responsibility for self-regulatory conduct.[14]

Nasdaq will continue to refer certain potentially violative conduct to FINRA for further review, including matters covered by agreements to allocate regulatory responsibility under Rule 17d–2 of the Act. Moreover, FINRA will continue to have responsibility for, among other things, the investigation and enforcement of conduct occurring on the Nasdaq and BX equity markets that also occurs on non-Nasdaq exchanges, as well as the handling of contested disciplinary proceedings arising out of Nasdaq Regulation-led investigation and enforcement activities. All referrals to FINRA remain subject to Nasdaq's supervision and ultimate responsibility.

Nasdaq also believes that the proposal is consistent with the Act because, as the Commission has made clear, Nasdaq bears the ultimate responsibility for self-regulatory conduct and primary liability for self-regulatory failures.[15] In addition, Nasdaq notes that its proposal is consistent with, but more limited than, investigation and enforcement work performed by NYSE. As noted above, the SEC approved NYSE's application to amend certain of its disciplinary rules to facilitate the reintegration of certain market surveillance, investigation and enforcement functions performed on behalf of NYSE by FINRA.[16] Nasdaq believes it would therefore be consistent with the Act for Nasdaq to perform more limited investigation and enforcement work than NYSE.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act. The proposed rule change is not intended to address competitive issues but rather to enable the Exchange to directly investigate and initiate disciplinary actions following the integration of certain regulatory functions from FINRA.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

No written comments were either solicited or received.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Within 45 days of the date of publication of this notice in the **Federal Register** or within such longer period up to 90 days (i) as the Commission may designate if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which the self-regulatory organization consents, the Commission will:

(A) By order approve or disapprove such proposed rule change, or

(B) institute proceedings to determine whether the proposed rule change should be disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

Electronic Comments

• Use the Commission's internet comment form (*http://www.sec.gov/rules/sro.shtml*); or

• Send an email to *rule-comments@sec.gov.* Please include File Number SR–NASDAQ–2019–007 on the subject line.

Paper Comments

• Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549–1090.

All submissions should refer to File Number SR–NASDAQ–2019–007. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's internet website (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549, on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–NASDAQ–2019–007 and should be submitted on or before March 15, 2019.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[17]

Eduardo A. Aleman,

Deputy Secretary.

[FR Doc. 2019–03040 Filed 2–21–19; 8:45 am]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–85160; File No. SR–NYSE–2018–28]

Self-Regulatory Organizations; New York Stock Exchange LLC; Order Granting Accelerated Approval of a Proposed Rule Change, as Modified by Amendment No. 1, To Make Permanent the Retail Liquidity Program Pilot, Rule 107C, Which is Set To Expire on June 30, 2019, Notice of Filing of Amendment No. 1, and Order Granting Limited Exemption Pursuant to Rule 612(c) of Regulation NMS

February 15, 2019.

I. Introduction

On June 4, 2018, New York Stock Exchange LLC (''Exchange'') filed with the Securities and Exchange Commission (''Commission''), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (''Exchange Act'') [1] and Rule 19b–4 thereunder,[2] a proposed rule change to make permanent Exchange Rule 107C governing the Exchange's Retail Liquidity Program Pilot (''Program''). The proposed rule change was published for comment in the **Federal Register** on June 21, 2018.[3] On July 31, 2018, pursuant to Section 19(b)(2) of the Act,[4] the Commission extended to September 19, 2018 the time period in which to approve the proposed rule change, disapprove the proposed rule change, or institute proceedings to

[14] *See* supra note 4.

[15] *Id.*

[16] *See* supra note 10.

[17] 17 CFR 200.30–3(a)(12).

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b–4.

[3] *See* Securities Exchange Act Release No. 83454 (June 15, 2018), 83 FR 28874 (''Original Notice'').

[4] 15 U.S.C. 78s(b)(2).

determine whether to disapprove the proposed rule change.[5] On September 18, 2018, the Commission issued an order instituting proceedings under Section 19(b)(2)(B) of the Exchange Act,[6] to determine whether to approve or disapprove the proposed rule change.[7] On December 10, 2018, pursuant to Section 19(b)(2) of the Act,[8] the Commission extended to February 16, 2019 the time period in which to issue an order approving or disapproving the proposed rule change.[9]

The Commission received one comment letter on the proposed rule change.[10] On February 13, 2019, the Exchange filed Amendment No. 1 to the proposed rule change, which supersedes and replaces the original filing in its entirety.[11] In connection with the proposed rule change, as modified by Amendment No. 1, the Exchange requests exemptive relief from Rule 612 of Regulation NMS,[12] which, among other things, prohibits a national securities exchange from accepting or ranking orders priced greater than $1.00 per share in an increment smaller than $0.01.[13] The Commission is publishing this notice to solicit comments on Amendment No. 1 from interested persons, issuing this order approving the proposed rule change, as modified by Amendment No. 1, on an accelerated basis, and issuing this order granting to the Exchange a limited exemptive relief pursuant to Rule 612(c) of Regulation NMS.

II. Description of the Proposed Rule Change, as Modified by Amendment No. 1

In its filing with the Commission, the Exchange included statements concerning the purpose of, and basis for, the proposed rule change and discussed any comments it received on the proposed rule change. The text of those statements may be examined at the places specified in Item V below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant parts of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and the Statutory Basis for, the Proposed Rule Change

1. Purpose

The Exchange proposes to make permanent Rule 107C, which sets forth the Exchange's pilot Retail Liquidity Program (the ''Program''). In support of the proposal to make the pilot Program permanent, the Exchange believes it is appropriate to provide background on the Program and an analysis of the economic benefits for retail investors and the marketplace flowing from operation of the Program.

Background

In July 2012, the Securities and Exchange Commission (the ''Commission'') approved the Program on a pilot basis.[14] The purpose of the pilot was to analyze data and assess the impact of the Program on the marketplace. The pilot period was originally scheduled to end on July 31, 2013. The Exchange filed to extend the operation of the pilot on several occasions in order to prepare this rule filing. The pilot is currently set to expire on the earlier of approval of this filing or June 30, 2019.[15]

The Exchange established the Program to attract retail order flow to the Exchange, and allow such order flow to receive potential price improvement.[16] The Program is currently limited to trades occurring at prices equal to or greater than $1.00 a share.

As described in greater detail below, under Rule 107C, a new class of market participant called Retail Liquidity Providers (''RLPs'') [17] and non-RLP member organizations are able to provide potential price improvement to retail investor orders in the form of a non-displayed order that is priced better than the best protected bid or offer (''PBBO''), called a Retail Price Improvement Order (''RPI''). When there is an RPI in a particular security, the Exchange disseminates an indicator, known as the Retail Liquidity Identifier (''RLI''), that such interest exists. Retail Member Organizations (''RMOs'') can submit a Retail Order to the Exchange, which interacts, to the extent possible, with available contra-side RPIs and Mid-Point Passive Liquidity (''MPL'') Orders.[18] The segmentation in the Program allows retail order flow to receive potential price improvement as a result of their order flow being deemed more desirable by liquidity providers.[19]

In approving the pilot, the Commission concluded that the Program was reasonably designed to benefit retail investors by providing price improvement opportunities to retail order flow. Further, while the Commission noted that the Program would treat retail order flow differently from order flow submitted by other market participants, such segmentation would not be inconsistent with Section 6(b)(5) of the Act,[20] which requires that

[5] *See* Securities Exchange Act Release No. 83749, 83 FR 38393 (August 6, 2018).

[6] 15 U.S.C. 78s(b)(2)(B).

[7] *See* Securities Exchange Act Release No. 84183, 83 FR 48350 (September 24, 2018) (''Order Instituting Proceedings'').

[8] 15 U.S.C. 78s(b)(2).

[9] *See* Securities Exchange Act Release No. 84766, 83 FR 64414 (December 14, 2018).

[10] *See* Letter from Tyler Gellasch, Executive Director, Healthy Markets Association, dated December 20, 2018 (''HMA Letter'').

[11] *See infra* Section II.

[12] 17 CFR 242.612(c).

[13] *See* note 14 *infra.*

[14] *See* Securities Exchange Act Release No. 67347 (July 3, 2012), 77 FR 40673 (July 10, 2012) (SR–NYSE–2011–55) (''RLP Approval Order''). In addition to approving the Program on a pilot basis, the Commission granted the Exchange's request for exemptive relief from Rule 612 of Regulation NMS, 17 CFR 242.612 (''Sub-Penny Rule''), which among other things prohibits a national securities exchange from accepting or ranking orders priced greater than $1.00 per share in an increment smaller than $0.01. *See id.* As part of this filing, and pursuant to the Exchange's separate written request, the Exchange also requests that the exemptive relief from the Sub-Penny Rule be made permanent. *See* Letter from Martha Redding, Associate General Counsel and Assistant Corporate Secretary, New York Stock Exchange, to Brent J. Fields, Secretary, Securities and Exchange Commission, dated February 13, 2019 (''Sub-Penny Rule Exemption Request'').

[15] *See* Securities Exchange Act Release No. 84767 (December 10, 2018), 83 FR 64412 (December 14, 2018) (SR–NYSE–2018–59). *See also* Securities Exchange Act Release No. 82230 (December 7, 2017), 82 FR 58667 (December 13, 2017) (SR–NYSE–2017–64) (extending pilot to June 30, 2018); Securities Exchange Act Release No. 80844 (June 1, 2017), 82 FR 26562 (June 7, 2017) (SR–NYSE–2017–26) (extending pilot to December 31, 2017); Securities Exchange Act Release No. 79493 (December 7, 2016), 81 FR 90019 (December 13, 2016) (SR–NYSE–2016–82) (extending pilot to June 30, 2017); Securities Exchange Act Release No. 78600 (August 17, 2016), 81 FR 57642 (August 23, 2016) (SR–NYSE–2016–54) (extending pilot to December 31, 2016); Securities Exchange Act Release No. 77426 (March 23, 2016), 81 FR 17533 (March 29, 2016) (SR–NYSE–2016–25) (extending pilot to August 31, 2016); Securities Exchange Act Release No. 75993 (September 28, 2015), 80 FR 59844 (October 2, 2015) (SR–NYSE–2015–41) (extending pilot to March 31, 2016); Securities Exchange Act Release No. 74454 (March 6, 2015), 80 FR 13054 (March 12, 2015) (SR–NYSE–2015–10) (extending pilot until September 30, 2015); Securities Exchange Act Release No. 72629 (July 16, 2014), 79 FR 42564 (July 22, 2014) (NYSE–2014–35) (extending pilot until March 31, 2015); Securities Exchange Act Release No. 70096 (Aug. 2, 2013), 78 FR 48520 (Aug. 8, 2013) (SR–NYSE–2013–48) (extending pilot to July 31, 2014); and Securities Exchange Act Release No. 83540 (June 28, 2018), 83 FR 31234 (July 3, 2018) (SR–NYSE–2018–29) (extending pilot to December 31, 2018).

[16] RLP Approval Order, 77 FR at 40674.

[17] The Program also allows for RLPs to register with the Exchange. However, any firm can enter RPI orders into the system. Currently, four firms are registered as RLPs but are not registered in any symbols.

[18] The Exchange adopted MPL Orders in 2014 and amended Rule 107C to specify that MPL Orders could interact with incoming, contra-side Retail Orders submitted by a RMO in the Program. *See* Securities Exchange Act Release No. 71330 (January 16, 2014), 79 FR 3895 (January 23, 2014) (SR–NYSE–2013–71) (''Release No. 71330'').

[19] RLP Approval Order, 77 FR at 40679.

[20] 15 U.S.C. 78f(b)(5).

the rules of an exchange are not designed to permit unfair discrimination. As the Commission recognized, retail order segmentation was designed to create additional competition for retail order flow, leading to additional retail order flow to the exchange environment and ensuring that retail investors benefit from the better price that liquidity providers are willing to give their orders.[21]

As discussed below, the Exchange believes that the Program data supports these conclusions and that it is therefore appropriate to make the pilot Program permanent.[22]

Description of Pilot Rule 107C That Would Become Permanent

Definitions

Rule 107C(a) contains the following definitions:

• First, the term ''Retail Liquidity Provider'' is defined as a member organization that is approved by the Exchange under the Rule to act as such and to submit Retail Price Improvement Orders in accordance with the Rule.[23]

• Second, the term ''Retail Member Organization'' (''RMO'') is defined as a member organization (or a division thereof) that has been approved by the Exchange to submit Retail Orders.[24]

• Third, the term ''Retail Order'' means an agency order or a riskless principal order meeting the criteria of FINRA Rule 5320.03 that originates from a natural person and is submitted to the Exchange by a RMO, provided that no change is made to the terms of the order with respect to price or side of market and the order does not originate from a trading algorithm or any other computerized methodology. A Retail Order is an Immediate or Cancel Order and may be an odd lot, round lot, or partial round lot (''PRL'').[25]

• Finally, the term ''Retail Price Improvement Order'' means non-displayed interest in NYSE-listed securities that is better than the best protected bid (''PBB'') or best protected offer (''PBO'') by at least $0.001 and that is identified as a Retail Price Improvement Order in a manner prescribed by the Exchange.[26]

RMO Qualifications and Application Process

Under Rule 107C(b), any member organization [27] can qualify as an RMO if it conducts a retail business or routes [28] retail orders on behalf of another broker-dealer. For purposes of Rule 107C(b), conducting a retail business includes carrying retail customer accounts on a fully disclosed basis. To become an RMO, a member organization must submit: (1) An application form; (2) supporting documentation sufficient to demonstrate the retail nature and characteristics of the applicant's order flow; [29] and (3) an attestation, in a form prescribed by the Exchange, that any order submitted by the member organization as a Retail Order would meet the qualifications for such orders under Rule 107C.[30]

An RMO must have written policies and procedures reasonably designed to assure that it will only designate orders as Retail Orders if all requirements of a Retail Order are met. Such written policies and procedures must require the member organization to (i) exercise due diligence before entering a Retail Order to assure that entry as a Retail Order is in compliance with the requirements of Rule 107C, and (ii) monitor whether orders entered as Retail Orders meet the applicable requirements. If the RMO represents Retail Orders from another broker-dealer customer, the RMO's supervisory procedures must be reasonably designed to assure that the orders it receives from such broker-dealer customer that it designates as Retail Orders meet the definition of a Retail Order. The RMO must (i) obtain an annual written representation, in a form acceptable to the Exchange, from each broker-dealer customer that sends it orders to be designated as Retail Orders that entry of such orders as Retail Orders will be in compliance with the requirements of this rule, and (ii) monitor whether its broker-dealer customer's Retail Order flow continues to meet the applicable requirements.[31]

Following submission of the required materials, the Exchange provides written notice of its decision to the member organization.[32] A disapproved applicant can appeal the disapproval by the Exchange as provided in Rule 107C(4), and/or reapply for RMO status 90 days after the disapproval notice is issued by the Exchange. An RMO can also voluntarily withdraw from such status at any time by giving written notice to the Exchange.[33]

RLP Qualifications

To qualify as an RLP under Rule 107C(c), a member organization must: (1) Already be approved as a Designated Market Maker (''DMM'') or Supplemental Liquidity Provider (''SLP''); (2) demonstrate an ability to meet the requirements of an RLP; (3) have mnemonics or the ability to accommodate other Exchange-supplied designations that identify to the Exchange RLP trading activity in assigned RLP securities; and (4) have adequate trading infrastructure and technology to support electronic trading.[34]

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[21] RLP Approval Order, 77 FR at 40679.

[22] Rule 107C has been amended several times. *See* Securities Exchange Act Release No. 68709 (January 23, 2013), 78 FR 6160 (January 29, 2013) (SR–NYSE–2013–04) (amending Rule 107C to clarify that Retail Liquidity Providers may enter Retail Price Improvement Orders in a non-RLP capacity for securities to which the RLP is not assigned); 69103 (March 11, 2013), 78 FR 16547 (March 15, 2013) (SR–NYSE–2013–20) (amending Rule 107C to clarify that a Retail Member Organization may submit Retail Orders to the Program in a riskless principal capacity as well as in an agency capacity, provided that (i) the entry of such riskless principal orders meets the requirements of FINRA Rule 5320.03, including that the RMO maintains supervisory systems to reconstruct, in a time-sequenced manner, all Retail Orders that are entered on a riskless principal basis; and (ii) the RMO does not include non-retail orders together with the Retail Orders as part of the riskless principal transaction); 69513 (May 3, 2013), 78 FR 27261 (May 9, 2013) (SR–NYSE–2013–08) (amending Rule 107C to allow Retail Member Organizations to attest that ''substantially all,'' rather than all, orders submitted to the Program qualifies as ''Retail Orders'' under the Rule); Release No. 71330, 79 FR at 3895 (amending Rule 107C to incorporate MPL Orders); and 76553 (December 3, 2015), 80 FR 76607 (December 9, 2015) (SR–NYSE–2015–59) (''Release No. 76553'') (amending Rule 107C to distinguish between retail orders routed on behalf of other broker-dealers and retail orders that are routed on behalf of introduced retail accounts that are carried on a fully disclosed basis).

[23] *See* Rule 107C(a)(1).

[24] *Id.* at (2).

[25] *Id.* at (3).

[26] *Id.* at (4). Exchange systems prevent Retail Orders from interacting with Retail Price Improvement Orders if the RPI is not priced at least $0.001 better than the PBBO. An RPI remains non-displayed in its entirety (the buy or sell interest, the offset, and the ceiling or floor). An RLP would only be permitted to enter a Retail Price Improvement Order for the particular security or securities to which it is assigned as RLP. An RLP is permitted, but not required, to submit RPIs for securities to which it is not assigned, and will be treated as a non-RLP member organization for those particular securities. Additionally, member organizations other than RLPs are permitted, but not required, to submit RPIs. An RPI may be an odd lot, round lot, or PRL. *See id.*

[27] An RLP may also act as an RMO for securities to which it is not assigned, subject to the qualification and approval process established by the proposed rule.

[28] *See* Release No. 76553, 80 FR at 76607 (clarifying that one way to qualify as an RMO is to route retail orders on behalf of other broker-dealers).

[29] The supporting documentation may include sample marketing literature, website screenshots, other publicly disclosed materials describing the member organization's retail order flow, and any other documentation and information requested by the Exchange in order to confirm that the applicant's order flow would meet the requirements of the Retail Order definition. *See* Rule 107C (b)(2)(B).

[30] *See id.* at (b)(2)(A)–(C).

[31] *Id.* at (b)(6).

[32] *Id.* at (b)(3).

[33] *Id.* at (b)(5).

[34] *Id.* at (c)(1)–(4).

RLP Application

Under Rule 107C(d), to become an RLP, a member organization must submit an RLP application form with all supporting documentation to the Exchange, which would determine whether an applicant was qualified to become an RLP as set forth above.[35] After an applicant submits an RLP application to the Exchange with supporting documentation, the Exchange would notify the applicant member organization of its decision. The Exchange could approve one or more member organizations to act as an RLP for a particular security. The Exchange could also approve a particular member organization to act as RLP for one or more securities. Approved RLPs would be assigned securities according to requests made to, and approved by, the Exchange.[36]

If an applicant were approved by the Exchange to act as an RLP, the applicant would be required to establish connectivity with relevant Exchange systems before the applicant would be permitted to trade as an RLP on the Exchange.[37] If the Exchange disapproves the application, the Exchange would provide a written notice to the member organization. The disapproved applicant could appeal the disapproval by the Exchange as provided in proposed Rule 107C(i) and/or reapply for RLP status 90 days after the disapproval notice is issued by the Exchange.[38]

Voluntary Withdrawal of RLP Status

An RLP would be permitted to withdraw its status as an RLP by giving notice to the Exchange under proposed NYSE Rule107C(e). The withdrawal would become effective when those securities assigned to the withdrawing RLP are reassigned to another RLP. After the Exchange receives the notice of withdrawal from the withdrawing RLP, the Exchange would reassign such securities as soon as practicable, but no later than 30 days after the date the notice is received by the Exchange. If the reassignment of securities takes longer than the 30-day period, the withdrawing RLP would have no further obligations and would not be held responsible for any matters concerning its previously assigned RLP securities.[39]

RLP Requirements

Under Rule 107C(f), an RLP may only enter Retail Price Improvement Orders electronically and directly into Exchange systems and facilities designated for this purpose and only for the securities to which it is assigned as RLP. An RLP entering Retail Price Improvement Orders in securities to which it is not assigned is not required to satisfy these requirements.[40]

In order to be eligible for execution fees that are lower than non-RLP rates, an RLP must maintain (1) a Retail Price Improvement Order that is better than the PBB at least five percent of the trading day for each assigned security; and (2) a Retail Price Improvement Order that is better than the PBO at least five percent of the trading day for each assigned security.[41] An RLP's five-percent requirements is calculated by determining the average percentage of time the RLP maintains a Retail Price Improvement Order in each of its RLP securities during the regular trading day, on a daily and monthly basis.[42] The Exchange determines whether an RLP has met this requirement by calculating the following:

- The ''Daily Bid Percentage,'' calculated by determining the percentage of time an RLP maintains a Retail Price Improvement Order with respect to the PBB during each trading day for a calendar month;
- The ''Daily Offer Percentage,'' calculated by determining the percentage of time an RLP maintains a Retail Price Improvement Order with respect to the PBO during each trading day for a calendar month;
- The ''Monthly Average Bid Percentage,'' calculated for each RLP security by summing the security's ''Daily Bid Percentages'' for each trading day in a calendar month then dividing the resulting sum by the total number of trading days in such calendar month; and
- The ''Monthly Average Offer Percentage,'' calculated for each RLP security by summing the security's ''Daily Offer Percentage'' for each trading day in a calendar month and then dividing the resulting sum by the total number of trading days in such calendar month.

Finally, only Retail Price Improvement Orders would be used when calculating whether an RLP is in compliance with its five-percent requirements.[43]

The five-percent requirement is not applicable in the first two calendar months a member organization operates as an RLP and takes effect on the first day of the third consecutive calendar month the member organization operates as an RLP.[44]

Failure of RLP To Meet Requirements

Rule 107C(g) addresses the consequences of an RLP's failure to meet its requirements. If, after the first two months an RLP acted as an RLP, an RLP fails to meet any of the Rule 107C(f) requirements for an assigned RLP security for three consecutive months, the Exchange could, in its discretion, take one or more of the following actions:

- Revoke the assignment of any or all of the affected securities from the RLP;
- revoke the assignment of unaffected securities from the RLP; or
- disqualify the member organization from its status as an RLP.[45]

The Exchange determines if and when a member organization is disqualified from its status as an RLP. One calendar month prior to any such determination, the Exchange notifies an RLP of such impending disqualification in writing. When disqualification determinations are made, the Exchange provides a written disqualification notice to the member organization.[46] A disqualified RLP could appeal the disqualification as provided in proposed Rule 107C(i) and/or reapply for RLP status 90 days after the disqualification notice is issued by the Exchange.[47]

Failure of RMO To Abide by Retail Order Requirements

Rule 107C(h) addresses an RMO's failure to abide by Retail Order requirements. If an RMO designates orders submitted to the Exchange as Retail Orders and the Exchange determines, in its sole discretion, that those orders fail to meet any of the requirements of Retail Orders, the Exchange may disqualify a member organization from its status as an RMO.[48] When disqualification determinations are made, the Exchange shall provide a written disqualification notice to the member organization.[49] A disqualified RMO could appeal the disqualification as provided in proposed Rule 107C(i) and/or reapply for RMO status 90 days after the disqualification notice is issued by the Exchange.[50]

[35] *Id.* at (d)(1).
[36] *Id.* at (d)(2).
[37] *Id.* at (d)(3).
[38] *Id.* at (d)(4).
[39] *See id.* at (e).
[40] *Id.* at (f)(1).
[41] *Id.* at (f)(1)(A)–(B).
[42] *Id.* at (f)(2).
[43] *Id.* at (f)(2)(A)–(E).
[44] *Id.* at (f)(3).
[45] *Id.* at (g)(1)(A)–(C).
[46] *Id.* at (2).
[47] *Id.* at (3).
[48] *Id.* at (h)(1).
[49] *Id.* at (2).
[50] *Id.* at (3).

Appeal of Disapproval or Disqualification

Rule 107C(i) describes the appeal rights of member organizations. A member organization that disputes the Exchange's decision to disapprove it under Rule 107C(b) or (d) or disqualify it under Rule 107C(g) or (h) may request, within five business days after notice of the decision is issued by the Exchange, that a Retail Liquidity Program Panel (''RLP Panel'') review the decision to determine if it was correct.[51] The RLP Panel would consist of the NYSE's Chief Regulatory Officer (''CRO''), or a designee of the CRO, and two officers of the Exchange designated by the CoHead of U.S. Listings and Cash Execution.[52] The RLP Panel would review the facts and render a decision within the time frame prescribed by the Exchange.[53] The RLP Panel can overturn or modify an action taken by the Exchange and all determinations by the RLP Panel would constitute final action by the Exchange on the matter at issue.[54]

Retail Liquidity Identifier

Under Rule 107C(j), the Exchange disseminates an identifier through proprietary Exchange data feeds or the Securities Information Processor (''SIP'') when RPI interest priced at least $0.001 better than the PBB or PBO for a particular security is available in Exchange systems (''Retail Liquidity Identifier''). The Retail Liquidity Identifier shall reflect the symbol for the particular security and the side (buy or sell) of the RPI interest, but shall not include the price or size of the RPI interest.[55]

Retail Order Designations

Under Rule 107C(k), an RMO can designate how a Retail Order would interact with available contra-side interest as follows:

- A Type 1-designated Retail Order interacts only with available contra-side Retail Price Improvement Orders and MPL Orders but would not interact with other available contra-side interest in Exchange systems or route to other markets. The portion of a Type 1-designated Retail Order that does not execute against contra-side Retail Price Improvement Orders would be immediately and automatically cancelled.[56]
- A Type 2-designated Retail Order interacts first with available contra-side Retail Price Improvement Orders and MPL Orders and any remaining portion of the Retail Order would be executed as a Regulation NMS-compliant Immediate or Cancel Order pursuant to Rule 13.[57]
- A Type 3-designated Retail Order interacts first with available contra-side Retail Price Improvement Orders and MPL Orders and any remaining portion of the Retail Order would be executed as an NYSE Immediate or Cancel Order pursuant to Rule 13.[58]

Priority and Order Allocation

Under Rule 107C(l), Retail Price Improvement Orders in the same security are ranked and allocated according to price then time of entry into Exchange systems. When determining the price to execute a Retail Order, Exchange systems consider all eligible RPIs and MPL Orders. If the only interest is RPIs, then the executions shall occur at the price level that completes the incoming order's execution. If the only interest is MPL Orders, the Retail Order shall execute at the midpoint of the PBBO. If both RPIs and MPL Orders are present, Exchange systems will evaluate at what price level the incoming Retail Order may be executed in full (''clean-up price''). If the clean-up price is equal to the midpoint of the PBBO, RPIs will receive priority over MPL Orders, and the Retail Order will execute against both RPIs and MPL Orders at the midpoint. If the clean-up price is worse than the midpoint of the PBBO, the Retail Order will execute first with the MPL Orders at the midpoint of the PBBO and any remaining quantity of the Retail Order will execute with the RPIs at the clean-up price. If the clean-up price is better than the midpoint of the PBBO, then the Retail Order will execute against the RPIs at the clean-up price and will ignore the MPL Orders. Any remaining unexecuted RPI interest and MPL Orders will remain available to interact with other incoming Retail Orders. Any remaining unexecuted portion of the Retail Order will cancel or execute in accordance with Rule 107C(k).

Examples of priority and order allocation are as follows:

Example 1:

PBBO for security ABC is $10.00–$10.05.

RLP 1 enters a Retail Price Improvement Order to buy ABC at $10.01 for 500.

RLP 2 then enters a Retail Price Improvement Order to buy ABC at $10.02 for 500.

RLP 3 then enters a Retail Price Improvement Order to buy ABC at $10.03 for 500.

An incoming Retail Order to sell ABC for 1,000 executes first against RLP 3's bid for 500, because it is the best priced bid, then against RLP 2's bid for 500, because it is the next best priced bid. RLP 1 is not filled because the entire size of the Retail Order to sell 1,000 is depleted. The Retail Order executes at the price that completes the order's execution. In this example, the entire 1,000 Retail Order to sell executes at $10.02 because it results in a complete fill.

However, assume the same facts above, except that RLP 2's Retail Price Improvement Order to buy ABC at $10.02 is for 100. The incoming Retail Order to sell 1,000 executes first against RLP 3's bid for 500, because it is the best priced bid, then against RLP 2's bid for 100, because it is the next best priced bid. RLP 1 then receives an execution for 400 of its bid for 500, at which point the entire size of the Retail Order to sell 1,000 is depleted. The Retail Order executes at the price that completes the order's execution, which is $10.01.

Example 2:

PBBO for security DEF is $10.00–10.01.

RLP 1 enters a Retail Price Improvement Order to buy DEF at $10.006 for 500.

RLP 2 enters a Retail Price Improvement Order to buy DEF at $10.005 for 500.

MPL 1 enters an MPL Order to buy DEF at $10.01 for 1000.

RLP 3 enters a Retail Price Improvement Order to buy DEF at $10.002 for 1000.

An incoming Retail Order to sell DEF for 2,500 arrives. The clean-up price is $10.002. Because the midpoint of the PBBO is priced better than the clean-up price, the Retail Order executes with MPL 1 for 1000 shares at $10.005. The Retail Order then executes at $10.002 against RLP 1's bid for 500, because it is the best-priced bid, then against RLP 2's bid for 500 because it is the next best-priced bid and then RLP 3 receives an execution for 500 of its bid for 1000, at which point the entire size of the Retail Order to sell 2,500 is depleted.

Assume the same facts above. An incoming Retail Order to sell DEF for 1,000 arrives. The clean-up price is $10.005. Because the clean-up price is

[51] *Id.* at (i)(1). In the event a member organization is disqualified from its status as an RLP pursuant to proposed Rule 107C(g), the Exchange would not reassign the appellant's securities to a different RLP until the RLP Panel has informed the appellant of its ruling. *Id.* at (i)(1)(A).

[52] *Id.* at (i)(2).

[53] *Id.* at (3).

[54] *Id.* at (4).

[55] *Id.* at (j).

[56] *Id.* at (k)(1). *See* note 18, *supra.*

[57] *Id.* at (2).

[58] *Id.* at (k)(3).

equal to the midpoint of the PBBO, RPIs will receive priority over MPL Orders. As a result, the Retail Order executes first against RLP 1's bid for 500, because it is the best-priced bid, then against RLP 2's bid for 500 because it is the next best-priced bid, at which point the entire size of the Retail Order to sell 1,000 is depleted.[59]

Rationale for Making Pilot Permanent

In approving the Program on a pilot basis, the Commission required the Exchange to ''monitor the scope and operation of the Program and study the data produced during that time with respect to such issues, and will propose any modifications to the Program that may be necessary or appropriate.'' [60] As part of its assessment of the Program's potential impact, the Exchange posted core weekly and daily summary data on the Exchanges' website for public investors to review,[61] and provided additional data to the Commission regarding potential investor benefits, including the level of price improvement provided by the Program. This data included statistics about participation, frequency and level of price improvement and effective and realized spreads.

In the RLP Approval Order, the Commission observed that the Program could promote competition for retail order flow among execution venues, and that this could benefit retail investors by creating additional price improvement opportunities for marketable retail order flow, most of which is currently executed in the Over-the-Counter (''OTC'') markets without ever reaching a public exchange.[62] The Exchange sought, and believes it has achieved, the Program's goal of attracting retail order flow to the Exchange, and allowing such order flow to receive potential price improvement. As the Exchange's analysis of the Program data below demonstrates, the Program provided tangible price improvement to retail investors through a competitive pricing process. The data also demonstrates that the Program had an overall negligible impact on ''broader market structure.'' [63]

Between August 1, 2012, when the Program began, and January 2, 2018, orders totaling in excess of 6.8 billion shares were executed through the Program, providing retail investors with $12.3 million in price improvement. As Table 1 shows, during 2016, an average of 2–3 million shares per day was executed in the Program. In 2017, an average of 3–4 million shares per day were executed in the Program. During the period 2016–17, average effective spreads in RLP executions ranged between $0.012 and $0.019. Fill rates reached as high as 25.7% in May 2018. Overall price improvement averaged $0.0014 per share, approximately 40% above the minimum of $0.001.[64]

TABLE 1—SUMMARY EXECUTION AND MARKET QUALITY STATISTICS

Date	RPI Average volume	Average daily orders	Effective spread	Effective/ quoted ratio	Price improvement	Realized spread	Fill rate %
Jan–16	3,257,495	11,495	$0.0167	0.736	$0.0017	$0.0051	14.7
Feb–16	3,119,642	10,400	0.0163	0.713	0.0018	0.0041	15.3
Mar–16	2,760,731	9,179	0.0142	0.706	0.0018	0.0029	16.5
Apr–16	2,277,189	8,432	0.0143	0.703	0.0018	0.0042	17.6
May–16	1,727,219	6,931	0.0151	0.693	0.0019	0.0054	16.4
Jun–16	2,003,149	9,122	0.0134	0.667	0.0019	0.0060	14.4
Jul–16	2,265,579	7,880	0.0126	0.668	0.0019	0.0034	18.1
Aug–16	2,009,630	5,626	0.0122	0.699	0.0017	−0.0019	16.4
Sep–16	1,620,236	4,801	0.0136	0.696	0.0017	0.0035	15.6
Oct–16	2,355,292	8,055	0.0143	0.693	0.0017	0.0041	19.7
Nov–16	2,702,894	9,915	0.0161	0.700	0.0018	0.0040	17.3
Dec–16	4,380,164	15,036	0.0142	0.710	0.0017	0.0034	20.5
Jan–17	2,921,604	11,184	0.0148	0.730	0.0016	0.0011	21.4
Feb–17	2,508,810	9,801	0.0165	0.754	0.0015	0.0023	20.3
Mar–17	2,585,694	9,517	0.0175	0.770	0.0015	0.0060	20.9
Apr–17	2,875,573	10,174	0.0156	0.764	0.0014	0.0056	23.5
May–17	3,741,955	15,179	0.0150	0.763	0.0014	0.0026	25.7
Jun–17	5,040,922	17,245	0.0155	0.688	0.0018	0.0046	19.2
Jul–17	3,906,133	14,582	0.0154	0.712	0.0017	0.0020	19.8
Aug–17	3,803,586	14,841	0.0174	0.700	0.0018	0.0055	19.5
Sep–17	3,398,110	12,782	0.0152	0.773	0.0014	0.0017	23.2
Oct–17	3,839,683	13,467	0.0156	0.773	0.0014	0.0022	25.2
Nov–17	4,193,873	14,499	0.0161	0.775	0.0014	0.0028	24.2
Dec–17	3,673,405	19,036	0.0180	0.782	0.0014	0.0027	19.0

As Table 2 shows, approximately 45% of all orders in the Program in 2016–17 were for a round lot or fewer shares. More than 60% of retail orders removing liquidity from the Exchange were for 300 shares or less. Further, the number of very large orders was relatively steady, with orders larger than 7,500 shares typically accounting for 4–5% of orders received. Despite relatively low fill rates, large orders account for a sizable portion of the shares executed in the Program.

[59] *Id.* at (l).

[60] RLP Approval Order, 77 FR at 40681.

[61] *See https://www.nyse.com/markets/liquidity-programs#nyse-nyse-mkt-rlp.*

[62] RLP Approval Order, 77 FR at 40679.

[63] *See id.* at 40682.

[64] In 2016, the average price improvement reached as high as $0.0017–$0.0018.

TABLE 2—COMPOSITION OF RETAIL TAKING ORDERS BY ORDER SIZE CATEGORY

	<100 %	101–300 %	301–500 %	501–1000 %	1001–2000 %	2001–4000 %	4001–7500 %	7500–15000 %	>15000 %
Jan–16	36.31	19.06	9.74	11.64	7.60	6.48	4.38	2.70	2.09
Feb–16	35.88	18.81	9.96	11.82	7.72	6.42	4.31	2.82	2.26
Mar–16	35.67	18.69	9.90	11.83	7.82	6.70	4.52	2.92	1.94
Apr–16	38.22	19.39	9.87	11.48	7.16	5.73	3.89	2.54	1.73
May–16	37.64	19.81	10.12	11.57	7.51	5.60	3.74	2.35	1.65
Jun–16	39.46	18.98	9.66	11.22	7.13	5.32	3.95	2.60	1.68
Jul–16	40.22	18.59	9.45	11.10	6.75	5.40	4.05	2.65	1.78
Aug–16	33.59	17.45	9.24	11.66	8.30	7.17	5.71	4.33	2.54
Sep–16	33.40	17.83	9.13	11.55	8.33	7.32	5.69	4.17	2.59
Oct–16	39.50	19.03	9.42	11.16	7.33	5.66	3.77	2.53	1.59
Nov–16	38.72	19.67	9.80	11.40	7.19	5.27	3.63	2.64	1.70
Dec–16	39.41	19.52	9.41	11.26	7.33	5.40	3.55	2.66	1.47
Jan–17	42.16	19.82	9.22	10.62	6.92	4.84	3.05	2.08	1.30
Feb–17	41.90	19.51	9.34	10.79	7.03	4.82	3.09	2.08	1.44
Mar–17	41.55	18.98	9.12	11.04	7.30	5.18	3.40	2.07	1.36
Apr–17	44.32	18.50	8.55	10.21	6.65	5.07	3.31	2.17	1.21
May–17	52.39	17.82	7.14	8.08	5.32	4.03	2.64	1.72	0.87
Jun–17	44.76	15.48	7.53	9.59	6.87	6.06	4.67	3.50	1.53
Jul–17	45.33	15.98	8.05	10.21	7.08	5.61	3.70	2.62	1.43
Aug–17	43.83	16.68	8.39	10.58	7.48	5.67	3.46	2.51	1.41
Sep–17	46.15	17.81	8.26	9.93	6.78	4.85	2.93	2.09	1.20
Oct–17	45.53	18.30	8.47	10.06	6.88	4.82	2.79	2.00	1.15
Nov–17	45.14	17.37	8.63	10.37	7.13	5.02	2.90	2.15	1.29
Dec–17	45.96	17.62	8.89	10.60	6.62	4.55	2.72	1.99	1.05

Tables 3 and 4 show the distribution of orders received by size and shares executed in 2016–17. During that period, the Program saw much lower execution sizes due to smaller retail providing orders (typically around 300 shares) breaking up fills and as a result of liquidity at multiple price improvement points.

TABLE 3—COMPOSITION OF SHARES PLACED BY ORDER SIZE CATEGORY

	<100 %	101–300 %	301–500 %	501–1000 %	1001–2000 %	2001–4000 %	4001–7500 %	7500–15000 %	>15000 %
Jan–16	1.11	2.17	2.28	5.01	6.21	10.14	12.73	14.71	45.64
Feb–16	1.09	2.09	2.25	4.92	6.09	9.67	12.01	14.90	46.97
Mar–16	1.15	2.23	2.40	5.28	6.61	10.79	13.50	16.37	41.68
Apr–16	1.45	2.75	2.84	6.09	7.21	10.93	13.90	16.82	38.02
May–16	1.47	2.81	2.93	6.16	7.59	10.70	13.39	15.81	39.14
Jun–16	1.43	2.67	2.80	6.06	7.29	10.28	14.15	17.28	38.04
Jul–16	1.38	2.50	2.61	5.67	6.57	10.05	13.95	16.71	40.57
Aug–16	0.88	1.71	1.86	4.30	5.88	9.78	14.44	19.69	41.45
Sep–16	0.92	1.78	1.84	4.24	5.89	10.04	14.44	19.38	41.48
Oct–16	1.60	2.76	2.77	6.00	7.52	11.19	13.79	17.15	37.21
Nov–16	1.49	2.70	2.72	5.84	6.99	9.77	12.62	16.97	40.90
Dec–16	1.69	2.98	2.88	6.29	7.82	11.13	13.57	18.68	34.96
Jan–17	2.08	3.51	3.29	6.89	8.59	11.57	13.51	17.30	33.26
Feb–17	1.96	3.33	3.21	6.70	8.39	11.12	13.29	16.59	35.40
Mar–17	1.90	3.16	3.05	6.72	8.50	11.64	14.12	15.93	34.97
Apr–17	2.29	3.34	3.10	6.72	8.38	12.32	15.07	18.00	30.78
May–17	4.06	4.02	3.23	6.65	8.42	12.26	14.97	17.66	28.74
Jun–17	1.36	2.15	2.15	5.07	6.99	11.88	16.71	22.63	31.06
Jul–17	1.45	2.49	2.58	6.02	8.03	12.20	14.85	19.55	32.83
Aug–17	1.52	2.67	2.76	6.42	8.79	12.70	14.21	19.41	31.50
Sep–17	2.01	3.29	3.08	6.74	8.98	12.38	13.73	18.52	31.27
Oct–17	1.99	3.45	3.21	6.94	9.26	12.39	13.30	18.03	31.42
Nov–17	1.85	3.10	3.11	6.80	9.07	12.20	13.06	18.30	32.51
Dec–17	2.06	3.54	3.60	7.78	9.43	12.58	13.73	19.12	28.16

TABLE 4—COMPOSITION OF SHARES EXECUTED BY ORDER SIZE CATEGORY

	<100 %	101–300 %	301–500 %	501–1000 %	1001–2000 %	2001–4000 %	4001–7500 %	7500–15000 %	>15000 %
Jan–16	6.25	10.48	9.45	17.31	14.62	10.14	10.60	8.43	8.90
Feb–16	5.94	9.72	9.20	16.39	13.89	9.67	10.88	9.53	11.14
Mar–16	5.79	9.59	9.07	16.56	14.13	10.79	11.31	9.99	9.13
Apr–16	6.84	11.14	10.10	17.62	13.89	10.93	10.47	9.28	7.38

TABLE 4—COMPOSITION OF SHARES EXECUTED BY ORDER SIZE CATEGORY—Continued

	<100 %	101–300 %	301–500 %	501–1000 %	1001–2000 %	2001–4000 %	4001–7500 %	7500–15000 %	>15000 %
May–16	7.38	11.61	10.14	17.20	13.47	10.70	9.84	8.47	8.99
Jun–16	7.10	10.66	9.04	15.22	13.52	10.28	11.45	10.13	10.13
Jul–16	6.18	9.52	8.28	14.74	12.55	10.05	13.28	11.29	10.57
Aug–16	4.48	7.45	6.93	12.87	12.48	9.78	15.50	15.54	10.23
Sep–16	4.73	7.83	6.94	12.86	12.43	10.04	16.13	14.42	10.16
Oct–16	6.76	10.32	8.76	15.87	14.13	11.19	11.68	10.00	8.23
Nov–16	7.02	11.19	9.76	17.17	14.19	9.77	10.31	8.99	8.58
Dec–16	6.99	10.91	9.22	17.06	15.32	11.13	10.68	9.16	6.67
Jan–17	8.21	12.23	9.82	17.25	15.76	11.57	9.59	7.24	6.40
Feb–17	8.20	12.39	10.36	18.42	15.80	11.12	9.45	6.93	5.64
Mar–17	7.67	11.72	10.02	19.32	16.40	11.64	9.76	6.64	4.93
Apr–17	8.48	11.45	9.57	18.22	15.60	12.32	10.32	7.81	4.50
May–17	14.15	12.70	9.29	16.65	14.45	12.26	9.45	7.18	3.52
Jun–17	5.58	8.07	7.39	15.41	14.63	11.88	13.89	13.50	6.20
Jul–17	5.67	9.03	8.53	17.83	16.45	12.20	11.56	9.71	6.11
Aug–17	5.78	9.30	8.88	18.25	17.51	12.70	10.54	8.75	5.72
Sep–17	7.32	10.97	9.79	18.78	17.26	12.38	9.53	7.60	4.98
Oct–17	6.53	10.74	9.74	18.74	17.63	12.39	9.21	8.01	5.35
Nov–17	6.28	10.18	9.41	18.28	17.38	12.20	9.80	8.44	6.08
Dec–17	6.50	10.99	10.31	20.09	16.89	12.58	9.35	7.30	4.60

As Table 5 shows, during 2016—17, fill rates trended near 80 for orders up to 300 shares, while the average shares available at the inside was 300 shares. Data published to the SIP indicates when liquidity is available for retail liquidity seekers inside the spread, and on which side.

TABLE 5—FILL RATES BY RETAIL TAKE ORDER SIZE

	<100 %	101–300 %	301–500 %	501–1000 %	1001–2000 %	2001–4000 %	4001–7500 %	7500–15000 %	>15000 %
Jan–16	85.30	72.92	62.76	52.36	35.67	20.84	12.61	8.68	2.95
Feb–16	83.81	71.47	62.76	51.21	35.07	21.18	13.92	9.84	3.65
Mar–16	82.78	70.92	62.38	51.69	35.25	22.06	13.80	10.06	3.61
Apr–16	83.19	71.37	62.58	50.99	33.95	21.41	13.27	9.72	3.42
May–16	82.49	67.65	56.62	45.70	29.09	19.75	12.04	8.77	3.76
Jun–16	71.79	57.72	46.59	36.28	26.76	17.91	11.69	8.46	3.84
Jul–16	80.95	68.80	57.26	46.92	34.50	24.39	17.19	12.20	4.71
Aug–16	83.54	71.79	61.39	49.17	34.92	24.40	17.64	12.97	4.06
Sep–16	80.06	69.04	59.19	47.50	33.04	22.58	17.49	11.65	3.83
Oct–16	83.10	73.58	62.22	52.05	36.97	25.09	16.67	11.48	4.35
Nov–16	81.40	71.75	62.28	50.90	35.15	22.68	14.15	9.18	3.63
Dec–16	84.73	75.04	65.56	55.67	40.18	25.76	16.14	10.06	3.91
Jan–17	84.49	74.69	64.07	53.69	39.35	24.97	15.22	8.98	4.13
Feb–17	84.49	75.25	65.39	55.64	38.16	23.34	14.40	8.46	3.23
Mar–17	84.31	77.43	68.69	60.00	40.26	24.26	14.42	8.70	2.95
Apr–17	86.84	80.63	72.49	63.69	43.71	26.79	16.10	10.19	3.44
May–17	89.57	81.19	73.95	64.31	44.07	26.41	16.22	10.45	3.15
Jun–17	78.80	72.17	66.04	58.35	40.20	24.80	15.96	11.46	3.83
Jul–17	77.45	71.84	65.58	58.68	40.59	24.56	15.42	9.85	3.69
Aug–17	74.17	67.92	62.76	55.48	38.88	23.48	14.48	8.80	3.54
Sep–17	84.30	77.24	73.73	64.64	44.56	25.81	16.11	9.51	3.69
Oct–17	82.84	78.51	76.55	68.14	48.06	28.59	17.47	11.21	4.30
Nov–17	82.32	79.42	73.12	65.08	46.34	28.08	18.16	11.17	4.52
Dec–17	81.62	80.19	74.12	66.68	46.28	28.70	17.60	9.86	4.22

Table 6 shows the development of orders sizes received in the Program over time. Orders adding liquidity to the Exchange averaged in the mid-300 share range for most of the Program's recent history, although the median size has increased since August 2016. (The Exchange notes that the median order size is the average of the daily median order sizes across all orders received on a trade date for NYSE symbols). After averaging near 2,000 shares at times, the size of retail orders removing liquidity from the Exchange has dropped over time, with median sizes periodically exceeding 300 shares. The slightly smaller take order sizes helps explain the better overall fill rates and improved effective spreads in the Program's recent history. However, as shown by the occasional oversized orders, there remains ample liquidity and opportunity in the Program to satisfy liquidity takers with meaningful price improvement.

TABLE 6—ORDER SIZE DETAILS

	Provide orders		Take orders	
	Average	Median	Average	Median
Jan–16	297	157	1,941	259
Feb–16	314	191	1,958	272
Mar–16	312	182	1,787	267
Apr–16	306	176	1,523	215
May–16	294	100	1,542	217
Jun–16	314	100	1,508	207
Jul–16	323	105	1,585	202
Aug–16	340	194	2,230	338
Sep–16	338	200	2,212	336
Oct–16	357	200	1,494	204
Nov–16	382	200	1,623	212
Dec–16	367	200	1,398	206
Jan–17	361	200	1,217	199
Feb–17	350	200	1,264	200
Mar–17	360	200	1,304	200
Apr–17	353	200	1,223	189
May–17	416	200	961	105
Jun–17	370	200	1,517	190
Jul–17	355	200	1,364	180
Aug–17	360	200	1,310	196
Sep–17	391	200	1,141	164
Oct–17	444	200	1,127	172
Nov–17	422	200	1,193	184
Dec–17	395	200	1,026	195

Although the Program provides the opportunity to achieve significant price improvement, the Program has not generated significant activity. As Table 1 shows, the average daily volume for the Program has hovered in the three to four million share range, and has accounted for less than 0.1% of consolidated NYSE-listed volume in 2016–17. The Program's share of NYSE volume during that period was below 0.4%. Moreover, no symbol during the past two years achieved as much as 1.6% of their consolidated average daily volume (''CADV'') in the Program. As Table 7 shows, during the 2016–2017 period, less than 0.5% of all day/symbol pairs exceeded 5% share of CADV, with another 3.7% of day/symbol pairs achieving a share of CADV between 1% and 5%. Fully 88% of all day/symbol pairs exhibited RLP share of 0.25% or less during that time. For ticker symbols that traded at least 100 days during the two-year period, more than half of all symbols over that period had less than 0.10% of their consolidated volume executed in the program, and 96% less than 0.50%. Of the symbols that achieved greater than 0.50% CADV in the Program during 2016–2017, only two had a CADV above 500,000, and neither was chosen in the matched sample described below. The Program's share of the total market in NYSE-listed securities is tiny considering that non-ATS activity in the U.S. equity markets, based on FINRA transparency data and NYSE Trade and Quote (''TAQ'') volume statistics, is estimated to be approximately 20–25% of all US equity volume.

In short, the Program represents a minor participant in the overall market to price improve marketable retail order flow. While participation was low, as noted above, retail investors that participated in the Program received price improvement on their orders, which was one of the stated goals of the Program. The NYSE therefore believes that this pilot data supports making the Program permanent.

Table 7				
	Daily Results		Two Year Aggregate	
Distribution	Count	Percentage	Count	Percentage
> 50%	63	0.0040%	0	0.0000%
25-50%	180	0.0113%	0	0.0000%
10-25%	1,619	0.1016%	0	0.0000%
5-10%	5,675	0.3562%	0	0.0000%
1-5%	59,284	3.7210%	14	0.3504%
0.75%-1%	18,756	1.1772%	26	0.6507%
0.50%-0.75%	30,210	1.8961%	130	3.2533%
0.25%-0.50%	65,026	4.0814%	797	19.9449%
0.10%-0.25%	116,882	7.3361%	773	19.3443%
0.05%-0.10%	102,209	6.4152%	562	14.0641%
0.01%-0.05%	181,846	11.4136%	1,223	30.6056%
< 0.01%	1,011,493	63.4864%	471	11.7868%

Moreover, beyond providing a meaningful price improvement to retail investors through a competitive and transparent pricing process unavailable in non-exchange venues, the data collected during the Program supports the conclusion that the Program has not had any significant negative market impact. As set forth in Table 8, the Exchange measured the correlation between several critical market quality statistics and either RLP share of CADV, shares posted dark by providers seeking to interact with retail orders or the amount of time during the trading day that RLP liquidity was available. The correlations the Exchange measured were levels, not changes. As a result, fairly high correlation coefficients should suggest that the Program had a meaningful impact on the statistics. In no case did the Exchange observe a single correlation greater than an absolute value of 0.10, and even at the 90th percentile of all symbols, there was no correlation of even 0.30. In short, these results support the conclusion that the Program does not negatively impact market quality.

TABLE 8

Statistic 1	Statistic 2	Average correlation	90th Percentile correlation
% Time With RLP Liquidity	Consolidated Spread	0.0001	0.0003
% Time With RLP Liquidity	Eff. Sprd. Ex RPI	0.0943	0.2925
RLP Size at PBBO	Consolidated Spread	0.0003	0.0005
RLP Size at PBBO	Eff. Sprd. Ex RPI	0.0617	0.2348
RLP Share of CADV	Eff. Sprd. Ex RPI	0.0010	0.1091
RLP Share of CADV	Share wtd. NBBO Spread	0.0152	0.1357
RLP Share of CADV	Time wtd. NBBO Spread	0.0002	0.0002
RLP Share of CADV	Time wtd. NYSE BBO Spread	0.0002	0.0002

Difference in Differences Analysis

In addition to demonstrating that changes in Program activity had no impact on market quality on a day-to-day basis, the Exchange also analyzed market quality impact by using the difference in differences statistical technique.

Difference in differences (''DID'') requires studying the differential effect of data measured between a treatment group and a control group. The two groups are measured during two or more different time periods, usually a period before ''treatment'' and at least one time period after ''treatment,'' that is, a time period after which the treatment group is impacted but the control group is not. The assumption is that the control group and the treatment group are otherwise impacted equally by extraneous factors, *i.e.,* that the other impacts are parallel. For example, when measuring average quoted spreads, if spreads increased by 10 basis points in the control group and by 12 basis points in the test group, the assumption would be that the two basis point differential was caused by the treatment.

Because all Exchange-traded symbols were eligible to participate in the Program, a natural control group does not exist for the securities participating in the Program. Hence, there is a possibility that the lack of activity in the Program could have been the result of factors that DID cannot measure. Nonetheless, to produce a control group, the Exchange identified the 50 most active ticker symbols in the Program as measured by share of consolidated volume following launch of the Program. The Exchange then determined a matched sample, without replacement, using consolidated volume, volume weighted average price, and consolidated quoted spread in basis points. The matched sample compared the 50 most active ticker symbols in the Program with all securities that had very low Program volume. The matching criteria minimized the sum of the squares of the percent difference between the top 50 active ticker symbols and potential matches.

The Exchange executed four DID analyses:

1. Six months prior to launch of the Program (February 2012–July 2012) compared to six months following launch, excluding the first month of the Program (September 2012–February 2013) for securities with a CADV of at least 500,000 during the pre-treatment and treatment periods.

2. Six months prior to launch of the Program (February 2012–July 2012) compared to all of 2016 and 2017 for securities with a CADV of at least 500,000 during the pre-treatment and treatment periods.

3. Six months prior to launch of the Program (February 2012–July 2012) compared to six months following launch, excluding the first month of the program (September 2012–February 2013) for securities with a CADV of at least 50,000 and less than 500,000, during the pre-treatment and treatment periods.

4. Six months prior to launch of the Program (February 2012–July 2012) compared to all of 2016 and 2017 for securities with a CADV of at least 50,000 and less than 500,000, during the pre-treatment and treatment periods.

Because there was no natural control group, the Exchange employed flexible matching criteria. In addition to the CADV restrictions, the Exchange utilized a control of CADV ratio of 3:1, a volume weighted average price (''VWAP'') of 2:1, and a spread of 2:1. The Exchange also required potential control group stocks to have a share of Program trading less than 1/10th of the lowest of the top 50 securities for the first trading period. The Exchange excluded securities that were in the test groups of the Tick Size Pilot Program from consideration in matching securities for the DID analysis of the 2016–2017 period.[65] Preferred stocks, warrants and rights were excluded from the DID analysis for both periods. Finally, because the Program is only valid for stocks trading at or above $1.00, any security with a low price during the pre-treatment or the treatment period below $1.00 was also excluded. Securities also had to be listed on the NYSE during the pre-treatment period and during the treatment period.

The Exchange selected the top 25 securities by minimum differences as described above.

Results for Securities With CADV at Least 500,000 Shares

As noted above, the Program began in August 2012. The Exchange selected February–July 2012 as the relevant six month pre-period. The first post-period used was September 2012–February 2013, as the Program was not rolled out to all securities immediately. Tables 9A and 9B show the matched sample securities with key attributes for the first comparison period for symbols with a CADV of at least 500,000. Tables 10A and 10B show the selected securities for the second comparison period with CADV of at least 500,000.

[65] The Tick Size Pilot Program is a National Market System (''NMS'') plan designed to allow the Commission, market participants and the public to assess the impact of wider minimum quoting and trading increments—or tick sizes—on the liquidity and trading of the common stocks of certain small capitalization companies.

Table 9A: Retail Program Matched Sample (Feb. - July 2012 vs. Sep. 2012 - Feb. 2013)

Treatment Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread	Control Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread
GLW	15,533,350	$13.25	7.58	VALEP	7,987,249	$20.96	4.75
SCHW	12,425,085	$13.34	7.57	BBD	9,826,140	$15.82	6.16
MGM	12,194,154	$12.58	8.22	ITUB	14,382,571	$16.68	6.13
NLY	10,622,520	$16.49	6.00	HST	8,152,479	$15.75	6.37
ARR	5,701,535	$7.06	14.19	SWC	1,986,888	$11.09	11.01
HUN	5,075,055	$13.45	7.65	MBT	2,717,909	$17.69	6.02
TEF	4,517,965	$13.88	7.14	NRG	3,561,399	$16.59	6.37
TWO	4,405,643	$10.44	9.81	UBS	3,919,778	$12.62	8.06
MCP	3,403,308	$26.48	9.05	CIE	2,782,833	$26.80	8.24
LNKD	3,374,585	$98.90	8.48	EQT	1,760,916	$50.23	4.25
TSL	3,000,964	$7.66	16.12	DCT	3,167,224	$5.86	17.11
LGF	2,940,312	$13.53	9.06	DDR	2,999,057	$14.35	7.04
KORS	2,872,499	$42.42	8.00	PXP	2,400,816	$39.96	5.70
SAN	2,799,280	$10.01	11.68	VIP	1,991,387	$9.74	11.10
MUX	2,458,917	$3.60	29.56	HT	1,186,652	$5.29	19.31
BBVA	2,052,893	$7.15	14.17	SWFT	1,600,993	$10.30	11.95
ERF	1,806,818	$17.01	7.33	CBL	1,883,227	$18.50	6.17
OPK	1,477,637	$4.74	21.71	ASX	1,240,964	$4.60	21.95
PGH	1,380,933	$8.01	12.83	LXP	1,151,087	$8.67	11.96
NBG	1,281,865	$2.39	49.96	ZTR	504,899	$3.58	28.01
ANH	1,225,499	$6.66	14.93	SLT	1,006,495	$8.56	13.35
KCG	1,021,164	$12.32	8.46	KT	1,094,900	$13.60	7.84
AOD	979,755	$4.50	22.44	IRE	1,075,990	$6.62	23.05
KMP	707,377	$82.04	5.24	DVA	843,969	$87.26	4.72
MWE	637,554	$54.95	7.82	WCC	657,039	$60.60	8.04

Table 9B: Additional Comparative Statistics

Treatment Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV	Control Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV
GLW	32.08%	33.81%	0.3833%	VALEP	14.32%	10.87%	0.0011%
SCHW	26.97%	27.14%	0.2193%	BBD	20.90%	18.17%	0.0085%
MGM	35.71%	32.84%	0.2158%	ITUB	22.87%	22.23%	0.0174%
NLY	45.36%	41.72%	0.4556%	HST	28.97%	28.89%	0.0182%
ARR	47.61%	49.25%	0.8358%	SWC	30.05%	36.49%	0.0171%
HUN	32.66%	35.16%	0.2620%	MBT	28.49%	30.25%	0.0081%
TEF	40.49%	29.97%	0.7724%	NRG	28.92%	33.23%	0.0103%
TWO	40.95%	41.10%	0.4312%	UBS	20.64%	25.03%	0.0037%
MCP	40.60%	45.83%	0.2783%	CIE	27.88%	36.21%	0.0152%
LNKD	36.29%	36.32%	0.2466%	EQT	25.46%	29.20%	0.0152%
TSL	39.50%	39.64%	0.2216%	DCT	33.61%	35.98%	0.0131%
LGF	39.10%	38.40%	0.2290%	DDR	33.38%	37.09%	0.0056%
KORS	38.82%	35.84%	0.2057%	PXP	23.13%	33.81%	0.0158%
SAN	35.89%	38.18%	0.2265%	VIP	26.93%	26.30%	0.0131%
MUX	37.95%	35.19%	0.2381%	HT	31.79%	40.15%	0.0182%
BBVA	33.42%	34.84%	0.7064%	SWFT	36.44%	39.57%	0.0172%
ERF	36.13%	35.54%	0.2268%	CBL	34.33%	36.29%	0.0133%
OPK	40.27%	47.95%	0.2854%	ASX	41.57%	39.82%	0.0156%
PGH	42.81%	45.20%	0.2500%	LXP	33.90%	34.81%	0.0079%
NBG	42.73%	45.12%	0.5979%	ZTR	42.23%	46.82%	0.0143%
ANH	40.67%	39.66%	0.2532%	SLT	28.44%	30.84%	0.0196%
KCG	28.33%	39.02%	0.2388%	KT	35.43%	31.17%	0.0026%
AOD	57.75%	57.87%	0.5156%	IRE	42.21%	47.44%	0.0187%
KMP	43.32%	46.26%	0.2346%	DVA	28.66%	29.83%	0.0198%
MWE	40.12%	42.06%	0.2063%	WCC	30.35%	39.26%	0.0076%

Table 10A Retail Program Matched Sample (Feb. - July 2012 vs.2016 - 2017)

Treatment Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread	Control Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread
X	10,198,354.6	$25.09	4.53	PBRA	8,215,851	$22.47	4.47
KGC	9,317,602.7	$9.15	10.98	LSI	10,998,995	$7.62	13.50
M	6,187,172.5	$37.16	3.00	STT	3,724,572	$42.78	2.87
HTZ	5,191,738.0	$13.58	7.51	IPG	6,581,255	$11.00	9.10
CLF	3,885,797.3	$57.89	4.68	FTI	2,561,023	$45.91	3.98
IAG	3,024,442.8	$12.51	8.30	DRE	2,933,467	$14.17	7.06
SAN	2,799,280.0	$10.01	11.68	DRH	1,524,537	$10.11	10.18
CIG	2,481,352.0	$21.33	4.87	UNM	2,639,498	$21.49	4.63
STM	2,170,712.1	$6.18	16.72	DCT	3,167,224	$5.86	17.11
SUN	2,042,126.7	$43.87	3.83	EIX	1,888,883	$43.94	2.98
VRX	1,737,832.3	$49.75	4.16	TS	1,671,801	$36.62	4.16
SNE	1,698,085.1	$16.41	6.58	FBHS	1,466,438	$21.40	7.41
CBI	1,242,219.7	$39.89	6.25	AGCO	1,447,398	$45.47	5.71
EXK	1,239,438.6	$9.18	12.98	SHO	1,318,481	$9.94	10.84
UA	1,222,025.2	$82.15	7.58	CXO	1,121,123	$95.21	9.36
WTW	1,059,789.4	$68.07	6.92	GDI	912,411	$61.48	8.31
EXG	1,006,827.5	$8.68	11.57	CUBE	1,086,346	$11.67	9.79
DDD	964,142.2	$28.40	14.48	LHO	836,218	$27.73	7.99
OZM	906,907.3	$8.54	16.54	CUZ	463,857	$7.47	14.10
WTI	828,906.6	$18.09	12.94	PHH	1,020,754	$15.44	11.52
AG	709,316.3	$16.33	10.72	FCEA	632,662	$14.66	11.05
LL	642,972.0	$28.53	12.21	WBS	543,423	$21.71	9.52
VVR	631,877.8	$4.75	21.66	GPK	640,549	$5.29	20.05
DSX	595,860.9	$8.22	15.80	EDR	663,389	$10.89	10.48
NAT	541,332.5	$13.95	14.92	POL	576,970	$13.78	11.94

Table 10B: Additional Comparative Statistics

Treatment Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV	Control Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV
X	30.61%	35.27%	0.2954%	PBRA	37.24%	41.75%	0.0112%
KGC	30.19%	38.34%	0.1834%	LSI	24.50%	27.13%	0.0123%
M	22.81%	32.01%	0.1563%	STT	24.24%	24.08%	0.0111%
HTZ	31.39%	44.75%	0.2009%	IPG	23.82%	27.00%	0.0118%
CLF	38.97%	36.42%	0.2291%	FTI	27.31%	30.32%	0.0123%
IAG	39.54%	43.79%	0.1872%	DRE	32.30%	24.93%	0.0108%
SAN	57.82%	60.57%	0.1982%	DRH	40.94%	30.65%	0.0046%
CIG	34.91%	36.95%	0.1688%	UNM	33.02%	30.93%	0.0085%
STM	30.77%	39.27%	0.2142%	DCT	27.56%	34.92%	0.0055%
SUN	22.97%	32.49%	0.1956%	EIX	32.24%	30.09%	0.0131%
VRX	25.94%	31.31%	0.2200%	TS	30.32%	31.16%	0.0092%
SNE	31.85%	41.02%	0.1609%	FBHS	20.44%	25.08%	0.0120%
CBI	26.77%	36.56%	0.2119%	AGCO	25.76%	27.55%	0.0138%
EXK	38.99%	47.69%	0.1832%	SHO	25.71%	27.44%	0.0046%
UA	39.99%	50.81%	0.1744%	CXO	31.63%	32.54%	0.0141%
WTW	35.89%	36.69%	0.2310%	GDI	30.60%	31.89%	0.0148%
EXG	31.18%	32.31%	0.4050%	CUBE	45.29%	31.81%	0.0138%
DDD	30.01%	39.89%	0.1679%	LHO	33.61%	25.49%	0.0109%
OZM	27.18%	46.63%	0.1573%	CUZ	30.11%	27.33%	0.0086%
WTI	30.03%	41.34%	0.2805%	PHH	26.57%	28.72%	0.0105%
AG	30.23%	49.58%	0.1987%	FCEA	24.82%	25.21%	0.0046%
LL	44.08%	51.80%	0.2096%	WBS	36.88%	36.51%	0.0067%
VVR	22.71%	46.94%	0.2493%	GPK	37.43%	31.22%	0.0106%
DSX	32.28%	45.71%	0.2869%	EDR	27.56%	38.78%	0.0125%
NAT	36.55%	46.17%	0.2673%	POL	13.46%	21.30%	0.0148%

The Exchange's DID analysis utilized the 25 securities noted above on the following 15 statistics:

• Time-weighted NYSE quoted spread in basis points.

• Time-weighted NYSE quoted spread in dollars and cents.

• Time-weighted Consolidated quoted spread in basis points.

• Time-weighted Consolidated quoted spread in dollars and cents.

• Volume-weighted Effective spread in basis points * measured against the NYSE quote.

• Volume-weighted Effective spread in basis points * measured against the NBBO.

• Volume-weighted Effective spread in basis points * measured against the PBBO.

• Volume-weighted Quoted spread in basis points * measured against the NYSE quote.

• Volume-weighted Quoted spread in basis points * measured against the NBBO.

• Volume-weighted Quoted spread in basis points* measured against the PBBO.

• Trade Reporting Facility (''TRF'') share of volume during regular trading hours, excluding auctions.

• TRF share of volume, full day, including auctions.

• NYSE share of volume during regular trading hours, excluding auctions.

• NYSE share of volume, full day, including auctions.

* Volume weighted basis points were estimated using cents spreads and dividing by daily VWAPs.

• Trade-to-trade price change in basis points.

The Exchange calculated the DID regression for each of these statistics using the following formula:

$$Y_{it} = B_0 + B_1T + B_2I + B_3IT$$

where T equals 0 during the pre-period and equals 1 during the treatment period, and where I is the Intervention.

Table 11: DiD Results (Feb. 2012 - July 2012 vs. Sep. 2012 - Feb. 2013)

Estimated Measure	Estimate	Standard Error
Time-weighted NYSE Spread^	2.4352	3.9173
Time-weighted NYSE $ Spread	-0.0035	0.0086
Time-weighted Consolidated Spread	2.6562	3.5251
Time-weighted Consolidated $ Spread	-0.0030	0.0059
Volume-weighted Effective Spread vs. NYSE Quote	2.3934	3.7208
Volume-weighted Effective Spread vs. NBBO	2.4523	3.5545
Volume-weighted Effective Spread vs. PBBO	2.4862	3.5959
Volume-weighted Quoted Spread vs. NYSE Quote	2.5582	3.7304
Volume-weighted Quoted Spread vs. NBBO	2.5826	3.5000
Volume-weighted Quoted Spread vs. PBBO	2.6627	3.5518
NYSE Regular Hours Share, no auctions	0.0031	0.0171
NYSE Full Day Share	0.0057	0.0172
TRF Regular Hours Share, no auctions	-0.0225	0.0303
TRF Full Day Share	-0.0202	0.0282
Trade-to-trade price change	0.3872	0.7279

^ - Spreads in basis points unless otherwise noted

Significance: * = 99.9%, ** = 99%, * = 95%, . = 90%**

As Table 11 shows, none of the 15 regressions performed by the Exchange showed statistical significance for the September 2012–February 2013 period.

The Exchange also calculated the DID regression for the 2016–2017 period, as shown in Table 12. Several spread measures showed statistically significant increases at the 99% confidence level, as did the full-day share of trading on the TRF. However, time-weighted consolidated dollar spreads fell and were significant at the 90% confidence level. NYSE dollar spreads fell and were significant at the 95% level. As described below, the Exchange believes that the apparent spread widening and TRF market share increase are an artifact of the study methodology and not attributable to the Program.

Table 12: DiD Results (Feb. 2012 - July 2012 vs. 2016 -2017)		
Estimated Measure	**Estimate**	**Standard Error**
Time-weighted NYSE Spread^	8.968**	3.2760
Time-weighted NYSE $ Spread	-0.0224*	0.0110
Time-weighted Consolidated Spread	10.0349**	2.9952
Time-weighted Consolidated $ Spread	-0.01455.	0.0074
Volume-weighted Effective Spread vs. NYSE Quote	8.605**	2.6130
Volume-weighted Effective Spread vs. NBBO	8.6483***	2.4915
Volume-weighted Effective Spread vs. PBBO	8.7177***	2.5111
Volume-weighted Quoted Spread vs. NYSE Quote	9.903***	2.8810
Volume-weighted Quoted Spread vs. NBBO	9.8191***	2.7361
Volume-weighted Quoted Spread vs. PBBO	9.9825***	2.7589
NYSE Regular Hours Share, no auctions	-0.0260	0.0170
NYSE Full Day Share	-0.0288	0.0175
TRF Regular Hours Share, no auctions	0.09959***	0.0287
TRF Full Day Share	0.08245**	0.0268
Trade-to-trade price change	1.619*	0.6673

^ - Spreads in basis points unless otherwise noted

Significance *** = 99.9%, ** = 99%, * = 95%, . = 90%

As noted above, because all Exchange-traded symbols were eligible to participate in the Program when it began as a pilot in August 2012, there was no control group that would permit a classic DID examination of the results. Instead, for purposes of making the Program permanent, the Exchange created an artificial control group and treatment group by coming up with a matched sample based on the securities with the highest share of consolidated volume in the Program and matching these securities based on volume weighted average price, time-weighted quoted spread, and CADV during the pre-treatment period (subject to the criteria noted above). By necessity, however, the percent of activity in the Program itself had to be based on the post-treatment period.

This methodology provided several insights and permitted the Exchange to offer a more thorough analysis of the Program's impact. However, the Exchange believes that selection of securities with the highest share of consolidated volume in the Program for the treatment group created a biased treatment group. Securities with lower prices tend to trade more actively in the TRF as well as in the Program; the percentage value of price improvement on a low-price stocks provides greater savings to investors. For example, $0.0010 price improvement per share for a $5.00 stock saves an investor $2.00 per $10,000 invested. The same per share price improvement on a $50 stock is worth just $0.20. Table 13 shows this relationship for the 2016–2017 treatment period used in the analysis.

TABLE 13—SHARE OF VOLUME BASED ON DAILY VWAP

	<$5.00 (%)	$5–$10 (%)	$10–$25 (%)	$25–$50 (%)	$50–$100 (%)	>$100 (%)
TRF Share	41.86	37.97	36.02	32.92	30.97	31.58
NYSE RLP % of CADV	0.30	0.23	0.20	0.13	0.10	0.11

By utilizing securities that traded more heavily in the Program, the treatment stocks selected for the DID analysis were mostly lower priced securities. However, the matching criteria does not restrict stock price during the pre-treatment period. The large time gap between the pre-treatment and treatment period resulted in the selection of many stocks that were relatively lower-priced during the treatment period, but may not have been in that category during the pre-treatment period. Since the study period also sought control stocks that were not heavily traded in the Program, this resulted in a concentration of mostly higher priced treatment period securities in the control group.

Many of the treatment securities chosen for the 2016–2017 period suffered sharp price declines compared to their 2012 pre-treatment period levels. On its own, a price drop would not necessarily be problematic. However, many of these stocks were already tick constrained—that is, they traded with time-weighted quoted spreads near $0.01. As a consequence, any price drop would necessarily result in an almost equal and opposite percentage increase in the spread. This change in spread was not caused by the Program but rather by the fact the symbols were already tick constrained.

Table 14 details the VWAP, dollar and basis point spreads of all of the stocks in the 2016–2017 treatment and control group samples. The final two columns show the ratio of pre-period VWAP to post-period VWAP and compares that to the post- and pre-treatment period spreads in basis points. While, on average, control stock prices rose, treatment stock prices fell. In most cases, treatment group basis point spreads increased, although often by less than by the percentage that VWAPs dropped, thus highlighting the impact of tick constraints on our results. However, the DID approach compared the raw increase in spreads, resulting in a statistically significant increase in spreads due to differing price performance between the control group and treatment group.

The Exchange further notes that the average pre-treatment VWAP price of the treatment stocks was $25.51 versus $24.96 for the control group stocks. However, the average post-period prices were $13.75and $37.74, respectively. The Exchange believes that these differences explain the statistically significant increase in TRF market share for the treatment stocks as well as the increases in spreads in basis points (due to the lower prices) in treatment securities versus the more than 50% average price increase in control stocks. As detailed in Table 15, this difference in performance was not present in the matched sample produced for the study covering the initial launch of the program. The treatment group saw prices *rise* from $20.11 to $20.26 during the treatment period. Control group securities saw a slightly larger increase, rising from $20.07 to $22.60.

Table 14: Time-weighted Consolidated Spread and VWAP Comparison of 2016 -2017 Sample								
Treatment Securities								
Symbol	**Pre-VWAP**	**Post-VWAP**	**Pre-$ Spread**	**Post $ Spread**	**Pre BP Spread**	**Post BP Spread**	**VWAP Pre/Post**	**BP Post/Pre**
AG	$16.33	$9.44	0.017	0.010	10.72	13.35	1.7	1.2
CBI	$39.89	$23.37	0.025	0.020	6.25	7.46	1.7	1.2
CIG	$21.33	$2.44	0.010	0.010	4.87	44.34	8.8	9.1
CLF	$57.89	$7.02	0.027	0.010	4.68	20.26	8.2	4.3
DDD	$28.40	$14.19	0.041	0.012	14.48	8.62	2.0	0.6
DSX	$8.22	$3.58	0.013	0.012	15.80	37.33	2.3	2.4
EXG	$8.68	$8.67	0.010	0.010	11.57	11.59	1.0	1.0
EXK	$9.18	$3.53	0.012	0.010	12.98	35.59	2.6	2.7
HTZ	$13.58	$15.26	0.010	0.021	7.51	9.90	0.9	1.3
IAG	$12.51	$4.20	0.010	0.010	8.30	26.72	3.0	3.2
KGC	$9.15	$3.97	0.010	0.010	10.98	26.84	2.3	2.4
LL	$28.53	$20.69	0.033	0.028	12.21	13.26	1.4	1.1
M	$37.16	$29.44	0.011	0.011	3.00	3.72	1.3	1.2
NAT	$13.95	$9.23	0.020	0.011	14.92	14.32	1.5	1.0
OZM	$8.54	$3.42	0.014	0.012	16.54	35.94	2.5	2.2
SAN	$10.01	$5.33	0.044	0.010	11.68	19.22	1.9	1.6
SNE	$16.41	$31.21	0.011	0.011	6.58	3.49	0.5	0.5
STM	$6.18	$14.32	0.010	0.010	16.72	10.46	0.4	0.6
SUN	$43.87	$28.80	0.017	0.057	3.83	18.79	1.5	4.9
UA	$82.15	$31.83	0.068	0.017	7.58	5.36	2.6	0.7
VRX	$49.75	$23.40	0.021	0.021	4.16	7.09	2.1	1.7
VVR	$4.75	$4.35	0.010	0.010	21.66	23.12	1.1	1.1
WTI	$18.09	$2.43	0.024	0.010	12.94	47.28	7.4	3.7
WTW	$68.07	$20.26	0.044	0.028	6.92	13.68	3.4	2.0
X	$25.09	$23.45	0.011	0.011	4.53	5.38	1.1	1.2
Average	$25.51	$13.75	$0.02	$0.02	$10.06	$18.53	$2.53	2.1
Control Securities								
Symbol	**Pre-VWAP**	**Post-VWAP**	**Pre-$ Spread**	**Post $ Spread**	**Pre BP Spread**	**Post BP Spread**	**VWAP Pre/Post**	**BP Post/Pre**
FCEA	$14.66	$22.04	0.016	0.015	11.05	6.76	0.7	0.6
AGCO	$45.47	$56.74	0.025	0.040	5.71	6.77	0.8	1.2
UNM	$21.49	$39.65	0.010	0.016	4.63	3.89	0.5	0.8
FTI	$45.91	$29.28	0.018	0.011	3.98	3.78	1.6	0.9
LHO	$27.73	$26.80	0.022	0.015	7.99	5.67	1.0	0.7
EDR	$10.89	$40.38	0.011	0.032	10.48	7.95	0.3	0.8
CUBE	$11.67	$27.54	0.011	0.012	9.79	4.50	0.4	0.5
SHO	$9.94	$14.11	0.011	0.010	10.84	7.41	0.7	0.7
IPG	$11.00	$22.37	0.010	0.010	9.10	4.69	0.5	0.5
DRE	$14.17	$26.04	0.010	0.011	7.06	4.17	0.5	0.6
LSI	$7.62	$82.00	0.010	0.089	13.50	10.82	0.1	0.8
WBS	$21.71	$44.40	0.020	0.039	9.52	8.38	0.5	0.9
STT	$42.78	$72.81	0.012	0.026	2.87	3.36	0.6	1.2
POL	$13.78	$34.49	0.016	0.033	11.94	9.58	0.4	0.8
CUZ	$7.47	$9.04	0.011	0.010	14.10	11.23	0.8	0.8
DRH	$10.11	$10.26	0.010	0.010	10.18	10.01	1.0	1.0
FBHS	$21.40	$58.29	0.016	0.026	7.41	4.48	0.4	0.6
DCT	$5.86	$46.65	0.010	0.030	17.11	6.14	0.1	0.4
EIX	$43.94	$73.23	0.012	0.023	2.98	3.08	0.6	1.0
CXO	$95.21	$119.66	0.089	0.130	9.36	10.70	0.8	1.1
TS	$36.62	$28.56	0.015	0.010	4.16	3.72	1.3	0.9
GPK	$5.29	$13.21	0.011	0.010	20.05	7.70	0.4	0.4
PHH	$15.44	$13.17	0.018	0.018	11.52	13.68	1.2	1.2
GDI	$61.48	$25.40	0.050	0.038	8.31	15.08	2.4	1.8
PBRA	$22.47	$7.36	0.010	0.010	4.47	15.37	3.1	3.4
Average	$24.96	$37.74	$0.02	$0.03	$9.12	$7.56	$0.83	0.9

Table 15: Time-weighted Consolidated Spread and VWAP Comparison of 2012 - 2013 Sample								
Treatment Securities								
Symbol	Pre-VWAP	Post-VWAP	Pre-$ Spread	Post $ Spread	Pre BP Spread	Post BP Spread	VWAP Pre/Post	BP Post/Pre
ANH	$6.66	$6.13	0.044	0.010	11.68	12.88	1.1	1.1
AOD	$4.50	$4.13	0.010	0.010	7.14	7.48	1.1	1.0
ARR	$7.06	$6.97	0.012	0.012	7.33	8.77	1.0	1.2
BBVA	$7.15	$8.93	0.010	0.010	29.56	26.52	0.8	0.9
ERF	$17.01	$14.25	0.010	0.010	6.00	6.63	1.2	1.1
GLW	$13.25	$12.44	0.010	0.012	49.96	58.23	1.1	1.2
HUN	$13.45	$16.52	0.010	0.010	14.93	16.23	0.8	1.1
KCG	$12.32	$3.15	0.010	0.010	7.58	8.03	3.9	1.1
KMP	$82.04	$83.32	0.010	0.010	7.57	7.11	1.0	0.9
KORS	$42.42	$55.06	0.011	0.010	16.12	25.28	0.8	1.6
LGF	$13.53	$16.89	0.022	0.011	9.05	12.39	0.8	1.4
LNKD	$98.90	$121.92	0.083	0.086	8.48	7.37	0.8	0.9
MCP	$26.48	$9.49	0.033	0.026	8.00	4.87	2.8	0.6
MGM	$12.58	$11.41	0.043	0.043	5.24	5.16	1.1	1.0
MUX	$3.60	$3.90	0.010	0.010	14.19	14.10	0.9	1.0
MWE	$54.95	$51.92	0.010	0.010	8.22	8.94	1.1	1.1
NBG	$2.39	$1.92	0.010	0.010	9.81	8.52	1.2	0.9
NLY	$16.49	$15.38	0.010	0.010	14.17	11.56	1.1	0.8
OPK	$4.74	$5.49	0.010	0.010	21.71	21.09	0.9	1.0
PGH	$8.01	$5.25	0.010	0.010	12.83	18.69	1.5	1.5
SAN	$10.01	$7.79	0.043	0.037	7.82	6.96	1.3	0.9
SCHW	$13.34	$14.31	0.010	0.010	22.44	23.93	0.9	1.1
TEF	$13.88	$13.58	0.010	0.010	7.65	6.43	1.0	0.8
TSL	$7.66	$4.51	0.012	0.013	9.06	7.62	1.7	0.8
TWO	$10.44	$11.74	0.010	0.010	8.46	33.06	0.9	3.9
Average	$20.11	$20.26	0.019	0.016	13.00	14.71	1.2	1.1
Control Securities								
Symbol	Pre-VWAP	Post-VWAP	Pre-$ Spread	Post $ Spread	Pre BP Spread	Post BP Spread	VWAP Change	BP Spread Change
ASX	$4.60	$3.96	0.010	0.010	21.95	25.32	1.2	1.2
BBD	$15.82	$16.97	0.014	0.014	23.05	22.41	0.9	1.0
CBL	$18.50	$21.77	0.011	0.016	28.01	12.58	0.8	0.4
CIE	$26.80	$24.31	0.042	0.051	4.72	4.67	1.1	1.0
DCT	$5.86	$6.64	0.010	0.010	8.06	6.72	0.9	0.8
DDR	$14.35	$15.76	0.010	0.010	7.04	6.69	0.9	1.0
DVA	$87.26	$109.34	0.021	0.025	4.25	4.26	0.8	1.0
EQT	$50.23	$59.41	0.010	0.010	17.11	15.32	0.8	0.9
HST	$15.75	$15.86	0.022	0.018	5.70	4.50	1.0	0.8
HT	$5.29	$4.94	0.012	0.012	11.95	11.91	1.1	1.0
IRE	$6.62	$7.30	0.010	0.010	6.13	6.33	0.9	1.0
ITUB	$16.68	$16.08	0.010	0.011	6.37	4.75	1.0	0.7
KT	$13.60	$16.85	0.011	0.012	11.01	9.92	0.8	0.9
LXP	$8.67	$10.12	0.010	0.010	6.37	6.40	0.9	1.0
MBT	$17.69	$18.31	0.010	0.010	6.16	5.83	1.0	0.9
NRG	$16.59	$22.42	0.010	0.010	11.96	10.13	0.7	0.8
PXP	$39.96	$41.71	0.010	0.010	4.75	5.54	1.0	1.2
SLT	$8.56	$7.84	0.010	0.011	6.02	5.91	1.1	1.0
SWC	$11.09	$12.12	0.021	0.015	8.24	6.69	0.9	0.8
SWFT	$10.30	$10.32	0.010	0.011	11.10	9.87	1.0	0.9
UBS	$12.62	$15.12	0.011	0.012	6.17	5.47	0.8	0.9
VALEP	$20.96	$18.25	0.010	0.010	19.31	20.31	1.1	1.1
VIP	$9.74	$11.41	0.011	0.010	7.84	6.22	0.9	0.8
WCC	$60.60	$65.55	0.011	0.011	13.35	14.12	0.9	1.1
ZTR	$3.58	$12.56	0.049	0.060	8.04	9.22	0.3	1.1
Average	$20.07	$22.60	0.015	0.016	10.59	9.64	0.9	0.9

DID Analysis for Lower Volume Securities

The Exchange also performed a set of DID analyses for securities with average daily volumes between 50,000 and 500,000 shares for the two post-treatment periods covered above.

Table 16 shows the results for the analysis of eligible securities for the six-month pre-period, and the six months following the complete rollout of the Program. Although spreads increased, except for NYSE spreads in dollars, neither the spread-based, market share or trade-to-trade price change studies showed statistical significance. Table 17 shows pre- and post-treatment statistics for the control group and the treatment group. Ten of the 25 treatment securities spreads narrowed, while 14 of 25 control stocks narrowed. There is too much noise in the result to produce statistical significance.

Table 16: DiD Results Lower Volume (Feb. 2012 - July 2012 vs. Sep. 2012 - Feb. 2013)

Estimated Measure	Estimate	Standard Error
Time-weighted NYSE Spread^	4.7620	5.3480
Time-weighted NYSE $ Spread	-0.0128	0.0098
Time-weighted Consolidated Spread	3.3920	3.3040
Time-weighted Consolidated $ Spread	0.0074	0.0064
Volume-weighted Effective Spread vs. NYSE Quote	3.0210	3.8420
Volume-weighted Effective Spread vs. NBBO	2.7023	2.9437
Volume-weighted Effective Spread vs. PBBO	2.7477	2.9722
Volume-weighted Quoted Spread vs. NYSE Quote	3.2340	3.8650
Volume-weighted Quoted Spread vs. NBBO	2.8340	2.9070
Volume-weighted Quoted Spread vs. PBBO	2.8830	2.9368
NYSE Regular Hours Share, no auctions	-0.0117	0.0284
NYSE Full Day Share	-0.0057	0.0271
TRF Regular Hours Share, no auctions	0.0096	0.0491
TRF Full Day Share	0.0125	0.0449
Trade-to-trade price change	0.9963	1.1806

^ - Spreads in basis points unless otherwise noted

Significance: * = 99.9%, ** = 99%, * = 95%, . = 90%**

Table 17 Lower Volume Time-weighted Consolidated Spread and VWAP Comparison of 2012 - 2013 Sample

Symbol	Pre-VWAP	Post-VWAP	Pre-$ Spread	Post $ Spread	Pre BP Spread	Post BP Spread	VWAP Pre/Post	BP Post/Pre
Treatment Securities								
BPL	$55.77	$49.93	0.055	0.063	12.25	11.97	1.1	1.0
CFR	$57.28	$56.77	0.055	0.057	27.25	37.95	1.0	1.4
CODI	$13.81	$14.97	0.039	0.077	5.19	9.96	0.9	1.9
GTY	$16.42	$17.95	0.038	0.059	8.93	13.62	0.9	1.5
ITC	$72.80	$77.70	0.026	0.035	12.52	13.53	0.9	1.1
JE	$12.32	$9.09	0.018	0.017	10.33	11.19	1.4	1.1
MIC	$32.63	$45.35	0.052	0.047	9.65	9.53	0.7	1.0
NM	$3.81	$3.73	0.038	0.019	31.21	19.19	1.0	0.6
OKS	$56.35	$57.27	0.044	0.051	7.67	8.08	1.0	1.1
PER	$22.20	$18.01	0.073	0.076	9.82	8.79	1.2	0.9
PNG	$18.49	$19.64	0.032	0.041	19.82	20.76	0.9	1.0
RST	$11.50	$12.56	0.036	0.054	31.89	43.39	0.9	1.4
SMP	$16.59	$20.96	0.038	0.033	17.94	17.93	0.8	1.0
STON	$24.94	$23.45	0.059	0.061	10.68	10.48	1.1	1.0
SWX	$42.91	$43.18	0.021	0.030	15.25	20.45	1.0	1.3
SXL	$37.43	$51.63	0.045	0.057	17.67	24.16	0.7	1.4
TAC	$17.57	$15.47	0.065	0.082	14.48	16.18	1.1	1.1
TCAP	$20.36	$25.88	0.027	0.039	15.94	21.54	0.8	1.4
TGP	$38.79	$38.45	0.053	0.046	13.75	11.90	1.0	0.9
TNP	$6.19	$4.38	0.018	0.016	30.07	36.81	1.4	1.2
TRGP	$44.28	$53.62	0.051	0.070	13.68	13.48	0.8	1.0
TUP	$58.80	$65.31	0.031	0.034	5.40	5.97	0.9	1.1
VOC	$20.66	$14.59	0.048	0.044	14.60	9.80	1.4	0.7
WAB	$75.14	$86.66	0.040	0.058	21.87	29.41	0.9	1.3
WES	$44.24	$50.13	0.012	0.012	32.81	32.13	0.9	1.0
Average	$32.85	$35.07	0.041	0.047	16.43	18.33	1.0	1.1
Control Securities								
Symbol	**Pre-VWAP**	**Post-VWAP**	**Pre-$ Spread**	**Post $ Spread**	**Pre BP Spread**	**Post BP Spread**	**VWAP Change**	**BP Spread Change**
AFF	$23.88	$25.14	0.042	0.041	11.12	12.26	0.9	1.1
ALE	$40.88	$42.08	0.037	0.032	6.60	5.52	1.0	0.8
ARB	$35.78	$45.40	0.020	0.029	11.10	14.51	0.8	1.3
AXE	$62.21	$63.92	0.072	0.073	11.53	11.92	1.0	1.0
BBN	$22.15	$22.81	0.048	0.045	13.50	11.73	1.0	0.9
BYI	$45.76	$47.00	0.044	0.035	22.87	18.56	1.0	0.8
CDR	$4.94	$5.37	0.032	0.036	30.60	31.91	0.9	1.0
CHH	$37.90	$33.10	0.063	0.040	9.73	9.47	1.1	1.0
CUK	$31.93	$39.02	0.030	0.027	13.35	9.24	0.8	0.7
FFC	$18.39	$19.74	0.026	0.033	15.21	16.84	0.9	1.1
FIX	$10.45	$11.64	0.039	0.023	16.56	9.31	0.9	0.6
FMO	$22.28	$22.86	0.062	0.052	28.04	22.81	1.0	0.8
HII	$38.26	$42.44	0.022	0.025	15.19	16.33	0.9	1.1
HMN	$17.34	$19.65	0.026	0.026	11.74	11.40	0.9	1.0
HPP	$15.93	$20.55	0.032	0.035	6.89	7.35	0.8	1.1
HYI	$18.77	$18.80	0.013	0.013	26.16	24.34	1.0	0.9
KNL	$14.61	$15.23	0.029	0.027	25.43	22.74	1.0	0.9
LTM	$46.46	$44.97	0.039	0.038	12.21	9.82	1.0	0.8
OGE	$52.85	$56.76	0.030	0.030	18.72	15.34	0.9	0.8
RCS	$11.46	$11.60	0.039	0.039	10.73	11.45	1.0	1.1
SNX	$37.43	$34.41	0.029	0.030	5.53	5.25	1.1	0.9
SQM	$56.85	$58.73	0.030	0.032	7.21	7.55	1.0	1.0
TMH	$23.44	$30.06	0.011	0.017	28.79	13.69	0.8	0.5
TTC	$61.29	$42.13	0.049	0.060	10.59	12.71	1.5	1.2
ZF	$3.54	$12.44	0.042	0.047	11.01	11.07	0.3	1.0
Average	$30.19	$31.43	0.036	0.035	15.22	13.72	0.9	0.9

Tables 18A and 18B summarize data used to create the matched sample: VWAP, CADV, and spread in basis points. The tables also provide information on the Program's share of consolidated volume since the sample was created by finding the stocks with the highest share of volume over the treatment period in the Program, and required control stocks to exhibit share of CADV no more than 1/10th the lowest security chosen for the matched sample.

Table 18A: Lower Volume Retail Program Matched Sample (Feb. - July 2012 vs. Sep. 2012 - Feb. 2013)

Treatment Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread	Control Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread
ITC	466,165	$72.80	5.19	OGE	469,043	$52.85	5.53
TUP	461,730	$58.80	7.67	BYI	463,042	$45.76	6.89
CFR	458,088	$57.28	5.40	SQM	364,490	$56.85	6.60
BPL	421,219	$55.77	9.65	LTM	465,751	$46.46	10.59
OKS	336,853	$56.35	10.68	AXE	306,847	$62.21	11.53
NM	333,179	$3.81	32.81	ZF	273,496	$3.54	28.79
PER	323,068	$22.20	17.94	TMH	321,166	$23.44	13.35
WAB	310,460	$75.14	9.82	TTC	266,687	$61.29	9.73
TNP	286,896	$6.19	30.07	CDR	253,878	$4.94	26.16
CODI	266,134	$13.81	15.25	KNL	288,960	$14.61	15.19
TRGP	256,081	$44.28	12.25	SNX	273,480	$37.43	10.73
WES	250,703	$44.24	14.48	ARB	205,221	$35.78	13.50
TCAP	246,651	$20.36	12.52	BBN	228,523	$22.15	11.74
SMP	210,383	$16.59	19.82	HPP	211,333	$15.93	18.72
SXL	199,616	$37.43	13.68	HII	219,277	$38.26	11.01
GTY	195,074	$16.42	15.94	HMN	204,650	$17.34	15.21
SWX	186,059	$42.91	8.93	ALE	178,379	$40.88	7.21
TGP	182,932	$38.79	13.75	CHH	150,577	$37.90	11.12
MIC	139,817	$32.63	14.60	CUK	132,300	$31.93	12.21
PNG	128,088	$18.49	21.87	HYI	106,275	$18.77	22.87
TAC	106,489	$17.57	10.33	FFC	109,209	$18.39	11.10
STON	104,507	$24.94	17.67	AFF	98,288	$23.88	16.56
RST	98,362	$11.50	31.89	FIX	101,525	$10.45	30.60
JE	95,867	$12.32	31.21	RCS	90,262	$11.46	25.43
VOC	92,453	$20.66	27.25	FMO	72,315	$22.28	28.04

Table 18B: Additional Comparative Statistics

Treatment Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV	Control Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV
ITC	26.82%	43.06%	0.3833%	OGE	23.17%	29.53%	0.0011%
TUP	24.64%	29.70%	0.2193%	BYI	21.57%	28.73%	0.0085%
CFR	17.91%	28.07%	0.2158%	SQM	22.29%	24.74%	0.0174%
BPL	41.04%	44.33%	0.4556%	LTM	29.08%	29.97%	0.0182%
OKS	34.83%	41.65%	0.8358%	AXE	31.97%	31.46%	0.0171%
NM	46.71%	49.95%	0.2620%	ZF	44.16%	47.28%	0.0081%
PER	53.26%	55.94%	0.7724%	TMH	40.80%	40.33%	0.0103%
WAB	23.37%	28.15%	0.4312%	TTC	22.70%	28.28%	0.0037%
TNP	36.70%	47.21%	0.2783%	CDR	37.32%	47.85%	0.0152%
CODI	35.24%	47.94%	0.2466%	KNL	24.96%	32.85%	0.0152%
TRGP	30.89%	37.72%	0.2216%	SNX	32.69%	40.48%	0.0131%
WES	31.34%	39.78%	0.2290%	ARB	22.94%	34.92%	0.0056%
TCAP	40.70%	41.69%	0.2057%	BBN	65.12%	61.66%	0.0158%
SMP	29.99%	33.97%	0.2265%	HPP	39.20%	38.36%	0.0131%
SXL	37.24%	43.60%	0.2381%	HII	30.94%	32.81%	0.0182%
GTY	31.76%	33.57%	0.7064%	HMN	25.51%	26.43%	0.0172%
SWX	20.90%	25.59%	0.2268%	ALE	22.82%	28.27%	0.0133%
TGP	43.79%	47.16%	0.2854%	CHH	23.02%	29.31%	0.0156%
MIC	30.37%	44.78%	0.2500%	CUK	12.16%	21.83%	0.0079%
PNG	54.57%	51.61%	0.5979%	HYI	52.40%	45.77%	0.0143%
TAC	28.18%	36.24%	0.2532%	FFC	55.36%	57.90%	0.0196%
STON	53.56%	54.02%	0.2388%	AFF	40.54%	50.07%	0.0026%
RST	39.86%	36.83%	0.5156%	FIX	29.24%	31.74%	0.0187%
JE	46.00%	44.11%	0.2346%	RCS	58.77%	55.97%	0.0198%
VOC	49.37%	49.32%	0.2063%	FMO	51.13%	58.91%	0.0076%

Table 19 shows the results for the lower volume stocks study comparing the six month pre-Program period to 2016–2017. Time-weighted consolidated and NYSE spreads in basis points increased and were statistically significant at the 95% level. Other basis point spreads were also statistically significant at either the 95% or 99% level. TRF share excluding auctions increased at the 99% level, and including auctions increased at the 99.9% level. NYSE share changes were not statistically significant. Trade-to-trade price changes (in basis points) rose and were significant at the 95% level. The Exchange notes, however, that time-weighted consolidated spreads in dollars decreased and were significant at the 90% level. NYSE dollar spreads also decreased, but were not statistically significant.

Table 19 Lower Volume DiD Results (Feb. 2012 - July 2012 vs. 2016 - 2017)

Estimated Measure	Estimate	Standard Error
Time-weighted NYSE Spread^	13.740*	6.6250
Time-weighted NYSE $ Spread	-0.0343	0.0213
Time-weighted Consolidated Spread	9.478*	4.3300
Time-weighted Consolidated $ Spread	-0.0281.	0.0154
Volume-weighted Effective Spread vs. NYSE Quote	8.820*	3.7820
Volume-weighted Effective Spread vs. NBBO	7.766**	2.9050
Volume-weighted Effective Spread vs. PBBO	7.750**	2.9080
Volume-weighted Quoted Spread vs. NYSE Quote	9.436*	3.8440
Volume-weighted Quoted Spread vs. NBBO	8.8367**	2.9000
Volume-weighted Quoted Spread vs. PBBO	8.345**	2.9050
NYSE Regular Hours Share, no auctions	-0.0142	0.0177
NYSE Full Day Share	0.0010	0.0171
TRF Regular Hours Share, no auctions	0.073**	0.0248
TRF Full Day Share	0.0824***	0.0224
Trade-to-trade price change	2.6672*	1.4707

^ - Spreads in basis points unless otherwise noted

Significance * = 99.9%, ** = 99%, * = 95%, . = 90%**

Table 20 provides evidence for the possible cause of the inconsistency in the results. The average dollar spread in the treatment stocks dropped slightly, while dollar spreads in the control stocks rose 82%. Spreads in basis points were unchanged for treatment stocks, but dropped 30% in the control group. Price changes tended to be positive in the control stocks and were little changed in the treatment group. The statistical significance appears to be driven by changes in the control stocks.

Table 20: Lower Volume Time-weighted Consolidated Spread and VWAP Comparison of 2016 -2017 Sample								
Treatment Securities								
Symbol	Pre-VWAP	Post-VWAP	Pre-$ Spread	Post $ Spread	Pre BP Spread	Post BP Spread	VWAP Pre/Post	BP Post/Pre
AFT	$17.92	$16.31	0.030	0.026	16.60	15.71	1.1	0.9
BLW	$17.28	$15.29	0.026	0.017	15.22	11.20	1.1	0.7
DBL	$26.03	$24.59	0.041	0.068	15.50	27.12	1.1	1.7
ETV	$12.67	$14.95	0.014	0.020	11.29	13.27	0.8	1.2
FENG	$5.98	$5.00	0.034	0.019	58.46	49.20	1.2	0.8
GIM	$9.52	$6.45	0.015	0.011	15.83	16.62	1.5	1.0
GPM	$9.23	$8.17	0.030	0.018	32.88	23.41	1.1	0.7
HPS	$18.62	$18.57	0.035	0.032	18.58	17.30	1.0	0.9
JQC	$9.10	$8.37	0.014	0.011	15.15	12.79	1.1	0.8
MUA	$13.13	$14.60	0.022	0.030	16.54	20.63	0.9	1.2
NCZ	$8.39	$5.61	0.016	0.011	19.48	19.81	1.5	1.0
NUV	$10.13	$10.06	0.012	0.012	12.11	12.21	1.0	1.0
PBT	$20.04	$7.89	0.034	0.032	17.37	42.60	2.5	2.5
PCK	$10.13	$10.11	0.019	0.027	18.60	26.47	1.0	1.4
PCN	$16.38	$15.49	0.024	0.029	14.43	18.67	1.1	1.3
PHD	$12.85	$11.60	0.022	0.021	17.09	18.27	1.1	1.1
PHT	$17.21	$9.88	0.028	0.022	16.10	22.06	1.7	1.4
PIM	$5.09	$4.56	0.011	0.011	21.39	24.41	1.1	1.1
PMX	$12.10	$11.92	0.023	0.019	18.66	16.21	1.0	0.9
PTY	$18.59	$15.21	0.025	0.020	13.23	13.54	1.2	1.0
RA	$23.72	$23.29	0.036	0.031	16.44	13.55	1.0	0.8
SJT	$16.71	$6.79	0.030	0.036	18.41	55.77	2.5	3.0
TSI	$5.14	$5.42	0.014	0.015	28.10	26.86	0.9	1.0
UTF	$17.16	$20.99	0.024	0.026	13.80	12.18	0.8	0.9
WIW	$12.95	$11.03	0.013	0.014	9.78	12.32	1.2	1.3
Average	$13.84	$12.09	0.024	0.023	18.84	21.69	1.2	1.2
Control Securities								
Symbol	Pre-VWAP	Post-VWAP	Pre-$ Spread	Post $ Spread	Pre BP Spread	Post BP Spread	VWAP Pre/Post	BP Post/Pre
AAT	$23.10	$40.71	0.019	0.016	8.45	3.81	0.6	0.5
AER	$11.73	$40.57	0.029	0.011	14.97	3.51	0.3	0.2
CHSP	$17.73	$25.05	0.091	0.294	23.52	33.79	0.7	1.4
CIR	$32.92	$54.01	0.020	0.036	13.69	15.41	0.6	1.1
COR	$23.78	$88.08	0.036	0.012	67.86	7.62	0.3	0.1
CRH	$19.15	$32.94	0.020	0.025	15.60	13.32	0.6	0.9
CSU	$9.83	$15.49	0.073	0.039	50.33	14.08	0.6	0.3
DK	$16.08	$20.78	0.080	0.219	23.90	40.36	0.8	1.7
FSS	$5.21	$15.43	0.013	0.033	13.36	17.02	0.3	1.3
HRG	$6.91	$15.95	0.049	0.055	29.17	26.85	0.4	0.9
HTH	$9.56	$23.63	0.017	0.023	18.25	12.89	0.4	0.7
ITG	$10.18	$18.93	0.014	0.021	11.82	4.90	0.5	0.4
KAR	$16.27	$41.75	0.039	0.106	16.43	12.06	0.4	0.7
KRG	$5.04	$22.91	0.030	0.032	31.13	20.22	0.2	0.6
LAD	$24.94	$91.60	0.032	0.028	18.31	11.14	0.3	0.6
NCI	$13.13	$19.29	0.018	0.033	19.19	14.16	0.7	0.7
ORA	$19.54	$51.98	0.047	0.046	22.49	23.89	0.4	1.1
PFS	$14.43	$23.71	0.012	0.025	24.32	16.44	0.6	0.7
PRO	$17.19	$20.72	0.031	0.083	21.63	20.73	0.8	1.0
PUK	$23.11	$38.57	0.036	0.055	15.67	13.49	0.6	0.9
ROG	$38.80	$87.75	0.041	0.208	16.27	21.97	0.4	1.4
SSP	$9.27	$17.54	0.024	0.022	15.25	10.97	0.5	0.7
STC	$14.50	$41.42	0.014	0.019	27.20	8.06	0.4	0.3
THR	$20.63	$19.10	0.029	0.019	17.80	4.43	1.1	0.2
TRNO	$14.49	$30.05	0.028	0.071	14.50	14.10	0.5	1.0
Average	$16.70	$35.92	0.034	0.061	22.04	15.41	0.5	0.8

As previously noted, the Exchange's selection methodology focused on finding securities that traded most heavily in the Program. As discussed above in the section covering higher volume securities and as shown in

Table 13, both TRF share and Program activity are higher in low priced stocks. This constraint did not impact the control stocks, as the selection methodology requires control stocks to have significantly lower share of the market. However, it did result in control stocks that traded largely in line with the overall market, resulting in price increases over the 2012 to 2016–2017 time period. Table 21B highlights the constraint on Program share for the treatment and control stocks. Table 21A presents additional matched sample population statistics.

Table 21A Lower Volume Retail Program Matched Sample (Feb. - July 2012 vs.2016 - 2017)

Treatment Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread	Control Symbol	Pre-period CADV	Pre-period VWAP	Pre-period Spread
JQC	369,780	$9.10	15.15	ITG	408,461	$10.18	13.36
RA	322,887	$23.72	16.44	LAD	383,601	$24.94	16.27
SJT	321,395	$16.71	18.41	DK	271,741	$16.08	15.25
NUV	297,752	$10.13	12.11	AER	395,314	$11.73	11.82
GIM	230,462	$9.52	15.83	NCI	208,759	$13.13	15.60
ETV	192,598	$12.67	11.29	PFS	220,318	$14.43	13.69
PBT	186,841	$20.04	17.37	COR	178,141	$23.78	16.43
NCZ	173,121	$8.39	19.48	SSP	211,122	$9.27	18.25
PIM	166,347	$5.09	21.39	FSS	248,554	$5.21	24.32
UTF	162,477	$17.16	13.80	KAR	133,654	$16.27	17.80
PTY	158,023	$18.59	13.23	AAT	160,197	$23.10	15.67
BLW	142,198	$17.28	15.22	CRH	220,462	$19.15	14.97
WIW	128,003	$12.95	9.78	ORA	159,691	$19.54	14.50
AFT	110,279	$17.92	16.60	PUK	216,892	$23.11	8.45
TSI	102,390	$5.14	28.10	KRG	155,926	$5.04	27.20
PHD	95,377	$12.85	17.09	HTH	136,956	$9.56	19.19
HPS	95,354	$18.62	18.58	CIR	101,115	$32.92	23.90
PCN	93,385	$16.38	14.43	CHSP	142,605	$17.73	18.31
FENG	91,064	$5.98	58.46	HRG	140,599	$6.91	67.86
PMX	79,724	$12.10	18.66	STC	130,592	$14.50	21.63
DBL	79,546	$26.03	15.50	ROG	77,121	$38.80	23.52
PHT	74,858	$17.21	16.10	THR	131,374	$20.63	22.49
MUA	68,289	$13.13	16.54	PRO	123,042	$17.19	29.17
PCK	65,854	$10.13	18.60	CSU	114,894	$9.83	31.13
GPM	65,699	$9.23	32.88	TRNO	42,586	$14.49	50.33

Table 21B: Lower Volume Additional Comparative Statistics

Treatment Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV	Control Symbol	Pre-Period TRF	Post-Period TRF	RTO Share of CADV
JQC	53.45%	55.77%	0.3976%	ITG	28.34%	28.58%	0.0931%
RA	31.22%	61.42%	0.4457%	LAD	29.41%	30.97%	0.0719%
SJT	48.63%	56.58%	0.4925%	DK	28.80%	29.07%	0.1062%
NUV	57.90%	62.72%	0.3850%	AER	32.99%	29.54%	0.0635%
GIM	57.10%	59.93%	0.3806%	NCI	24.04%	29.26%	0.0842%
ETV	45.63%	59.43%	0.3909%	PFS	16.77%	26.40%	0.0409%
PBT	47.98%	53.79%	0.4060%	COR	39.92%	32.55%	0.1254%
NCZ	55.52%	60.23%	0.3975%	SSP	18.94%	27.92%	0.0767%
PIM	53.47%	53.69%	0.3881%	FSS	27.48%	32.29%	0.0913%
UTF	58.75%	61.54%	0.3789%	KAR	40.73%	32.64%	0.0582%
PTY	51.39%	61.88%	0.3985%	AAT	32.49%	31.45%	0.0465%
BLW	55.54%	62.10%	0.4304%	CRH	44.17%	35.53%	0.0567%
WIW	50.93%	55.79%	0.3763%	ORA	20.06%	27.46%	0.1029%
AFT	56.03%	48.47%	0.4002%	PUK	29.91%	22.84%	0.1404%
TSI	48.42%	59.76%	0.4596%	KRG	32.63%	28.55%	0.0853%
PHD	46.77%	56.16%	0.4382%	HTH	30.78%	30.89%	0.1034%
HPS	56.21%	61.50%	0.3977%	CIR	26.84%	25.96%	0.0862%
PCN	54.41%	62.59%	0.3803%	CHSP	38.40%	32.94%	0.0464%
FENG	38.56%	44.38%	0.6027%	HRG	34.33%	30.91%	0.0603%
PMX	48.90%	57.41%	0.4050%	STC	36.56%	31.37%	0.0501%
DBL	52.89%	61.96%	0.3880%	ROG	27.11%	30.05%	0.1075%
PHT	54.28%	52.30%	0.4071%	THR	34.43%	35.10%	0.0924%
MUA	49.27%	60.68%	0.4349%	PRO	32.32%	34.09%	0.0936%
PCK	46.86%	57.25%	0.4788%	CSU	43.41%	34.77%	0.0917%
GPM	49.04%	56.77%	0.5087%	TRNO	44.43%	33.11%	0.0327%

In conclusion, the Exchange believes that the Program was a positive experiment in attracting retail order flow to a public exchange. The order flow the Program attracted to the Exchange provided tangible price improvement to retail investors through a competitive pricing process unavailable in non-exchange venues. As such, despite the low volumes, the Exchange believes that the Program satisfied the twin goals of attracting retail order flow to the Exchange and allowing such order flow to receive potential price improvement. Moreover, the Exchange believes that the data collected during the Program supports the conclusion that the Program's overall impact on market quality and structure was not negative. Although the results of the Program highlight the substantial advantages that broker-dealers retain when managing the benefits of retail order flow, the Exchange believes that the level of price improvement guaranteed by the Program justifies making the Program permanent. The Exchange accordingly believes that the pilot Program's rules, as amended, should be made permanent.

The Exchange notes that the proposed change is not otherwise intended to address any other issues and the Exchange is not aware of any problems that member organizations would have in complying with the proposed rule change.

2. Statutory Basis

The Exchange believes the proposed rule change is consistent with the requirements of Section 6(b) of the Act,[66] in general, and Section 6(b)(5) of the Act,[67] in particular, in that it is designed to remove impediments to and perfect the mechanism of a free and open market and a national market system, to promote just and equitable principles of trade, and, in general, to protect investors and the public interest and not to permit unfair discrimination between customers, issuers, brokers, or dealers.

The Exchange believes the proposal is consistent with these principles because it seeks to make permanent a pilot and associated rule changes that were previously approved by the Commission as a pilot for which the Exchange has subsequently provided data and analysis to the Commission, and that this data and analysis, as well as the further analysis in this filing, shows that the Program has operated as intended and is consistent with the Act. The Exchange also believes that the proposed rule change is consistent with these principles because it would increase competition among execution venues, encourage additional liquidity, and offer the potential for price improvement to retail investors.

The Exchange also believes the proposed rule change is designed to facilitate transactions in securities and to remove impediments to, and perfect the mechanisms of, a free and open market and a national market system because making the Program permanent would attract retail order flow to a public exchange and allow such order flow to receive potential price improvement. The data provided by the Exchange to the Commission staff demonstrates that the Program provided tangible price improvement to retail investors through a competitive pricing process unavailable in non-exchange venues and otherwise had an insignificant impact on the marketplace. The Exchange believes that making the Program permanent would encourage the additional utilization of, and interaction with, the NYSE and provide retail customers with an additional venue for price discovery, liquidity, competitive quotes, and price improvement. For the same reasons, the Exchange believes that making the Program permanent would promote just and equitable principles of trade and remove impediments to and perfect the mechanism of a free and open market.

Finally, the Exchange believes that it is subject to significant competitive forces, as described below in the Exchange's statement regarding the burden on competition. For these reasons, the Exchange believes that the proposal is consistent with the Act.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. The Exchange believes that making the Program permanent would continue to promote competition for retail order flow among execution venues. The Exchange also believes that making the Program permanent will promote competition between execution venues operating their own retail liquidity programs. Such competition will lead to innovation within the market, thereby increasing the quality of the national market system. Finally, the Exchange notes that it operates in a highly competitive market in which market participants can easily direct their orders to competing venues, including off-exchange venues. In such an environment, the Exchange must continually review, and consider adjusting the services it offers and the requirements it imposes to remain competitive with other U.S. equity exchanges.

For the reasons described above, the Exchange believes that the proposed rule change reflects this competitive environment.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

No written comments were solicited or received with respect to the proposed rule change.

III. Summary of Comment Letter

After the Commission instituted proceedings, the Commission received a comment letter on the proposed rule change.[68] In support of the proposal to the make the Program permanent, the commenter states that the Program seems to have offered significant price improvement during the course of its pilot period.[69] Citing the Exchange's analysis in the Original Notice of trading activity during the pilot period, the commenter notes that between August 1, 2012 and January 2, 2018, orders totaling in excess of 6.8 billion shares were executed through the Program, providing improvements of $12.3 million dollars.[70] The commenter observes that these statistics indicate that the Program has provided greater than the average price improvement provided through other common execution avenues.[71] The commenter notes that fill rates have also been, at times, significant.[72] The commenter also believes that the Program offers the Commission a unique opportunity to explore brokers' fulfillment of their best execution obligations.[73]

IV. Discussion and Commission Findings

After careful review, the Commission finds that the Exchange's proposal to make permanent the Retail Liquidity Program Pilot, Rule 107C, as modified by Amendment No. 1, is consistent with the requirements of the Exchange Act and the rules and regulations thereunder applicable to a national securities exchange.[74] In particular, the Commission finds that the proposed rule change, as modified by Amendment No. 1, is consistent with Sections 6(b)(5) [75] and 6(b)(8) [76] of the Exchange Act. Section 6(b)(5) of the Exchange Act requires that the rules of a national securities exchange be designed, among other things, to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system and, in general, to protect investors and the public interest, and not be designed to permit unfair discrimination between customers, issuers, brokers, or dealers. Section 6(b)(8) of the Exchange Act requires that the rules of a national securities exchange not impose any burden on competition that is not

[66] 15 U.S.C. 78f(b).

[67] 15 U.S.C. 78f(b)(5).

[68] *See* HMA Letter, *supra* note 10.

[69] *See id.* at 2.

[70] *See id.* at 3.

[71] *See id.*

[72] *See id.*

[73] *See id.* at 2–3.

[74] In approving this proposed rule change, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. *See* 15 U.S.C. 78c(f).

[75] 15 U.S.C. 78f(b)(5).

[76] 15 U.S.C. 78f(b)(8).

necessary or appropriate in furtherance of the purposes of the Exchange Act.

As noted above, the Commission approved the Program on a pilot basis to allow the Exchange and market participants to gain valuable practical experience with the Program during the pilot period, and to allow the Commission to determine whether modifications to the Program were necessary or appropriate prior to any Commission decision to approve the Program on a permanent basis.[77] Indeed, the Exchange has modified aspects of the Program on several occasions since initial approval of the Program on a pilot basis.[78] As set forth in the RLP Approval Order, the Exchange agreed to provide the Commission with a significant amount of data to assist the Commission's evaluation of the Program prior to any permanent approval of the Program.[79] Specifically, the Exchange represented that it would ''produce data throughout the pilot, which will include statistics about participation, the frequency and level of price improvement provided by the Program, and any effects on the broader market structure.'' [80] The Commission expected the Exchange to monitor the scope and operation of the Program and study the data produced during that time with respect to such issues.[81]

Although the pilot period was originally scheduled to end on July 31, 2013, the Exchange filed to extend the operation of the pilot on several occasions.[82] The pilot is now set to expire on June 30, 2019, and the Exchange proposes to make the Program, Rule 107C, permanent. In its proposal, as modified by Amendment No. 1, the Exchange provides data and analysis which it believes justifies permanent approval of the Program.

In the Original Notice, the Exchange provided data indicating that the Program provided $12.3 million in price improvement to retail investors between August 21, 2012 and January 2, 2018, as well as data showing overall average price improvement of $0.0014 per share (approximately 40% above the minimum of $0.001), with average price improvement exceeding that level in 2016.[83] In the Original Notice, the Exchange also stated its belief that receipt of price improvement by retail investors, the Program's low volume levels, and other data, similar to that provided in Tables 1 through 8 above, were sufficient to conclude that the Program had achieved its goals without negatively impacting the broader market.[84] In the Commission's Order Instituting Proceedings, the Commission questioned whether the information and analysis provided by the Exchange in the Original Notice supported the Exchange's conclusions that the Program had achieved its goals, including whether the Exchange had provided data and analysis to support its conclusion that the Program had an overall negligible impact on broader market structure.[85]

In Amendment No. 1, the Exchange has provided data and analysis concerning the Program during the pilot period in addition to that provided in the Original Notice. In particular, the Commission notes that in Amendment No. 1, the Exchange undertook to provide a more in-depth analysis of the Program's impact on market quality by using the difference-in-differences (''DID'') statistical technique, the methodology for which it explains above.[86] Although the Program was not initially designed to produce a DID analysis, the Exchange identified the most active stocks in the Program to establish a treatment group of stocks and then used securities with similar pre-treatment spread, price, and CADV but very low Program activity as a control group. Using this methodology, the Exchange produced four DID analyses that the Commission believes are useful to assess the Program's impact on market quality, as measured by a variety of market quality statistics including: (1) Time-weighted NYSE quoted spread in basis points; (2) time-weighted NYSE quoted spread in dollars and cents; (3) time-weighted consolidated quoted spread in basis points; (4) time-weighted consolidated quoted spread in dollars and cents; (5) volume-weighted effective spread in basis points measured against the NYSE quote; (6) volume-weighted effective spread in basis points measured against the national best bid or offer (''NBBO''); (7) volume-weighted effective spread in basis points measured against the protected best bid or offer (''PBBO''); (8) volume-weighted quoted spread in basis points measured against the NYSE quote; (9) volume-weighted quoted spread in basis points measured against the NBBO; (10) volume-weighted quoted spread in basis points measured against the PBBO; (11) Trade Reporting Facility (''TRF'') share of volume during regular trading hours, excluding auctions; (12) TRF share of volume, full day, including auctions; (13) NYSE share of volume during regular trading hours, excluding auctions; (14) NYSE share of volume, full day, including auctions; and (15) trade-to-trade price change in basis points of the Program.[87]

In its first set of DID analyses, the Exchange studies stocks that had a CADV of at least 500,000 shares during both a pre-treatment and a treatment period. For these stocks, the Exchange compares changes in market quality statistics between the pre-treatment and treatment period for the treatment group stocks and the control group stocks. The Exchange conducts this study using two different treatment periods. More specifically, the Exchange examines market quality statistics for:

- Six months prior to launch of the Program (February 2012–July 2012) as compared to six months following launch, excluding the first month of the Program (September 2012–February 2013) for securities with a CADV of at least 500,000 during the pre-treatment and treatment periods, and
- Six months prior to launch of the Program (February 2012–July 2012) as compared to all of 2016 and 2017 for securities with a CADV of at least 500,000 during the pre-treatment and treatment periods.

As summarized in Table 11 above, when analyzing stocks with a CADV of at least 500,000 shares, and when comparing changes between the pre-treatment period and the 2012–2013 treatment period, the Exchange finds no statistically significant differences between treatment and control group

[77] *See* RLP Approval Order *supra* note 14, at 40674.

[78] *See supra,* note 22.

[79] *See* RLP Approval Order, *supra* note 14, at 40681.

[80] *See id.*

[81] *See id.*

[82] *See supra,* note 15.

[83] *See* Original Notice, *supra* note 3, at 28879.

[84] *See id.* at 2882–83.

[85] *See* Order Instituting Proceedings, *supra* note 7, at 48352. In the Order Instituting Proceedings, the Commission sought additional information and analysis concerning the Program's impact on the broader market, for example, additional information to support the view that the Program has not had a material adverse impact on market quality and consideration of any effects that fees and rebates may have had on the operation of the Program. *See id.*

[86] A DID statistical technique allows studying the differential effect of a treatment on data measured between a treatment group and a control group. The two groups are measured during two or more different time periods, usually a period before ''treatment'' and at least one time period after ''treatment,'' that is, a time period after which the treatment group is impacted but the control group is not. For each group, the difference between a measure in the pre-treatment and the treatment period is computed. Those differences for a measure for the two groups are then compared to each other by taking the difference between them.

[87] In its analyses, the Exchange notes that lower-priced securities tend to be most active in the Program, and as a result, its artificially created treatment group includes securities that were relatively low-priced during the treatment period, but may not have been similarly low-priced during the pre-treatment period.

stocks for the changes in time-weighted NYSE or time-weighted consolidated spreads (whether measured in basis points or in dollars).[88]

As summarized in Table 12 above, when comparing changes between the pre-treatment period and the 2016–2017 treatment period, the analysis shows statistically significant positive differences between treatment and control stocks for changes in several spread measures in basis points, as well as for changes in the share of trading on the TRF, which could suggest a negative effect of the Program.[89] However, the Exchange's analysis further reveals that the treatment stocks for the 2016–2017 treatment period saw sharp price declines as compared to their 2012 pre-treatment period levels.[90] In addition, many of the treatment stocks traded with quoted spreads near $0.01 (*i.e.,* they were tick-constrained), so that any price drop would necessarily result in an almost equal and opposite percentage increase in the spreads measured in basis points. After careful consideration, the Commission believes that the DID and additional analysis performed by the Exchange for stocks with a CADV of at least 500,000 shares, support the conclusion that positive DID results for spreads and TRF activity observed in Table 12 above are unlikely to be caused by the Program.

In its other set of DID analyses, the Exchange studies stocks that had a CADV of at least 50,000 shares and less than 500,000 shares during both a pre-treatment and a treatment period, for the same two treatment time periods. For these stocks, the Exchange likewise compares changes in market quality statistics between the pre-treatment and the treatment periods for the treatment group stocks and the control group stocks. Specifically, to assess whether the results differ for lower-volume stocks, the Exchange examines the same market quality statistics for:

- Six months prior to launch of the Program (February 2012–July 2012) compared to six months following launch, excluding the first month of the Program (September 2012–February 2013) for securities with a CADV of at least 50,000 and less than 500,000, during the pre-treatment and treatment periods; and
- Six months prior to launch of the Program (February 2012–July 2012) compared to all of 2016 and 2017 for securities with a CADV of at least 50,000 and less than 500,000, during the pre-treatment and treatment periods.

As summarized in Table 16 above, when analyzing these lower-volume stocks, and when comparing changes between the pre-treatment period and the 2012–2013 treatment period, the Exchange similarly finds no statistically significant differences between treatment and control group stocks for the changes in time-weighted NYSE or time-weighted consolidated spreads (whether measured in basis points or in dollars).[91]

As summarized in Table 19 above, when comparing changes between the pre-treatment period and the 2016–2017 treatment period, the analysis shows statistically significant positive differences between treatment and control stocks for changes in several spread measures in basis points, as well as for changes in the share of trading on the TRF. In assessing the observed positive differences for changes in spread measures in basis points, the Exchange's analysis further reveals that these differences are attributable mostly to changes in the control stocks rather than to changes in the treatment stocks. In particular, as shown in Table 20, between the pre-treatment period and the 2016–2017 treatment period, the treatment stocks experienced virtually no change in dollar spreads and only a small increase in spreads measured in basis points (driven by a small decline in their prices (VWAP)).[92] In contrast, in the same time period, the control stocks experienced a large decrease in spreads measured in basis points, driven by the fact that their average price (VWAP) more than doubled.[93] Thus, the large increase in the prices of the control stocks (which did not occur for the treatment stocks) contributes significantly to the observed positive differences between treatment and control stocks for changes in basis point spread measures. After careful consideration, the Commission believes that the DID and additional analysis performed by the Exchange for stocks with a CADV of at least 50,000 and less than 500,000 shares support the conclusion that the positive DID results in spreads and TRF observed in Table 19 are unlikely to be caused by the Program.

As noted, in the Order Instituting Proceedings, the Commission questioned whether the Exchange provided sufficient data and analysis in the Original Notice to support its conclusions that the Program had achieved its goals and had an overall negligible impact on broader market structure.[94] In Amendment No. 1, the Exchange provides data and analysis to further support its assertions in the Original Notice. The Commission believes that the data and analysis provided by the Exchange support the conclusion that the Program provides meaningful price improvement to retail investors on a regulated exchange venue and has not demonstrably caused harm to the broader market. Based on the foregoing, and after careful consideration of the Exchange's analysis of the data generated by the Program and the comment received, the Commission finds that the proposed rule change, as modified by Amendment No. 1, is consistent with the requirements of the Exchange Act.

V. Solicitation of Comments on Amendment No. 1

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether Amendment No. 1 to the proposed rule change is consistent with the Exchange Act. Comments may be submitted by any of the following methods:

Electronic Comments

- Use the Commission's internet comment form (*http://www.sec.gov/rules/sro.shtml*); or

[88] More broadly, the Exchange finds no statistically significant difference between treatment and control group stocks for any of the analyzed measures of market quality when comparing the pre-treatment period with the 2012–2013 treatment period.

[89] In addition, the results in Table 12 show negative differences between the treatment and control stocks for changes in time-weighted consolidated dollar spreads (statistically significant at the 90% confidence level) and for changes in time-weighted NYSE dollar spreads (statistically significant at the 95% confidence level).

[90] Table 14 above shows a decrease in the average value weighted average price (VWAP) of treatment stocks from $25.51 (pre-treatment period) to $13.75 (2016–2017 treatment period) and an increase in the average VWAP of control group stocks from $24.96 (pre-treatment period) to $37.74 (2016–2017 treatment period). In contrast, Table 15 above shows that similar price changes are not present in the analysis focusing on the 2012–2013 treatment period.

[91] More broadly, the Exchange finds no statistically significant difference between treatment and control group stocks for any of the analyzed measures of market quality when comparing the pre-treatment period with the 2012–2013 treatment period.

[92] Table 20 shows that between the pre-treatment period and the 2016–2017 treatment period, the treatment stocks experienced a slight decrease in average dollar spread from $0.024 to $0.023, a small decline in average VWAP from $13.84 to $12.09, and a small increase in basis point spread from 18.84 to 21.69 basis points.

[93] Table 20 shows that between the pre-treatment period and the 2016–2017 treatment period, the control stocks experienced a large increase in average VWAP from $16.70 to $35.92, a smaller percentage increase in average dollar spread from $0.034 to $0.061, and a large decrease in basis point spread from 22.04 to 15.41 basis points.

[94] *See supra* note 85 and accompanying text.

• Send an email to *rule-comments@sec.gov.* Please include File Number SR–NYSE–2018–28 on the subject line.

Paper Comments

• Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549–1090.

All submissions should refer to File Number SR–NYSE–2018–28. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's internet website (*http://www.sec.gov/rules/sro.shtml*). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549, on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of this filing will also be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change. Persons submitting comments are cautioned that we do not redact or edit personal identifying information from comment submissions. You should submit only information that you wish to make available publicly. All submissions should refer to File Number SR–NYSE–2018–28 and should be submitted on or before March 15, 2019.

VI. Accelerated Approval of Proposed Rule Change, as Modified by Amendment No. 1

The Commission finds good cause to approve the proposed rule change, as modified by Amendment No. 1, prior to the 30th day after the date of publication of notice of Amendment No. 1 in the **Federal Register**. Amendment No. 1 supplements the proposal by providing additional analysis of the Program's impact on the market to address concerns raised in Commission's Order Instituting Proceedings. Specifically, in Amendment No. 1, the Exchange presents and discusses four DID analyses it performed to assess the Program, as measured by a variety of market quality statistics. These DID analyses and the additional analysis provided by the Exchange assisted the Commission in evaluating the Program's impact on the broader market and in determining that permanent approval of the Program, Rule 107C, is reasonably designed to perfect the mechanism of a free and open market and the national market system, protect investors and the public interest, and not be unfairly discriminatory, or impose an unnecessary or inappropriate burden on competition. Accordingly, pursuant to Section 19(b)(2) of the Exchange Act,[95] the Commission finds good cause to approve the proposed rule change, as modified by Amendment No. 1, on an accelerated basis.

VII. Limited Exemption From the Sub-Penny Rule

Pursuant to its authority under Rule 612(c) of Regulation NMS,[96] the Commission hereby grants the Exchange a limited exemption from the Sub-Penny Rule to operate the Program. For the reasons discussed below, the Commission determines that such action is necessary or appropriate in the public interest, and is consistent with the protection of investors.

When the Commission adopted the Sub-Penny Rule in 2005, the Commission identified a variety of problems caused by sub-pennies that the Sub-Penny Rule was designed to address:

• If investors' limit orders lose execution priority for a nominal amount, investors may over time decline to use them, thus depriving the markets of liquidity.

• When market participants can gain execution priority for a nominal amount, important customer protection rules such as exchange priority rules and the Manning Rule[97] could be undermined.

• Flickering quotations that can result from widespread sub-penny pricing could make it more difficult for broker-dealers to satisfy their best execution obligations and other regulatory responsibilities.

• Widespread sub-penny quoting could decrease market depth and lead to higher transaction costs.

• Decreasing depth at the inside could cause institutions to rely more on execution alternatives away from the exchanges, potentially increasing fragmentation in the securities markets.[98]

The Commission believes that the limited exemption granted today should continue to promote competition between exchanges and OTC market makers in a manner that is reasonably designed to minimize the problems that the Commission identified when adopting the Sub-Penny Rule. Under the Program, sub-penny prices will not be disseminated through the consolidated quotation data stream, which should avoid quote flickering and its reduced depth at the inside quotation.

Furthermore, the Commission does not believe that granting this limited exemption and approving the proposal would reduce incentives for market participants to display limit orders. As noted in the RLP Approval Order, market participants that displayed limit orders at the time were not able to interact with marketable retail order flow because that order flow was almost entirely routed to internalizing OTC market makers that offered sub-penny executions,[99] and, as noted in Amendment No. 1, the Program has attracted a small volume from the OTC market makers. As a result, enabling the Exchange to continue to compete for retail order flow through the Program should not materially detract from the current incentives to display limit orders, while potentially resulting in greater order interaction and price improvement for marketable retail orders on a public national securities exchange. To the extent that the Program may raise Manning and best execution issues for broker-dealers, these issues are already presented by the existing practices of OTC market makers.

This permanent and limited exemption from the Sub-Penny Rule is limited solely to the operation of the Program by the Exchange. This exemption does *not* extend beyond the scope of Exchange Rule 107C. In addition, this exemption is conditioned on the Exchange continuing to conduct the Program, in accordance with Exchange Rule 107C and substantially as described in the Exchange's request for exemptive relief and the proposed rule change, as modified by Amendment No. 1.[100] Any changes in Exchange Rule 107C may cause the Commission to reconsider this exemption.

[95] 15 U.S.C. 78s(b)(2).

[96] 17 CFR 242.612(c).

[97] *See* Financial Industry Regulatory Authority Rule 5320 (Prohibition Against Trading Ahead of Customer Orders).

[98] *See* Securities Exchange Act Release No. 51808 (June 9, 2005), 70 FR 37496 (June 29, 2005).

[99] *See* RLP Approval Order, *supra* note 14, at 40682.

[100] *See supra* note 13.

VIII. Conclusion

It is therefore ordered, pursuant to Section 19(b)(2) of the Exchange Act,[101] that the proposed rule change (SR–NYSE–2018–28), as modified by Amendment No. 1, be, and it hereby is, approved on an accelerated basis.

It is further ordered that, pursuant to Rule 612(c) under Regulation NMS, that the Exchange shall be exempt from Rule 612(a) of Regulation NMS with respect to the operation of the Program as set forth in Exchange Rule 107C as described herein.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[102]

Eduardo A. Aleman,

Deputy Secretary.

[FR Doc. 2019–03043 Filed 2–21–19; 8:45 am]

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[101] 15 U.S.C. 78s(b)(2).

[102] 17 CFR 200.30–3(a)(12) and 17 CFR 200.30–3(a)(83).

SECURITIES AND EXCHANGE COMMISSION

[SEC File No. 270–122, OMB Control No. 3235–0111]

Submission for OMB Review; Comment Request

Upon Written Request Copies Available From: Securities and Exchange Commission, Office of FOIA Services, 100 F Street NE, Washington, DC 20549–2736

Extension:
Form T–2

Notice is hereby given that, pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*), the Securities and Exchange Commission (''Commission'') has submitted to the Office of Management and Budget this request for extension of the previously approved collection of information discussed below.

Form T–2 (17 CFR 269.2) is a statement of eligibility of an individual trustee under the Trust Indenture Act of 1939. The information is used to determine whether the individual is qualified to serve as a trustee under the indenture. Form T–2 is filed on occasion. The information required by Form T–2 is mandatory. This information is publicly available on EDGAR. Form T–2 takes approximately 9 hours per response to prepare and is filed by approximately 9 respondents. We estimate that 25% of the 9 hours per response (2 hours) is prepared by the filer for a total annual reporting burden of 18 hours (2 hours per response × 9 responses).

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid control number.

The public may view the background documentation for this information collection at the following website, *www.reginfo.gov.* Comments should be directed to: (i) Desk Officer for the Securities and Exchange Commission, Office of Information and Regulatory Affairs, Office of Management and Budget, Room 10102, New Executive Office Building, Washington, DC 20503, or by sending an email to: *Lindsay.M.Abate@omb.eop.gov;* and (ii) Charles Riddle, Acting Director/Chief Information Officer, Securities and Exchange Commission, c/o Candace Kenner, 100 F Street NE, Washington, DC 20549 or send an email to: *PRA_Mailbox@sec.gov.* Comments must be submitted to OMB within 30 days of this notice.

Dated: February 19, 2019.

Eduardo A. Aleman,

Deputy Secretary.

[FR Doc. 2019–03088 Filed 2–21–19; 8:45 am]

BILLING CODE 8011–01–P

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–85162; File No. SR–MIAX–2019–01]

Self-Regulatory Organizations; Miami International Securities Exchange, LLC; Notice of Filing and Immediate Effectiveness of a Proposed Rule Change To Amend its Options Regulatory Fee

February 15, 2019.

Pursuant to the provisions of Section 19(b)(1) of the Securities Exchange Act of 1934 (''Act'')[1] and Rule 19b–4 thereunder,[2] notice is hereby given that on February 1, 2019, Miami International Securities Exchange LLC (''MIAX Options'' or ''Exchange'') filed with the Securities and Exchange Commission (''Commission'') a proposed rule change as described in Items I, II, and III below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

[1] 15 U.S.C. 78s(b)(1).

[2] 17 CFR 240.19b–4.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Exchange is filing a proposal to amend the MIAX Options Fee Schedule (the ''Fee Schedule'') to amend its Options Regulatory Fee (''ORF'').

The text of the proposed rule change is available on the Exchange's website at *http://www.miaxoptions.com/rule-filings,* at MIAX's principal office, and at the Commission's Public Reference Room.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and the Statutory Basis for, the Proposed Rule Change

1. Purpose

Currently, the Exchange charges an ORF in the amount of $0.0045 per contract side. The Exchange proposes to decrease this ORF to $0.0029 per contract side. In light of historical and projected volume changes and shifts in the industry and on the Exchange, as well as changes to the Exchange's regulatory cost structure, the Exchange is proposing to change the amount of ORF that will be collected by the Exchange. The Exchange's proposed change to the ORF should balance the Exchange's regulatory revenue against the anticipated regulatory costs.

The per-contract ORF will continue to be assessed by MIAX Options to each MIAX Options Member for all options transactions, including Mini Options, cleared or ultimately cleared by the Member which are cleared by the Options Clearing Corporation (''OCC'') in the ''customer'' range, regardless of the exchange on which the transaction occurs. The ORF will be collected by OCC on behalf of MIAX Options from either (1) a Member that was the ultimate clearing firm for the transaction or (2) a non-Member that was the ultimate clearing firm where a Member was the executing clearing firm for the transaction. The Exchange uses reports