	605 117:13	174:17,19,25	80-plus 85:22
24X 280:1 282:1	4 14:14 62:21	135:25 184:20	181:16 183:4	83 80:1
25 29:10,11 31:15	65:3 70:12	188:14 189:20	183:13,15,17	87 180:19
55:24 209:9	109:17 153:6	189:21 190:3	183:21 184:2	
261:7	179:17	235:3 265:1,2,3	185:16 186:20	9
25-plus 43:6	4,000 96:7	265:8,11	187:17 188:12	9 273:9,10
250 63:9	4:31 294:21	276:16,17	191:2,3,8,12	9/25/2025 295:18
26 78:9 226:22	40 22:14 29:20	284:21 285:10	199:22 207:22	296:16
280:1	82:18 152:15	606 135:25	211:11 212:1	9:15 1:14
	178:25 281:9	184:21		90 62:22 96:2

239:18 90s 228:3 275:7 275:11 279:23 916 162:16 95 96:2 97 147:6,16 99 272:10				
--	--	--	--	--