

SECURITIES AND EXCHANGE COMMISSION  
(Release No. 34-90735; File No. SR-BOX-2020-14)

December 18, 2020

Self-Regulatory Organizations; BOX Exchange LLC; Order Disapproving Proposed Rule Change, as Modified by Amendment No. 1, to Adopt Rules Governing the Trading of Equity Securities on the Exchange Through a Facility of the Exchange Known as the Boston Security Token Exchange LLC

I. Introduction

On May 21, 2020, BOX Exchange LLC (“Exchange” or “BOX”) filed with the Securities and Exchange Commission (“Commission”), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Exchange Act”)<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> a proposed rule change to adopt rules governing the listing and trading of equity securities that would be National Market System (“NMS”) stocks on the Exchange through a facility of the Exchange known as the Boston Security Token Exchange LLC (“BSTX”). The proposed rule change was published for comment in the Federal Register on June 1, 2020.<sup>3</sup> On July 16, 2020, pursuant to Section 19(b)(2) of the Exchange Act,<sup>4</sup> the Commission designated a longer period within which to either approve the proposed rule change, disapprove the proposed rule change, or institute proceedings to determine whether to disapprove the proposed rule change.<sup>5</sup>

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<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

<sup>3</sup> See Securities Exchange Act Release No. 88946 (May 26, 2020), 85 FR 33454 (June 1, 2020) (SR-BOX-2020-14) (“Notice”). Comments received on the proposed rule change are available at: <https://www.sec.gov/comments/sr-box-2020-14/srbox202014.htm>.

<sup>4</sup> 15 U.S.C. 78s(b)(2).

<sup>5</sup> See Securities Exchange Act Release No. 89328 (July 16, 2020), 85 FR 44338 (July 22, 2020). The Commission designated August 30, 2020, as the date by which it should approve, disapprove, or institute proceedings to determine whether to disapprove the proposed rule change.

On July 31, 2020, the Exchange filed Amendment No. 1 to the proposed rule change, which replaced and superseded the proposed rule change as originally filed.<sup>6</sup> On August 12, 2020, the Commission published the proposed rule change, as modified by Amendment No. 1, for notice and comment and instituted proceedings to determine whether to approve or disapprove the proposed rule change, as modified by Amendment No. 1.<sup>7</sup> On November 24, 2020, pursuant to Section 19(b)(2) of the Exchange Act, the Commission designated a longer period within which to issue an order approving or disapproving the proposed rule change, as modified by Amendment No. 1.<sup>8</sup>

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<sup>6</sup> In Amendment No. 1, the Exchange revised the proposal to: (i) change the name used to refer to BSTX-listed securities from “security tokens” to “Securities”; (ii) eliminate the proposed requirement for trades on the Exchange to settle one business day after the trade date (“T+1”), which is not the settlement cycle for NMS stock; (iii) add proposed rule text that the Exchange describes as containing measures to ensure the accuracy of end-of-day Security balance reports; (iv) add proposed rule text specifying that the time by which Exchange members must report end-of-day Security balances to the Exchange will be set forth by the Exchange via regulatory circular; (v) provide additional description of several aspects of the proposal, including end-of-day Security balance reporting and implications of the trading of BSTX-listed Securities on other national securities exchanges on the end-of-day reporting process; and (vi) make technical and conforming changes. Amendment No. 1 is available on the Commission’s website at: <https://www.sec.gov/comments/sr-box-2020-14/srbox202014-7570237-222233.pdf>. On July 31, 2020, the Exchange also submitted a letter to the Commission requesting that the Commission concur with the Exchange’s conclusion that members that enter orders into BSTX’s trading system satisfy the conditions of Rule 11a2-2(T) under the Exchange Act (17 CFR 240.11a2-2(T)). See Letter from Lisa Fall, President, BOX, to Vanessa Countryman, Secretary, Commission, and Tyler Raimo, Assistant Director, Division of Trading and Markets, Commission (July 31, 2020), available at <https://www.sec.gov/comments/sr-box-2020-14/srbox202014-7506169-221931.pdf>.

<sup>7</sup> See Securities Exchange Act Release No. 89536 (August 12, 2020), 85 FR 51250 (August 19, 2020) (“Order Instituting Proceedings” or “OIP”).

<sup>8</sup> See Securities Exchange Act Release No. 90512 (Nov. 24, 2020), 85 FR 77327 (Dec. 1, 2020).

In Amendment No. 1 to the proposed rule change, the Exchange states that the proposed rule change was previously filed with the Commission as SR-BOX-2019-19, which the Exchange amended twice, and that the current proposed rule change, SR-BOX-2020-14, is “substantively identical” to previously-filed proposed rule change, SR-BOX-2019-19, as modified by Amendment No. 2 thereto.<sup>9</sup> SR-BOX-2019-19, as modified by Amendment No. 2 thereto, was published for comment in the Federal Register on March 6, 2020.<sup>10</sup> The Commission received comments on the substance of SR-BOX-2019-19, as well as responses submitted by BOX.<sup>11</sup> BOX withdrew proposed rule change SR-BOX-2019-19 on May 12,

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<sup>9</sup> See OIP, supra note 7, 85 FR at 51251, n.14.

<sup>10</sup> See Securities Exchange Act Release No. 88300 (February 28, 2020), 85 FR 13242 (March 6, 2020) (Notice of Filing of Amendment No. 2 to Proposed Rule Change). See also Securities Exchange Act Release Nos. 87287 (October 11, 2019), 84 FR 56022 (October 18, 2019) (Notice of Filing of Proposed Rule Change) (noticing SR-BOX-2019-19 as originally filed); and 88002 (January 16, 2020), 85 FR 4040 (January 23, 2020) (Notice of Filing of Amendment No. 1 and Order Instituting Proceedings) (noticing Amendment No. 1 to SR-BOX-2019-19 and instituting proceedings to determine whether to disapprove the proposed rule change as modified by Amendment No. 1). The only differences between SR-BOX-2019-19, as modified by Amendment No. 2, and SR-BOX-2020-14 relate to: removal of references to Amendment No. 2; modification of a reference to Exhibit 5 to the filing; modification of the description of BSTX ownership interests to reflect the addition of a small percentage (less than 10%) of non-voting economic interest-holders; updating a reference to a related filing (SR-BOX-2019-37, which was also withdrawn and refiled as SR-BOX-2020-16); corrections to citations; and grammatical corrections.

<sup>11</sup> Comments on SR-BOX-2019-19 can be found at: <https://www.sec.gov/comments/sr-box-2019-19/srbox201919.htm>. These comments also include response letters from the Exchange.

2020.<sup>12</sup> As applicable and discussed below, the Commission considered comments submitted on SR-BOX-2019-19 and SR-BOX-2020-14 in its review of SR-BOX-2020-14.<sup>13</sup>

This order disapproves the proposed rule change, as modified by Amendment No. 1. The Exchange proposes to list and trade NMS stock that would be uncertificated securities that are issued, traded, and cleared like any other NMS stock. Unlike other NMS stock, however, the Exchange proposes to require issuers and members eligible to participate on the BSTX trading system (“BSTX Participants”) to comply with a protocol that would enable BSTX to record and publicly disseminate BSTX Participants’ end-of-day securities ownership balances to the Ethereum blockchain<sup>14</sup> (such BSTX-listed stock to be referred to as “Securities”). According to the Exchange, this information recorded on the Ethereum blockchain would be “ancillary” to the official ownership records maintained by participants at the securities depository and would not convey legal ownership of Securities. For each Security, the Ethereum blockchain would reflect the end-of-day balance for each BSTX Participant, along with a balance allocated to an “omnibus” wallet. The Exchange proposes to use the omnibus wallet to, among other things, record and publicly disseminate the aggregate balance of Securities held by non-BSTX Participants, as well as to account for other discrepancies between the total balance reported by

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<sup>12</sup> See Securities Exchange Act Release No. 89018 (June 4, 2020), 85 FR 35458 (June 10, 2020) (Notice of Withdrawal of a Proposed Rule Change).

<sup>13</sup> With respect to comments received on SR-BOX-2019-19 that are discussed below, the Commission notes that the aspects of the proposal that were the subject of commenters’ concerns remain the same in the current proposal, SR-BOX-2020-14.

<sup>14</sup> A “blockchain” is a type of distributed ledger, or peer-to-peer database spread across a network, that records all transactions in the network in digitally-recorded data packages called blocks. The “Ethereum blockchain” is an open, or permissionless, blockchain that is a record of events resulting from the execution of code (smart contracts) on the blockchain. See generally, Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, Release No. 81207, 2017 WL 7184670, at \*1-\*2 & n.6 (July 25, 2017) (“The DAO Report”).

BSTX Participants and the total number of Securities outstanding. As discussed in further detail below, this Order finds that that the Exchange has not met its burden to demonstrate that the proposal is consistent with Sections 6(b)(1), 6(b)(5), and 6(b)(8) of the Exchange Act.

Specifically, the Commission examines in Section III.B how the Exchange's proposal would result in inaccurate BSTX-listed Security ownership balances being publicly disseminated on the Ethereum blockchain. As explained in more detail below, there are several ways in which inaccurate information from BSTX would be publicly available on the Ethereum blockchain, including: (i) Security balances published to the Ethereum blockchain would be inaccurate to the extent that BSTX Participants report inaccurate information or are late in reporting; (ii) Security balances would be stale because they would represent a snapshot of a BSTX Participant's depository account balance at the end of the last trading day and thus fail to reflect transactions that have not yet settled; (iii) the omnibus wallet would include Security balances that cannot be attributed to the respective BSTX Participant due to such inaccurate or late reporting as well as the holdings of non-BSTX Participants; and (iv) BSTX Participants' short and long positions, both of which would be reported, would be indistinguishable when represented on the Ethereum blockchain, and thereby would provide an economically inaccurate picture of Security balances. Accordingly, as the Exchange concedes, there are a variety of circumstances in which the publicly disseminated information reflected on the Ethereum blockchain would not represent true holdings. Furthermore, exacerbating the inaccuracy of the information that the Exchange would publicly disseminate on the Ethereum blockchain, the Exchange has not demonstrated whether or how it would surveil for, reconcile, or address these inaccuracies. The Commission finds, based on the significant risk that this inaccurate information would confuse and mislead investors, that the Exchange has not met its burden to demonstrate that the proposed rule change is consistent

with the protection of investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act. The Commission separately finds that, based on the significant risk that investors will use this inaccurate public information about Security ownership in their investment decisions, the Exchange has not met its burden to demonstrate that the proposed rule change is consistent with the protection of investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act.

In addition, the Commission examines in Section III.C significant operational aspects of the Exchange's proposal that the Exchange has not sufficiently explained, thereby making it difficult for potential BSTX Participants and other market participants to understand the obligations that the Exchange would impose. The Commission examines below several aspects of the Exchange's proposal, including: (i) the Exchange's proposed procedures relating to the recording and dissemination of end-of-day Security ownership balances; (ii) the costs or other burdens that would be imposed on market participants to comply with the proposed requirement to report end-of-day Security ownership balances; (iii) the Exchange's standard or procedures to suspend the end-of-day Security reporting requirements; and (iv) the requirements the Exchange would place on listed companies, and in particular, how trading might be impacted between two classes of securities of an issuer—one listed on BSTX and one listed on another national securities exchange—where the only distinction may be that one has the necessary smart contracts to comply with BSTX's requirements. The Commission finds, due to the lack of information about BSTX's intended operations, that the Exchange has not met its burden to demonstrate that its proposed rule change would prevent fraudulent and manipulative acts and practices, facilitate transactions in securities, remove impediments to and perfect the mechanism of a free and open market and a national market system, and protect investors and the public

interest, and is not designed to permit unfair discrimination, consistent with Section 6(b)(5) of the Exchange Act. The Commission also finds, due to a lack of explanation about how the Exchange would carry out these functions and fulfill its obligation to be organized and be able to carry out the purposes of the Exchange Act, and to comply and enforce compliance by its members with its own rules, that the Exchange has not met its burden to show that its proposed rule change is consistent with Section 6(b)(1) of the Exchange Act.

Lastly, the Commission examines in Section III.D how another national securities exchange could provide end-of-day Security ownership balance reporting functionality for its members. The Commission finds, due to the lack of explanation of how another national securities exchange that seeks to extend unlisted trading privileges (“UTP”) to a BSTX-listed Security could feasibly provide an end-of-day Security ownership balance reporting functionality to its members, that the Exchange has not met its burden to demonstrate that its rules do not impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Exchange Act, as required by Section 6(b)(8) of the Exchange Act. Specifically, the Exchange has not sufficiently addressed its control over the end-of-day reporting process or the feasibility of another national securities exchange setting up its own parallel process for end-of-day reporting. Without a sufficient understanding of the burdens on competition, the Commission cannot determine if these burdens are necessary or appropriate in furtherance of the Exchange Act.

Although the Commission is disapproving this proposed rule change, the Commission emphasizes that it encourages and supports innovation and the application of beneficial technologies in our securities markets, and its disapproval of this proposed rule change does not rest on an evaluation of whether blockchain technology has utility or value as an innovation,

generally or as applied to the functions of a national securities exchange. The Commission believes that there is value in distributed ledger technology and related innovation, which offers the ability to share information, transfer value, and record transactions in a distributed digital environment. However, the public dissemination of information known to be inaccurate or misleading, as here, irrespective of whether it takes place through a public blockchain, a public database, a public website, or a published circular, is problematic.

## II. Description of the Proposed Rule Change

As described in the OIP,<sup>15</sup> the Exchange proposes to adopt listing standards for certain NMS stocks that the Exchange refers to as “Securities.” For each class of “Securities” listed by BOX, the Exchange would employ a functionality to record and publicly disseminate on the Ethereum blockchain end-of-day ownership balances reported to the Exchange by BSTX Participants.<sup>16</sup> The Exchange is also proposing rules governing the trading of these NMS stocks through a facility of the Exchange known as BSTX, which would operate a fully automated, price-time priority execution system (“BSTX System”).<sup>17</sup> According to the Exchange, the end-

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<sup>15</sup> See OIP, supra note 7.

<sup>16</sup> See OIP, supra note 7, 85 FR at 51250-51. A “BSTX Participant” would be a participant that is authorized to trade Securities on the Exchange. See proposed BSTX Rule 17000(a)(11).

<sup>17</sup> See OIP, supra note 7, 85 FR at 51250. Pursuant to a separate proposed rule change, the Exchange proposes to establish BSTX as a facility of the Exchange that will operate a market for the trading of securities (“BSTX Market”) and adopt the BSTX Second Amended and Restated LLC Agreement. See Securities Exchange Act Release No. 89537 (August 12, 2020), 85 FR 50850 (August 18, 2020) (SR-BOX-2020-16) (Notice of Filing of Amendment No. 1 and Order Instituting Proceedings to Determine Whether to Approve or Disapprove a Proposed Rule Change, as Modified by Amendment No. 1, in Connection with the Proposed Establishment of the Boston Security Token Exchange LLC as a Facility of the Exchange) (“Amended BSTX Governance Proposal”). See also Securities Exchange Act Release No. 88949 (May 26, 2020), 85 FR 33258 (June 1, 2020) (“BSTX Governance Proposal”). Among other things, the Amended BSTX Governance Proposal sets forth the proposed ownership structure for BSTX. The Exchange states that

of-day Security ownership balance information would constitute “ancillary” or supplemental records of end-of-day ownership balances and legal ownership would be separately established and evidenced by operation of commercial law. The Exchange contends that the official records of security ownership would be maintained by participants at The Depository Trust Company (“DTC”), and attribution of a “Security” to a particular wallet address on the Ethereum blockchain would not convey ownership of shareholder equity in the issuer of the NMS stock.<sup>18</sup>

According to the Exchange, the Exchange would record Security ownership balances on the Ethereum blockchain using a protocol standard determined by BSTX that each security admitted to trading on BSTX would be required to follow (the “BSTX Protocol”).<sup>19</sup> The Exchange proposes that each BSTX Participant would be required to establish, either directly or through a carrying firm, what the Exchange calls a “whitelisted” wallet address (hereinafter “allowlisted”) to which its end-of-day Security ownership balances may be recorded.<sup>20</sup> The Exchange proposes that, each business day, each BSTX Participant would be required to report to BSTX certain end-of-day Security ownership balances in a manner and form acceptable to

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without Commission approval of the trading rules, the Exchange would not permit BSTX to commence operations of the BSTX Market, and that the Exchange’s regulatory oversight responsibilities with respect to BSTX would not be triggered unless SR-BOX-2020-16 is approved by the Commission. See Amended BSTX Governance Proposal, 85 FR at 50850.

<sup>18</sup> See OIP, supra note 7, 85 FR at 51253, 51257.

<sup>19</sup> See OIP, supra note 7, 85 FR at 51254-56.

<sup>20</sup> See OIP, supra note 7, 85 FR at 51256-57. According to the Exchange, an allowlisted wallet address would be a permissioned number associated with a particular market participant to which Securities may be sent. See id. at 51255-56.

BSTX.<sup>21</sup> The Exchange would then provide this information to a Wallet Manager<sup>22</sup> to update the Ethereum blockchain to reflect changes in ownership of Securities and publicly disseminate the ownership balance for each wallet address.<sup>23</sup> The Exchange proposes that a BSTX Participant shall promptly send a corrected end-of-day Security balance report to the Exchange upon the BSTX Participant's discovery that it submitted an inaccurate end-of-day report that has not already been corrected or superseded.<sup>24</sup> If the Exchange has reason to believe that Security balances reported by one or more BSTX Participants may be inaccurate, the Exchange may request additional information regarding the applicable reports and balances from any BSTX Participant to which the BSTX Participant shall promptly respond.<sup>25</sup> Under the proposal, the Exchange would, in its discretion, be able to suspend the requirement that a BSTX Participant establish a wallet address and report its end-of-day ownership balance with respect to any BSTX Participant and/or with respect to one or more Securities, as applicable.<sup>26</sup> Non-BSTX Participants that may trade Securities would not be subject to the requirement to obtain an allowlisted wallet address or to report their end-of-day Security ownership balances, and would not be able to voluntarily report end-of-day Security ownership balances to BSTX.<sup>27</sup>

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<sup>21</sup> See OIP, supra note 7, 85 FR at 51258. The Exchange states that BSTX Participants who fail to comply with the end-of-day ownership reporting requirement may be subject to disciplinary action. See OIP, supra note 7, 85 FR at 51259.

<sup>22</sup> The Exchange proposes to define a "Wallet Manager" as a party approved by BSTX to operate software compatible with the BSTX Protocol. See proposed BSTX Rule 17000(a)(31).

<sup>23</sup> See OIP, supra note 7, 85 FR at 51258-59.

<sup>24</sup> See OIP, supra note 7, 85 FR at 51260; proposed BSTX Rule 17020(e)(1).

<sup>25</sup> See OIP, supra note 7, 85 FR at 51260; proposed BSTX Rule 17020(e)(2).

<sup>26</sup> See OIP, supra note 7, 85 FR at 51260; proposed BSTX Rule 17020(f).

<sup>27</sup> See OIP, supra note 7, 85 FR at 51257.

According to the Exchange, the Ethereum blockchain could contain an imprecise distribution of Securities among holders and display inaccurate information about Security ownership balances if BSTX Participants inaccurately report end-of-day Security balances to BSTX or if the number of reported Securities exceeds the number of outstanding Securities of a particular issuance.<sup>28</sup> To account for instances in which a BSTX Participant fails to report or inaccurately reports its end-of-day ownership balance, as well as for the Security positions of non-BSTX Participants who are not subject to the end-of-day ownership reporting requirement, the Exchange would provide information to the Wallet Manager to attribute all such unreported Security ownership balances for a given Security to a single omnibus wallet address.<sup>29</sup> The Exchange states that the Ethereum blockchain would publicly display Security balances that would reflect the end-of-day ownership balances reported to BSTX by BSTX Participants pursuant to proposed BSTX Rule 17020<sup>30</sup> and a balance allocated to the omnibus wallet address for any type of Security for which the sum of the reported positions is less than the number of Securities known by the Exchange to be issued and outstanding.<sup>31</sup> The Exchange acknowledges that there is a risk of situations in which it would be unable to communicate the end-of-day

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<sup>28</sup> See OIP, supra note 7, 85 FR at 51260. See also OIP, supra note 7, 85 FR at 51295 (“The Exchange acknowledges that, in certain circumstances, a BSTX Participant subject to the requirements of proposed Rule 17020 could fail to report end-of-day Security balances to BSTX in a timely manner, inaccurately report such balances, or fail to obtain a wallet address prior to acquiring a position in a Security. Such failures would impair the ability of the Exchange to report complete end-of-day Security balance information . . . to the Wallet Manager(s) who [would] update the Security balance information that is reflected on the Ethereum blockchain.”).

<sup>29</sup> See OIP, supra note 7, 85 FR at 51259; proposed BSTX Rule 17020(d).

<sup>30</sup> Proposed BSTX Rule 17020 sets forth the proposed end-of-day reporting requirements for BSTX Participants. See proposed BSTX Rule 17020.

<sup>31</sup> See OIP, supra note 7, 85 FR at 51259-60.

Security ownership balances to the Wallet Manager or the Wallet Manager would be unable to update the blockchain.<sup>32</sup> The Exchange states that it would not make public which BSTX Participant is associated with a particular wallet address or identify which address is the omnibus wallet address.<sup>33</sup>

The Exchange proposes that Securities would be eligible for trading on other national securities exchanges that extend unlisted trading privileges to them. According to the Exchange, the end-of-day Security ownership balance reporting by BSTX Participants and the public dissemination of the information on the Ethereum blockchain would not impact the ability of Securities to trade on other national securities exchanges or over-the-counter (“OTC”).<sup>34</sup>

The Exchange also proposes rules for participation on BSTX, business conduct for BSTX Participants, financial and operational provisions for BSTX Participants, supervision, trading practices, discipline, trading on the BSTX System, and market making.<sup>35</sup> In addition, the Exchange proposes listing standards that, according to the Exchange, are similar to the listing standards of NYSE American.<sup>36</sup> The Exchange proposes that these listing standards would also specify that all listed Securities comply with the BSTX Protocol.<sup>37</sup> The Exchange states that it is

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<sup>32</sup> See OIP, supra note 7, 85 FR at 51260, 51262.

<sup>33</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>34</sup> See OIP, supra note 7, 85 FR at 51262.

<sup>35</sup> See OIP, supra note 7, 85 FR at 51264-77. The trading rules that the Exchange proposes include provisions for primary distributions of securities to be made through the Exchange, including using an auction process. See id. at 51270.

<sup>36</sup> See OIP, supra note 7, 85 FR at 51277.

<sup>37</sup> See OIP, supra note 7, 85 FR at 51278.

not proposing rules that would support its extension of UTP to NMS stock listed on other national securities exchanges.<sup>38</sup>

According to the Exchange, all transactions in Securities would clear and settle in accordance with the rules, policies, and procedures of registered clearing agencies.<sup>39</sup> The Exchange states that BSTX anticipates that DTC would serve as the securities depository for Securities and that confirmed trades in Securities on BSTX would be transmitted to National Securities Clearing Corporation (“NSCC”) for clearing.<sup>40</sup> The Exchange states that Security transactions occurring on BSTX would be cleared through NSCC using a T+2 settlement cycle, as is the case today for all other exchanges that facilitate trading in NMS stock.<sup>41</sup>

### III. Discussion

#### A. Applicable Standard for Review

Under Section 19(b)(2)(C) of the Exchange Act, the Commission must approve the proposed rule change of a self-regulatory organization (“SRO”) if the Commission finds that the proposed rule change is consistent with the requirements of the Exchange Act and the applicable rules and regulations thereunder; if it does not make such a finding, the Commission must disapprove the proposed rule change.<sup>42</sup> Additionally, under Rule 700(b)(3) of the Commission’s Rules of Practice, the “burden to demonstrate that a proposed rule change is consistent with the

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<sup>38</sup> See OIP, supra note 7, 85 FR at 51251. The Exchange also states that, therefore, it would only trade Securities listed on BSTX unless and until it proposes and receives Commission approval for rules that would support trading in other types of securities, including through the extension of UTP to other NMS stocks. Id.

<sup>39</sup> See OIP, supra note 7, 85 FR at 51253.

<sup>40</sup> See OIP, supra note 7, 85 FR at 51253.

<sup>41</sup> See OIP, supra note 7, 85 FR at 51254.

<sup>42</sup> See 15 U.S.C. 78s(b)(2)(C)(i).

Exchange Act and the rules and regulations issued thereunder . . . is on the self-regulatory organization that proposed the rule change.”<sup>43</sup> The description of a proposed rule change, its purpose and operation, its effect, and a legal analysis of its consistency with applicable requirements must be sufficiently detailed and specific to support an affirmative Commission finding.<sup>44</sup> Any failure of an SRO to provide this information may result in the Commission not having a sufficient basis to make an affirmative finding that a proposed rule change is consistent with the Exchange Act and the applicable rules and regulations issued thereunder that are applicable to the SRO.<sup>45</sup> Moreover, “unquestioning reliance” on an SRO’s representations in a proposed rule change is not sufficient to justify Commission approval of a proposed rule change.<sup>46</sup>

In reviewing the proposed rule change, the Commission has analyzed information provided by the Exchange and issues raised by commenters. Based on the information before the Commission, for each of the reasons discussed below (whether viewed independently or in combination), the Commission is unable to find that the Exchange has met its burden to show that the proposed rule change is consistent with the Exchange Act and the applicable rules and regulations thereunder, including Exchange Act Sections 6(b)(1), 6(b)(5), and 6(b)(8), and is therefore unable to find that the proposal is consistent with the Exchange Act.

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<sup>43</sup> Rule 700(b)(3), Commission Rules of Practice, 17 CFR 201.700(b)(3).

<sup>44</sup> See id.

<sup>45</sup> See id.

<sup>46</sup> Susquehanna Int’l Group, LLP v. Securities and Exchange Commission, 866 F.3d 442, 447 (D.C. Cir. 2017).

B. Whether BOX Has Met its Burden To Demonstrate that the Proposal Is Consistent with Section 6(b)(5) of the Exchange Act Notwithstanding the Risk that the Dissemination of Inaccurate Information About BSTX-Listed Securities Would Mislead Investors

Pursuant to the Exchange's proposal, the Exchange would disseminate inaccurate Security ownership balances to the public under many circumstances. The Commission has grave concerns when an SEC registrant, such as a national securities exchange that is an SRO, knowingly disseminates inaccurate information to the public, irrespective of whether it takes place through a public blockchain, a public database, a public website, or a published circular. As discussed below, the Exchange has failed to meet its burden to demonstrate that its proposal is consistent with protection of investors and the public interest, pursuant to Section 6(b)(5) of the Exchange Act, given that the publicly disseminated Security ownership balances could be inaccurate, which creates a significant risk of confusing and misleading investors. Furthermore, the Commission has concerns that the inaccurate Security ownership balance information disseminated to the public would impact investor decisions, and the Exchange has also failed to meet its burden to demonstrate how investors' use of inaccurate Security ownership balance information is consistent with the protection of investors and the public interest, pursuant to Section 6(b)(5) of the Exchange Act.

## 1. Exchange's Representations and Comments Received

The Exchange states that the proposed rules contemplate the use of smart contract<sup>47</sup> functionality to record end-of-day Security<sup>48</sup> position balance information to the Ethereum blockchain as an “ancillary” recordkeeping mechanism.<sup>49</sup> In the context of its proposal, the Exchange states that a Token<sup>50</sup> on the blockchain would be akin to a digital representation of shareholder equity in a legal entity that is organized under the authority of state or federal law

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<sup>47</sup> A “smart contract” has been defined as a computerized transaction protocol that executes terms of a contract with the general objectives to satisfy common contractual conditions (such as payment terms, liens, confidentiality, and even enforcement), minimize exceptions both malicious and accidental, and minimize the need for trusted intermediaries. See The DAO Report, supra note 13, at \*2 & n.3.

<sup>48</sup> The Exchange defines “Security” as an “NMS stock, as defined in Rule 600(b)(47) of the Exchange Act, trading on the BSTX System and for which ancillary blockchain records are maintained under these Rules.” See proposed BSTX Rule 17000(a)(30). Exchange Act Rule 600(b)(47) defines “NMS security” as “any security or class of securities for which transaction reports are collected, processed, and made available pursuant to an effective transaction reporting plan, or an effective national market system plan for reporting transactions in listed options.” 17 CFR 242.600(b)(47). Exchange Act Rule 600(b)(48) then defines “NMS stock” as “any NMS security other than an option.” 17 CFR 242.600(b)(48). The Exchange states that it proposes to use the term “Security” to refer to BSTX-listed securities to distinguish them from other securities that are not designed to use blockchain technology as an ancillary recordkeeping mechanism. See OIP, supra note 7, 85 FR at 51251, n.15. For purposes of this Order, where discussing statements by commenters on previous versions of the proposal that used the term “security token,” which term the Exchange replaced with “Security” in Amendment No. 1, this Order will use the term “Security.” See supra note 6.

<sup>49</sup> See OIP, supra note 7, 85 FR at 51263. The Exchange uses the term “tokens” in its proposal to mean, in the context of blockchain technology, blockchain-based abstractions that can be owned and that represent assets, currency, or access rights. See OIP, supra note 7, 85 FR at 51255.

<sup>50</sup> This Order will use the term “Token” to refer more specifically to representations of Securities on a smart contract on the Ethereum blockchain that the Exchange would use to represent the reported end-of-day Security ownership balances for a particular Security. Securities listed and traded on BSTX would not be issued and/or transferred using distributed ledger or blockchain technology.

and that meets BSTX's listing standards.<sup>51</sup> The Exchange further states that attribution of a Token to a particular wallet address would not convey ownership of shareholder equity in the issuer and that, instead, official records of ownership would be maintained at DTC.<sup>52</sup> The Exchange states that, pursuant to its proposal, ownership of Securities would be able to be transferred without regard to the blockchain-based recordkeeping functionality.<sup>53</sup>

The Exchange states that, for each Security, the Ethereum blockchain would reflect the end-of-day Security ownership balance associated with each BSTX Participant's wallet address, along with a balance allocated to an omnibus wallet address.<sup>54</sup> The Exchange states that it expects that each Security would have a designated omnibus wallet address.<sup>55</sup> The Exchange states that it would use an omnibus wallet address to account for instances in which a BSTX Participant fails to report or to accurately report its end-of-day Security ownership balance, as well as to account for the positions of Security holders that are not BSTX Participants and

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<sup>51</sup> See OIP, supra note 7, 85 FR at 51255. The Exchange states that this digital representation of a Security associated with a particular wallet address reflects an ancillary record of Security ownership based on data provided to BSTX by BSTX Participants. See OIP, supra note 7, 85 FR at 51255, n.52.

<sup>52</sup> See OIP, supra note 7, 85 FR at 51255. See also id. at 51261 (stating that the Security balance information as recorded on the Ethereum blockchain in Token form will not reflect legal ownership).

<sup>53</sup> See OIP, supra note 7, 85 FR at 51252 (also stating that Securities would trade, clear, and settle in the same manner as all other NMS stocks traded today).

<sup>54</sup> See OIP, supra note 7, 85 FR at 51261. The end-of-day Security ownership balance reported by a BSTX Participant or its carrying firm to the Exchange would reflect the total number of Securities for each class of Security that are credited to each account of the BSTX Participant at the securities depository (i.e., DTC), or the total number of Securities for each class of Security that are credited to the BSTX Participant by its carrying firm. See proposed BSTX Rule 17020(b).

<sup>55</sup> See OIP, supra note 7, 85 FR at 51259.

therefore not subject to the end-of-day Security ownership balance reporting requirement.<sup>56</sup> According to the Exchange, it would determine the number of Tokens (which represent Securities) to be allocated to the omnibus wallet address by subtracting the sum of the Security ownership balances reported for a particular Security by BSTX Participants from the total outstanding number of that particular Security.<sup>57</sup> The Exchange also recognizes that the omnibus wallet address would display the entire outstanding balance of a Security if only non-BSTX Participants hold the entire outstanding balance of a particular Security.<sup>58</sup>

According to the Exchange, Security ownership balance information reported to the Ethereum blockchain would be publicly available at the website Etherscan.io.<sup>59</sup> The Exchange states that, from Etherscan.io, an individual member of the public would be able to search for the name of a particular Security and see the holders of Tokens representing the Securities by wallet address and the quantity associated with each holder, along with other information.<sup>60</sup> The observable quantity would reflect the last end-of-day Security ownership balances that the Exchange received from BSTX Participants and provided to the Wallet Manager to update the Ethereum blockchain.<sup>61</sup> The Exchange describes that a wallet address is essentially a string of

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<sup>56</sup> See OIP, supra note 7, 85 FR at 51259.

<sup>57</sup> See OIP, supra note 7, 85 FR at 51259. See also proposed BSTX Rule 17020(d).

<sup>58</sup> See OIP, supra note 7, 85 FR at 51260, n.80.

<sup>59</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>60</sup> See OIP, supra note 7, 85 FR at 51261 (stating that, for example, this other information may include transfers made as a result of the Wallet Manager's allocation process).

<sup>61</sup> See OIP, supra note 7, 85 FR at 51259. See infra Section III.C.2 for discussion of the process by which each BSTX Participant, directly or through its carrying firm, would report end-of-day Security ownership balances to BSTX and BSTX would provide this information, along with information pertaining to the balance to be allocated to the omnibus wallet address, to the Wallet Manager.

numbers and characters.<sup>62</sup> The Exchange represents that it would not make public which wallet address is associated with a particular BSTX Participant or with the omnibus wallet address.<sup>63</sup>

The Exchange states that an individual member of the public observing Security ownership balances would not be able to determine whether a particular wallet address represented, for example, a carrying firm reporting end-of-day Security ownership balances on behalf of multiple BSTX Participants, an individual BSTX Participant, or the omnibus wallet address.<sup>64</sup> In addition, the Exchange states that an individual member of the public would not be able to tell whether a particular wallet address was long or short the shares.<sup>65</sup>

The Exchange recognizes that end-of-day Token balances (which represent Securities) “may be inaccurate or unavailable.”<sup>66</sup> The Exchange also acknowledges that there are many

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<sup>62</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>63</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>64</sup> See OIP, supra note 7, 85 FR at 51261. The Exchange further states that an individual member of the public would not be able to determine which underlying customers of a BSTX Participant held the Securities or whether the BSTX Participant owned the Securities proprietarily. See id. The Exchange asserts its belief that the Security ownership balance information that would be publicly available on the Ethereum blockchain would be sufficiently anonymous to address privacy concerns related to such information. See id. The Exchange further states that it believes that the use of anonymized wallet addresses to track end-of-day ownership balances may prevent fraudulent and manipulative acts and practices, because, according to the Exchange, obscuring the identities of the wallet address owners may make it difficult to misuse any private information associated with these wallet addresses. See id. at 51262.

<sup>65</sup> See OIP, supra note 7, 85 FR at 51261. The Exchange states that individual members of the public would not be able to know if a position is long or short because the reported end-of-day Security ownership balances would reflect balances as reported by DTC to BSTX Participants and their carrying firms. See id. at 51261, n.90. Therefore, according to the Exchange, if a BSTX Participant borrowed Securities and the borrowed Securities were moved to its DTC account (or the DTC account of its carrying firm on its behalf), the borrowed Securities would appear to be a long position in the Security, even if the BSTX Participant was taking a short position. See id.

<sup>66</sup> OIP, supra note 7, 85 FR at 51262. As discussed further below, the Exchange asserts that it believes that inaccuracies in the reported end-of-day Security ownership balances

circumstances where the end-of-day Security ownership balances published on the Ethereum blockchain would not reflect the correct distribution of a Security among holders of the Security, or even among BSTX Participants holding the Security.<sup>67</sup> According to the Exchange, the Ethereum blockchain could reflect inaccurate information if BSTX Participants report inaccurate end-of-day Security balances.<sup>68</sup> The Exchange states that there could be situations where the number of reported Securities exceeds the number of outstanding Securities of a particular issuance.<sup>69</sup> The Exchange also states that there could be situations in which the Exchange is unable to communicate end-of-day Security ownership balances to the Wallet Manager or the Wallet Manager is unable to update the blockchain.<sup>70</sup> According to the Exchange, even if there

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“should not be routine” and that the Exchange has adopted a number of mechanisms against potential inaccuracies. *Id.* at 51262, n.95. *See also infra* notes 116-120 and accompanying text. The Exchange states that it has described “potential scenarios where potential inaccuracies could theoretically occur in the interest of full transparency.” OIP, *supra* note 7, 85 FR at 51262, n.95.

<sup>67</sup> *See* OIP, *supra* note 7, 85 FR at 51260. The Exchange states that, while the ancillary recordkeeping mechanism will provide additional transparency into Securities holdings, there are limitations in what the Ethereum blockchain will reflect with regard to end-of-day Security ownership balances as an ancillary recordkeeping mechanism, given that all non-BSTX Participants’ balances will be aggregated and reflected in an omnibus wallet address for each Security. *See id.* at 51261-62.

<sup>68</sup> *See* OIP, *supra* note 7, 85 FR at 51260.

<sup>69</sup> *See* OIP, *supra* note 7, 85 FR at 51260. The Exchange also gives examples of how the omnibus wallet address for each Security could have greater or fewer Tokens as a result of a misreport by a BSTX Participant, particularly if a Security is held entirely by BSTX Participants and a BSTX Participant over-reports. *See id.* In the case of an under-report by a BSTX Participant (e.g., owns 100 of XYZ Securities, but reports only 90), the omnibus address for XYZ would have an additional 10 Tokens allocated to it; and in the case of an over-report (e.g., owns 100 of XYZ Securities, but reports 110), the omnibus address for XYZ may have 10 additional Tokens allocated to it. *See* OIP, *supra* note 7, 85 FR at 51259-60, n.79.

<sup>70</sup> *See* OIP, *supra* note 7, 85 FR at 51260. *See infra* Sections III.C.1 and III.C.2 for discussion of the process by which BSTX would provide end-of-day Security balances to the Wallet Manager and the Wallet Manager would update the blockchain.

were a disruption relating to the end-of-day Security balance reporting process, there would not be any impact on the ability to trade, clear, or settle Security transactions, because the end-of-day Security balance reporting process is solely an “ancillary” recordkeeping mechanism.<sup>71</sup>

The Exchange asserts that it does not believe that the records of Security ownership balance information published on the blockchain would be likely to cause investor confusion, because an individual member of the public observing the blockchain would not have any similar source of information with which to compare it.<sup>72</sup> According to the Exchange, the ownership balances related to Security ownership of BSTX Participants and other market participants are not available through another medium.<sup>73</sup> The Exchange also states that Security balance information recorded on the Ethereum blockchain would not reflect legal ownership of Securities, and the identities of BSTX Participants corresponding to each wallet address, as well as the identity of the omnibus wallet address, would not be made public.<sup>74</sup> The Exchange represents that it will not knowingly provide inaccurate end-of-day Security ownership balance information to the Wallet Manager.<sup>75</sup> Further, according to the Exchange, any reporting regime depends on the accuracy of the information reported to the reporting authority.<sup>76</sup>

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<sup>71</sup> See OIP, supra note 7, 85 FR at 51260-61. See also id. at 51262 (stating that, in the event of any disruption to the blockchain, the architecture of the Security (and its Token representation), or the end-of-day Security ownership balance reporting process, there would be no impact on the ability of market participants to trade Securities or on current balances of Securities held by each market participant through the facilities of DTC).

<sup>72</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>73</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>74</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>75</sup> See OIP, supra note 7, 85 FR at 51262, n.95.

<sup>76</sup> See OIP, supra note 7, 85 FR at 51262, n.95 (stating that this includes reporting regimes administered by the Commission, such as large trader reporting, ATS quarterly transaction volume data reporting, and security-based swap reporting).

In the context of SR-BOX-2019-19, two commenters raised concerns that the proposal would lead to investor confusion.<sup>77</sup> One commenter asserted that the proposal may confuse “Main Street” investors and that the difference between “official” and “ancillary” recordkeeping is inherently confusing.<sup>78</sup> This commenter stated that the proposal does not describe in detail how these two systems will interact or reconcile, and that this failing is likely to render the proposal confusing to market participants and investors.<sup>79</sup> Another commenter asserted its belief that the Exchange has not sufficiently addressed the potential for confusion by investors and other participants because of a discrepancy between DTC ownership records and records maintained through the Exchange’s proposed mechanism to record and disseminate on the Ethereum blockchain end-of-day Security ownership balances.<sup>80</sup> This commenter questioned whether there is some “best-effort” threshold around inaccurate or partial end-of-day Securities ownership balances on the Ethereum blockchain that would sufficiently address the risk of investor confusion.<sup>81</sup>

In a response submitted in connection with SR-BOX-2019-19, the Exchange stated that it is unclear what the commenter finds inherently confusing between official and “ancillary” records, and that “official” means that the record is authoritative, while “ancillary” means that

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<sup>77</sup> See Letter from Benjamin Connault, Economist, Investors Exchange LLC (March 26, 2020) (“IEX Letter”), at 5; Letter from Joan C. Conley, Senior Vice President & Corporate Secretary, The Nasdaq Stock Market LLC (March 27, 2020) (“Nasdaq Letter”), at 3.

<sup>78</sup> See Nasdaq Letter, *supra* note 77, at 3.

<sup>79</sup> See Nasdaq Letter, *supra* note 77, at 3.

<sup>80</sup> See IEX Letter, *supra* note 77, at 5.

<sup>81</sup> See IEX Letter, *supra* note 77, at 5.

the record is supplementary.<sup>82</sup> The Exchange also stated that the end-of-day Security balance information would constitute “ancillary” records of end-of-day ownership balances and that legal ownership would be separately established and evidenced by operation of commercial law.<sup>83</sup> According to the Exchange, what would appear on the Ethereum blockchain would be end-of-day Security ownership balances associated with an anonymous wallet address.<sup>84</sup> The Exchange stated that market participants would not have access to the full position records of DTC regarding Security ownership balances maintained by its participants, so it would not be possible for a market participant to see both sets of records and be confused by them.<sup>85</sup> Moreover, the Exchange stated that there is no possibility of an identifiable discrepancy between the DTC records and “ancillary” records, because aggregate records regarding DTC position balances are not available.<sup>86</sup>

In response to the commenter’s question in the context of SR-BOX-2019-19 about whether there is a “best-effort” threshold, the Exchange stated that Section 19(g) of the Exchange Act requires the Exchange to comply with the Exchange Act, Commission rules, or its

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<sup>82</sup> See Letter from Lisa J. Fall, President, BOX Exchange LLC (April 9, 2020) (“BSTX Response Letter I”), at 6.

<sup>83</sup> See BSTX Response Letter I, supra note 82, at 6.

<sup>84</sup> See BSTX Response Letter I, supra note 82, at 6.

<sup>85</sup> See BSTX Response Letter I, supra note 82, at 6. See also id. at 11-12.

<sup>86</sup> See BSTX Response Letter I, supra note 82, at 8. According to the Exchange, although a BSTX Participant would be able to determine whether its own Security ownership balance as reported to the Exchange is ultimately reflected on the Ethereum blockchain, it is “highly unlikely” that the BSTX Participant, familiar with the Exchange and its process for recording and disseminating end-of-day Security ownership balances on the blockchain, would be confused as to which record is official and which record is “ancillary.” See id. at 8, n.36.

own rules.<sup>87</sup> The Exchange stated that this would require the Exchange to carry out its process for recording and disseminating end-of-day Security ownership balances as set forth in its rules and the proposal, or face a potential violation of Section 19(g) of the Exchange Act.<sup>88</sup> According to the Exchange, as described further below, in the event that these records become inaccurate, the Exchange would have the authority to suspend the reporting process with prompt notice to BSTX Participants and to the Commission.<sup>89</sup> The Exchange asserted, however, that even in the case of inaccurate “ancillary” records, there is no risk of investor confusion for the reasons it describes.<sup>90</sup>

Several commenters raised other questions, in the context of SR-BOX-2019-19, about differences between the end-of-day Security ownership balances on the blockchain and official records of legal ownership.<sup>91</sup> Two commenters asserted that the proposal is not clear regarding the differences between the records maintained by the Exchange, DTC, and NSCC and the end-of-day Security ownership balances.<sup>92</sup> Another commenter questioned whether the end-of-day

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<sup>87</sup> See BSTX Response Letter I, supra note 82, at 8.

<sup>88</sup> See BSTX Response Letter I, supra note 82, at 8.

<sup>89</sup> See BSTX Response Letter I, supra note 82, at 8.

<sup>90</sup> See BSTX Response Letter I, supra note 82, at 8.

<sup>91</sup> See Letter from Holly H. Smith, Eversheds Sutherland (US) LLP (February 12, 2020) (“Eversheds Letter”), at 2; IEX Letter, supra note 77, at 6; Nasdaq Letter, supra note 77, at 3.

<sup>92</sup> See Nasdaq Letter, supra note 77, at 3; Eversheds Letter, supra note 91, at 2. One of these commenters stated that the proposal will require a Security to follow the BSTX Protocol as distributed by the Exchange via Regulatory Circular, but that currently there is no draft of the circular or other documentation that identifies the differences, if any, between the various types of records. See Eversheds Letter, supra note 91, at 2. The Commission notes that the Exchange filed a document described as a summary of the BSTX Protocol as Exhibit 3N to SR-BOX-2019-19, as modified by Amendment No. 2 and which was available on the Exchange’s website, but, as discussed below, provides limited description of the protocol. This summary of the BSTX Protocol was refiled as

Security ownership balances reported to the Ethereum blockchain would reflect the most recently completed transactions, or whether they would match DTC’s records, including any reporting lags related to the T+2 settlement cycle.<sup>93</sup> This commenter questioned what type of information would be publicly observable from the end-of-day Security ownership balances and whether the public would be able to track the daily amount of stocks owned by a given BSTX Participant in its anonymized wallet address.<sup>94</sup> This commenter also asked how the Exchange’s proposed recordkeeping mechanism would handle over-reporting of ownership balances,<sup>95</sup> and how short positions would be reflected in the end-of-day Security ownership balance recordkeeping mechanism.<sup>96</sup> Another commenter stated that the proposal does not describe all of the “ancillary” data and metadata that will be stored on the blockchain.<sup>97</sup> This commenter stated that the investor protection concerns that potentially flow from the creation of “ancillary” records need to be articulated and analyzed, including who benefits from the record, who will have

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Exhibit 3N to SR-BOX-2020-14, with minor revisions made in Amendment No. 1, and is available on the Commission’s website at <https://www.sec.gov/rules/sro/box/2020/34-89536-ex3n.pdf> (“BSTX Protocol Summary Overview”). See also infra note 170 and accompanying text.

<sup>93</sup> See IEX Letter, supra note 77, at 6.

<sup>94</sup> See IEX Letter, supra note 77, at 5 (also asking whether BSTX Participants would be allowed to use multiple wallet addresses or change wallet addresses over time, including for the purpose of limiting the public’s ability to track their positions).

<sup>95</sup> See IEX Letter, supra note 77, at 6. This commenter questioned whether, in the case of over-reporting, the total number of Securities for a given BSTX Security would fluctuate from one day to the next, with extra Securities being created and then destroyed when there is no longer over-reporting. See id.

<sup>96</sup> See IEX Letter, supra note 77, at 6.

<sup>97</sup> See Eversheds Letter, supra note 91, at 2.

access to the record, if the “ancillary” record would have any potential impact on the safeguarding of customer non-public information, and the utility of the Security for investors.<sup>98</sup>

In response, in the context of SR-BOX-2019-19, the Exchange stated that its proposed recordkeeping process using distributed ledger technology would be entirely separate from the trading, clearance, and settlement process for Securities, and that all Securities would be able to trade, clear, and settle in the same manner as any other NMS stock.<sup>99</sup> The Exchange stated that the only interaction between the existing market infrastructure and the Exchange’s additional recordkeeping process would be that BSTX Participants, either directly or through their carrying firm, would be required to obtain end-of-day Security ownership balances available to them through DTC and report such balances to the Exchange.<sup>100</sup>

The Exchange also responded that the data appearing on the blockchain would only reflect end-of-day Security ownership balances associated with each BSTX Participant’s anonymized address, as well as the omnibus address for unreported ownership balances.<sup>101</sup> With respect to whether the end-of-day Security ownership balances reflected on the Ethereum blockchain would reflect the most recent transactions or match DTC’s records, the Exchange stated that the end-of-day Security ownership balances would represent a moment-in-time snapshot of each BSTX Participant’s balance in each Security at the end of the day, either as credited to its DTC account or to its account at its carrying firm.<sup>102</sup> With respect to the potential

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<sup>98</sup> See Eversheds Letter, supra note 91, at 2.

<sup>99</sup> See BSTX Response Letter I, supra note 82, at 5.

<sup>100</sup> See BSTX Response Letter I, supra note 82, at 5-6.

<sup>101</sup> See BSTX Response Letter I, supra note 82, at 13-14. See also id. at 15.

<sup>102</sup> See BSTX Response Letter I, supra note 82, at 10.

for over-reporting, the Exchange stated that the total supply of Tokens associated with a particular issuance of a Security for purposes of the recordkeeping process on the blockchain would be fixed (subject to adjustment in the case of a corporate action that impacts the total supply) and would not fluctuate day-to-day.<sup>103</sup> The Exchange stated that it has proposed authority to suspend this recordkeeping process in its discretion, with prompt notice to BSTX Participants and to the Commission, which could include circumstances involving over-reporting.<sup>104</sup>

According to the Exchange, the Ethereum blockchain is public, so anyone would have access to the end-of-day Security ownership balances on the blockchain.<sup>105</sup> The Exchange stated that individual members of the public observing the Ethereum blockchain would not be able to view transaction-level or market participant-identifying detail, whether an ownership balance reflects proprietary or customer positions, whether a wallet address belongs to a carrying firm reporting on behalf of multiple BSTX Participants or a single BSTX Participant, or whether the reported long positions include borrowed shares.<sup>106</sup> The Exchange asserted that it has not proposed any limitation on the ability of BSTX Participants to establish multiple wallet addresses, and that the Exchange would discuss operational issues with BSTX Participants as

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<sup>103</sup> See BSTX Response Letter I, supra note 82, at 11.

<sup>104</sup> See BSTX Response Letter I, supra note 82, at 11.

<sup>105</sup> See BSTX Response Letter I, supra note 82, at 14. See also Letter from Lisa J. Fall, President, BOX Exchange LLC (April 27, 2020) (“BSTX Response Letter II”), at 4, n.21 (stating that all market participants would have open access to the distributed ledger technology associated with BSTX, but also noting that market participants would not have the ability to modify the underlying source).

<sup>106</sup> See BSTX Response Letter I, supra note 82, at 10, 15. See also BSTX Response Letter II, supra note 105, at 21, n.22. The Exchange also stated that short positions would not be reflected, because the end-of-day Security ownership balances would include any borrowed shares. See BSTX Response Letter I, supra note 82, at 10.

appropriate.<sup>107</sup> The Exchange stated that, due to the lack of specific transaction-level details, the end-of-day Security ownership balances would contain only a small fraction of the records that the Exchange would retain with respect to transactions on its market.<sup>108</sup> According to the Exchange, it believes that DTC and NSCC’s records would likely be extensively more detailed than the proposed end-of-day Security ownership balances, and likely contain transaction-level and market participant-identifying information.<sup>109</sup>

One commenter questioned, in the context of SR-BOX-2019-19, what the implications might be of making end-of-day Security ownership balance data publicly available.<sup>110</sup> This commenter stated that it would be unclear who would be responsible for ensuring the accuracy of this data.<sup>111</sup> This commenter also questioned whether the system for recording and disseminating end-of-day Security ownership balances could be gamed (e.g., would a firm be able to publish a large holding to the blockchain that it does not actually hold, or vice versa).<sup>112</sup> The Exchange responds that knowingly reporting a false number of Securities to the Exchange would be a direct violation of proposed BSTX Rule 17020, violate just and equitable principles

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<sup>107</sup> See BSTX Response Letter I, supra note 82, at 10.

<sup>108</sup> See BSTX Response Letter I, supra note 82, at 14.

<sup>109</sup> See BSTX Response Letter I, supra note 82, at 14.

<sup>110</sup> See Letter from Ellen Greene, Managing Director, Equities & Options Market Structure, & Thomas F. Price, Managing Director, Operations, Technology, Cyber & BCP, Securities Industry and Financial Markets Association (April 22, 2020) (“SIFMA Letter II”), at 5. This commenter stated that SR-BOX-2020-14 appears to be identical to Amendment No. 2 to SR-BOX-2019-19 and that, for that reason, SIFMA Letter II continues to apply to SR-BOX-2020-14. See Letter from Ellen Greene, Managing Director, Equities & Options Market Structure, & Thomas F. Price, Managing Director, Operations, Technology, Cyber & BCP, Securities Industry and Financial Markets Association (June 23, 2020) (“SIFMA Letter III”), at 1-2.

<sup>111</sup> See SIFMA Letter II, supra note 110, at 5.

<sup>112</sup> See SIFMA Letter II, supra note 110, at 5.

of trade, and cause a BSTX Participant to be subject to disciplinary action by the Exchange.<sup>113</sup> The Exchange states that if a BSTX Participant did try to “game” the end-of-day Security ownership balance recordkeeping process in the manner suggested, it would not have any impact on the ability of the Securities to trade, clear, or settle.<sup>114</sup> The Exchange also asserts that the balance information would not be useful to inform a market participant’s trading in Securities because an individual member of the public observing the blockchain would not know which market participant is associated with each wallet address, whether a wallet address represents a DTC participant reporting on behalf of multiple Securities holders, whether the position is long or short, or whether the position represents a proprietary position or the position of customer of a BSTX Participant.<sup>115</sup>

In its notice of the proposal, the Exchange states that, to address the potential for inaccurate reporting by BSTX Participants, proposed BSTX Rule 17020(e) would provide that if a BSTX Participant discovers that it submitted an inaccurate end-of-day Security balance report that has not already been corrected or superseded, it must promptly send a corrected report to the Exchange.<sup>116</sup> In addition, if the Exchange has reason to believe that reported Security balances may be inaccurate, it may request additional information regarding the applicable reports and

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<sup>113</sup> See OIP, supra note 7, 85 FR at 51262, n.100. See also BSTX Response Letter II, supra note 105, at 4.

<sup>114</sup> See OIP, supra note 7, 85 FR at 51262, n.100. See also BSTX Response Letter II, supra note 105, at 4.

<sup>115</sup> See OIP, supra note 7, 85 FR at 51262, n.100 (stating that it is unclear what purpose or incentive there would be for a BSTX Participant to “game” the ancillary recordkeeping process, and noting that such an attempt would expose the BSTX Participant to disciplinary action).

<sup>116</sup> See OIP, supra note 7, 85 FR at 51260. See also proposed BSTX Rule 17020(e)(1).

balances from any BSTX Participant.<sup>117</sup> The Exchange would consider a BSTX Participant’s compliance with proposed BSTX Rule 17020(e) by promptly submitting a corrected report or responding to additional information requests from the Exchange in determining whether to bring, or the appropriate consequences of, disciplinary action.<sup>118</sup> According to the Exchange, similar mechanisms to promote accurate reporting exist for a wide variety of different market participant obligations, such as the duty of the broker-dealer operator of an NMS stock alternative trading system to promptly correct material errors or omissions discovered in its Form ATS-N and the duty to correct trade reports submitted to the Financial Industry Regulatory Authority (“FINRA”).<sup>119</sup> The Exchange states that its proposed rule sets forth reasonable processes to help ensure that the Security position balances published as Token balances on the blockchain are accurate, and that ensuring the accuracy of this information will better facilitate all market participants’ ability to evaluate the potential uses of blockchain technology in securities transactions.<sup>120</sup>

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<sup>117</sup> See OIP, supra note 7, 85 FR at 51260. The BSTX Participant must promptly respond to any additional information requests that the Exchange may make regarding its end-of-day Security balance reports. See id. (stating that these additional information requests may include asking the BSTX Participant to confirm its Security balances, or to provide a copy of the information the BSTX Participant used to provide its end-of-day Security ownership balance report, or other books and records of the BSTX Participant relating to its transactions in Securities). See also proposed BSTX Rule 17020(e)(2).

<sup>118</sup> See OIP, supra note 7, 85 FR at 51260, n.83.

<sup>119</sup> See OIP, supra note 7, 85 FR at 51260 (citing 17 CFR 242.304(a)(2)(i)(C); FINRA, Trade Reporting FAQ, Section 311).

<sup>120</sup> See OIP, supra note 7, 85 FR at 51260. The Exchange states that, in addition to these controls and mechanisms, it may need to implement further measures in instances in which the ability to update the blockchain may be affected by exogenous factors, and points to proposed BSTX Rule 17020(f) as giving the Exchange the ability to suspend certain requirements related to end-of-day Security ownership reporting on the blockchain. See id. For further discussion of the proposed suspension provisions, see infra Section III.C.3.

In the context of SR-BOX-2019-19, one commenter expressed concern over the uncertainty of whether surveillance of the end-of-day reporting requirement to make sure that a BSTX Participant accurately reports its Security ownership balances would be done by BSTX, or by FINRA pursuant to the Regulatory Services Agreement.<sup>121</sup> This commenter asked, in either case, what procedures would be used for surveillance and enforcement of the requirement.<sup>122</sup> Two commenters asserted that it is not clear how differences in reporting between the records maintained by the Exchange, DTC, and NSCC and the end-of-day Security ownership balances would be reconciled.<sup>123</sup> Another commenter questioned whether there would be any mechanism to ensure that ownership balances reported by a BSTX Participant accurately match DTC's records.<sup>124</sup>

The Exchange responded, in the context of SR-BOX-2019-19, that it has general authority under proposed BSTX Rule 20000 to request that a BSTX Participant provide the Exchange with copies of records related to its business.<sup>125</sup> According to the Exchange, its request to a BSTX Participant could include a request for the reports provided by DTC to the BSTX Participant that the BSTX Participant used to report end-of-day Security ownership balance information to the Exchange.<sup>126</sup>

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<sup>121</sup> See IEX Letter, supra note 77, at 6.

<sup>122</sup> See IEX Letter, supra note 77, at 6.

<sup>123</sup> See Nasdaq Letter, supra note 77, at 3; Eversheds Letter, supra note 91, at 2.

<sup>124</sup> See IEX Letter, supra note 77, at 6.

<sup>125</sup> See BSTX Response Letter I, supra note 82, at 11, 16.

<sup>126</sup> See BSTX Response Letter I, supra note 82, at 11, 16.

## 2. Analysis

The Commission concludes that the Exchange has not met its burden to demonstrate that its proposal to publicly disseminate end-of-day Security ownership balances associated with certain wallet addresses by publishing these balances on the Ethereum blockchain on a daily basis is consistent with the protection of investors and the public interest, given that the disseminated balances could be inaccurate, which raises the significant risk that the publicly disseminated information may confuse and mislead investors. The Exchange acknowledges that, in a variety of circumstances the Security ownership balances published to the Ethereum blockchain would be inaccurate.<sup>127</sup> For example, if BSTX Participants report end-of-day Security ownership balances to BSTX that are not accurate, these inaccuracies would be reflected on the public Ethereum blockchain.<sup>128</sup> The publicly disseminated end-of-day Security ownership balances would also become inaccurate if a BSTX Participant is late in reporting or if the Exchange is unable to communicate updated ownership balances to the Wallet Manager or the Wallet Manager is unable to update the blockchain.<sup>129</sup> In addition, end-of-day Security ownership balances on the Ethereum blockchain would be stale because they would represent a snapshot of a BSTX Participant's DTC account balance at the end of the last trading day and would not reflect ownership balances that have changed due to transactions that settled during

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<sup>127</sup> See supra notes 66-70 and accompanying text.

<sup>128</sup> See supra note 68 and accompanying text. The Exchange states that it is possible for BSTX Participants to over-report (see supra note 69 and accompanying text), but the Exchange does not explain how it would reconcile this over-reporting for purposes of updating the blockchain, given that the total supply of Tokens associated with a given Security is fixed (see supra note 103 and accompanying text).

<sup>129</sup> See supra note 70 and accompanying text.

the day or that will change due to transactions that have not yet settled.<sup>130</sup> This latter variance may increase during the course of the trading day due to continued trading in the Securities.

There is a significant risk that the reported balances of clearing firm BSTX Participants would create the misimpression of a large position because the reported balances would not indicate the beneficial owner, at least to the extent that the beneficial owner is not also a BSTX Participant.<sup>131</sup>

In addition, BSTX concedes that its Participants' short and long positions, both of which would be reported, would be indistinguishable when represented on the Ethereum blockchain.<sup>132</sup> Given that these two types of transactions reflect opposite economic positions in the Security, the disseminated end-of-day Security ownership balances would provide an economically misleading picture. Moreover, while the Exchange represents that it believes inaccuracies in the end-of-day Security ownership balances "should not be routine,"<sup>133</sup> the Exchange does not explain what it would consider "routine" or further describe what it would consider to be an acceptable level of inaccuracy.

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<sup>130</sup> See supra notes 93, 102, and accompanying text.

<sup>131</sup> Moreover, the proposal is not clear regarding how BSTX Participants that are carrying firms will report Security ownership balances associated with their proprietary holdings versus Security ownership balances associated with other investors' holdings. The lack of clarity about how certain investors' Security ownership balances will be reported to BSTX and subsequently reflected on the Ethereum blockchain could impact the Security ownership balances that are viewable to the public.

<sup>132</sup> See supra notes 65, 106, and accompanying text. The Exchange states that end-of-day Security ownership balances may include borrowed shares in a DTC participant's account (see supra note 65), but the Exchange does not explain fully how borrowed shares may impact the end-of-day ownership balances of various types of participants. For example, the Exchange has not explained what might occur with respect to ownership balances on the blockchain in the case of a short sale with a failure to deliver.

<sup>133</sup> See supra note 66 and accompanying text.

In addition, the end-of-day Security ownership balances would be incomplete in that they would be lacking in relevant detail, and thus there is a significant risk that the investing public would be confused or misled by the information presented. The Exchange has not explained how the public would be made aware of what information about Security ownership balances is actually reflected on the blockchain and the ways in which the true holdings of investors might be different than publicly disseminated balances.<sup>134</sup> The omnibus wallet address itself represents balances that cannot be attributed to a particular holder, and would include balances that are unaccounted for because they represent the holdings of non-BSTX Participants, along with balances not associated with a BSTX Participant due to a failure to report on time or inaccurate reporting.<sup>135</sup> The Exchange has not explained its standard for how it will determine what to include and remove from the omnibus account, and this makes it unclear what the Security balance associated with the omnibus account will represent. The Exchange also has not proposed, for example, to identify within the omnibus account what Security ownership balances reflect errors, late reporting, or unaccounted for ownership because the shares are not owned by a BSTX Participant.

While the Exchange represents that it would not make public which wallet addresses are associated with particular BSTX Participants or the omnibus account and asserts that the publicly available information would be sufficiently anonymous to address privacy concerns,<sup>136</sup> the lack of identification of which Security holder is associated with a particular wallet address itself

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<sup>134</sup> For example, the Exchange has not indicated whether it would be relying on issuers of Securities to inform potential investors about potential inaccuracies in the public Security ownership information or how that information would otherwise be conveyed to market participants.

<sup>135</sup> See supra notes 56-57 and accompanying text.

<sup>136</sup> See supra notes 63-64 and accompanying text.

presents a significant risk of confusion for investors, potential investors, and other market participants. In particular, with respect to the omnibus account, a large associated Security balance could create the misimpression that there is a significant holder in the Security, when in fact the omnibus account for a Security reflects the combined holdings of several holders. As discussed above, if a carrying firm BSTX Participant reports a large Security ownership balance that represents the positions of many beneficial owners, the reported balance could create a similar misimpression.<sup>137</sup> Furthermore, the inability to disaggregate short and long positions is inherent in the proposed reporting scheme and would confuse and mislead investors. The Exchange does not describe any measures to mitigate these inherent inaccuracies.

Exacerbating the inaccuracy of the information that the Exchange would publicly disseminate on the Ethereum blockchain, the Exchange has not demonstrated whether or how it would surveil for or reconcile inaccurate reporting of end-of-day Security ownership balances by BSTX Participants, or otherwise address inaccurate information displayed on the Ethereum blockchain. The lack of a demonstrated ability of the Exchange to ensure the integrity of the end-of-day Security ownership balances that would be publicly disseminated by the Exchange increases the likelihood that these records would be inaccurate.<sup>138</sup> The Exchange would impose a unique obligation on BSTX Participants to obtain an allowlisted wallet address and report end-

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<sup>137</sup> See supra note 64 and accompanying text.

<sup>138</sup> See also supra notes 110-112 and accompanying text (commenter questioning the accuracy of the end-of-day Security ownership balances). It is also not clear from the record exactly what information would be publicly available. For example, it is not clear what “other information” beyond the end-of-day Security ownership balance information for BSTX Participants and the total balance attributed to the omnibus account, would be available to market participants. See supra note 60 and accompanying text. See also supra note 97 and accompanying text. Accordingly, this “other information” would not clear up the inaccuracies described herein, and the Exchange does not suggest otherwise.

of-day Security ownership balances. BSTX Participants that fail to comply with these requirements may be subject to disciplinary actions.<sup>139</sup> However, the record does not demonstrate how the Exchange will perform surveillance for BSTX Participant compliance, particularly with respect to the end-of-day Security ownership balance reporting requirement.

Proposed BSTX Rule 17020(e) provides that the Exchange may request additional information from a BSTX Participant if the Exchange has “reason to believe” that its reported end-of-day Security ownership balances are inaccurate.<sup>140</sup> Yet the Exchange provides no evidence that it would take any affirmative steps to surveil for inaccurate end-of-day Security ownership balances, including where there are discrepancies between these reported ownership balances and official records of legal ownership. Rather, the Exchange would rely on BSTX Participants’ self-reporting of the end-of-day Security ownership balances and on whether those reported balances reveal any apparent errors on their face, which the Commission finds to be insufficient to mitigate these inaccuracies. Moreover, the Exchange does not address what steps, if any, it will take after finding an inaccuracy. The proposed requirement that a BSTX Participant must respond to a request from the Exchange for information about its reported end-of-day Security ownership balances merely reinforces the Exchange’s general regulatory authority.<sup>141</sup> While the Exchange has the authority to request records from a BSTX Participant, including the reports that the BSTX Participant received from DTC and used to determine its

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<sup>139</sup> See OIP, supra note 7, at 51259. The Exchange states that BSTX Participants would be required to comply with applicable Exchange rules, including the requirement to report their end-of-day Security balances, and may be subject to disciplinary action for failing to comply with applicable rules pursuant to proposed BSTX Rule series 24000 (Discipline and Summary Suspension).

<sup>140</sup> See supra note 117 and accompanying text.

<sup>141</sup> See supra note 117. See also supra notes 125-126 and accompanying text.

end-of-day Security ownership balance, the Exchange does not represent that it would request such records on a routine basis or use such requests to affirmatively identify inaccuracies in the reported end-of-day Security ownership balances, as opposed to using them as a tool to investigate suspected inaccuracies. And the Exchange does not describe alternative means that it might use to determine whether a BSTX Participant has accurately reported its end-of-day Security ownership balances, or how it might surveil for and correct against late reporting by BSTX Participants.

The Exchange compares its proposal to other reporting regimes and asserts that other reporting regimes, including reporting regimes administered by the Commission, depend on the accuracy of the information reported or explicitly direct their participants to correct inaccurate reports.<sup>142</sup> But this assertion does not alleviate the Commission’s concern that the lack of a process for the Exchange to monitor or address the inaccuracy of end-of-day Security ownership information would exacerbate the inaccuracy of the publicly disseminated information, and that disseminating inaccurate information would not be consistent with the protection of investors and the public interest, as required by Section 6(b)(5) of the Exchange Act. For example, the Commission does not rely solely on trust to assure the integrity of its reporting regime, but rather also conducts surveillance of its regulated entities, and also relies on the presence of SROs that surveil these entities.<sup>143</sup> Moreover, provisions in other reporting regimes directing participants to

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<sup>142</sup> See supra notes 76, 119, and accompanying text.

<sup>143</sup> See Securities Exchange Act Release No. 40760 (December 8, 1998), 63 FR 70844, 70908 (December 22, 1998) (File No. S7-12-98) (Regulation of Exchanges and Alternative Trading Systems) (“As broker-dealers, alternative trading systems will be inspected on a regular basis by any SRO of which they are a member, and by the Commission only on an intermittent basis.”). See also id. at 70848 (“the Commission intends to work with the self-regulatory organizations (‘SROs’) to ensure that they can operate ongoing, real-time surveillance for market manipulation and fraud and develop

correct inaccurate reports exist within a regulatory framework that includes other affirmative surveillance measures.<sup>144</sup> Therefore, this comparison between other reporting regimes and the obligations on BSTX Participants to accurately report end-of-day Security balances to the Exchange and to correct inaccurate reports does not demonstrate that, without taking reasonable affirmative steps to monitor whether BSTX Participants have reported accurate information, the Exchange would be able to mitigate against the dissemination of inaccurate Security ownership information.

The Exchange's proposed use of an omnibus account to cover unattributed Security ownership balances arising from inaccurate or late reporting by BSTX Participants, and discretionary authority to suspend the end-of-day reporting obligation with respect to a particular BSTX Participant or a Security, suggest that the Exchange may rely on one or both of these measures, even though there is a significant risk that these measures would leave inaccurate information on the Ethereum blockchain, rather than taking steps to resolve certain inaccuracies

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surveillance and examination procedures specifically targeted to alternative trading systems they oversee”).

<sup>144</sup> For example, when discussing amendments to Form ATS recordkeeping requirements to cover Form ATS-N filers, the Commission stated that it believed that the amendments “are necessary to create a meaningful audit trail of an ATS’s current and previous written safeguards and procedures . . . and permit surveillance and examination staff to help ensure fair and orderly markets without imposing any undue burden on ATSs.” Securities Exchange Act Release No. 83663 (July 18, 2018), 83 FR 38768, 38788, n.278 (August 7, 2018) (File No. S7-23-15) (Regulation of NMS Stock Alternative Trading Systems). Similarly, when approving amendments to FINRA’s equity trade reporting rules, the Commission stated that these changes “should enhance FINRA’s audit trail and automated surveillance program, promote more consistent trade reporting by members, and aid in the detection of violations of FINRA trade reporting and other rules.” Securities Exchange Act Release No. 71623 (February 27, 2014), 79 FR 12558, 12562 (March 5, 2014) (SR-FINRA-2013-050).

or inconsistencies.<sup>145</sup> And the Exchange does not describe any procedures for correcting the end-of-day Security ownership balances beyond a proposed requirement that a BSTX Participant correct an inaccurate report, which would have an insufficient mitigating effect because BSTX Participants also have a duty to submit accurate reports.<sup>146</sup> Therefore, the Exchange has not demonstrated in the proposal how the Exchange would ensure the integrity of information that the Exchange seeks to publicly disseminate.

The Exchange asserts that it does not believe that the end-of-day Security balances on the Ethereum blockchain would cause investor confusion because there is no similar source of information with which an individual member of the public could make a comparison to the information disseminated on the blockchain and become confused.<sup>147</sup> The Commission concludes, however, that it would not be consistent with the protection of investors and the public interest for the Exchange to publicly disseminate inaccurate information about Securities ownership, even if the public is not able to make comparisons to identify discrepancies with official ownership records. While the lack of a comparable source of information may prevent the public from being aware of a discrepancy in ownership balances, the information the Exchange publishes would still be inaccurate.

The reliability of public securities records is important to the integrity of, and investor confidence in, the securities markets, and the Commission concludes that labeling records as

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<sup>145</sup> See supra notes 56, 120, and accompanying text. See also infra note 262 and accompanying text.

<sup>146</sup> See supra note 116 and accompanying text. Further, this duty to update only applies if the erroneous report has not been corrected or superseded, and BSTX Participants must submit new end-of-day Security ownership balances at the end of each day. See id.

<sup>147</sup> See supra note 72 and accompanying text.

“ancillary” does not minimize the need for such records of securities ownership publicly disseminated by a national securities exchange to be accurate. Where, as here, the very purpose of the Exchange’s proposal is to publicize such securities ownership information,<sup>148</sup> the reliability and accuracy of that information is particularly important. Further, if a national securities exchange requires its members to report security ownership information that the exchange makes publicly available in some form, that exchange is obligated to take reasonable steps to surveil the reported information for accuracy, to prevent inaccuracies from misleading investors and other market participants. The Commission thus finds that the Exchange has not met its burden to demonstrate how its proposal is consistent with the requirements of Exchange Act Section 6(b)(5) that a national securities exchange’s rules must be consistent with the protection of investors and the public interest.

Furthermore, once information about end-of-day Security ownership balances is put into the public domain, there is a significant risk that market participants, including investors, would interpret those public records and make use of this information. The Commission is not persuaded that the Exchange’s designation of the end-of-day Security ownership balances publicly disseminated on the Ethereum blockchain as an “ancillary” record prevents market participants from making use of the information, including in connection with investment and trading decisions.<sup>149</sup> The Commission is also not persuaded by the Exchange’s assertion, when responding to a commenter’s concern that a BSTX Participant might try to “game” the system by

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<sup>148</sup> See OIP, supra note 7, 85 FR at 51251.

<sup>149</sup> Although the Exchange states that any disruption to end-of-day Security ownership reporting would not impact the ability to trade, clear, or settle Security transactions (see supra notes 71, 114, and accompanying text), the “ancillary” nature of the blockchain-based records does not negate that these records could be viewed as a publicly available source of information regarding Security ownership.

reporting an inaccurate end-of-day Security ownership balance, that the balance information would not seem to be useful to inform a market participant's trading in a Security because of a lack of detail in the publicly disseminated information.<sup>150</sup> To the contrary, the Commission concludes that market participants put in place various investment strategies that at times use advantages in obtaining or analyzing information, and that it is reasonable to assume that some subset of market participants would try to analyze and make use of a new source of publicly available information concerning Security ownership, even if such information is incomplete.

For the reasons stated above, the Commission concludes that the public dissemination of inaccurate information about Security ownership has the significant potential to mislead investors, irrespective of whether the information is disseminated on the blockchain, the Internet, or in print, and that the Exchange has not met its burden to demonstrate that its proposal is nonetheless consistent with the protection of investors and the public interest, pursuant to Section 6(b)(5) of the Exchange Act. The Commission also concludes that this misleading information creates a significant risk that investors make investment decisions based on misinterpretations of public information about Security ownership. Based on the consequences of the Exchange disseminating securities ownership information that is inaccurate, the Commission finds that the Exchange has failed to demonstrate that the proposal would protect investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act.

C. Whether BOX Has Met its Burden To Demonstrate that the Proposal Is Consistent with Sections 6(b)(1) and 6(b)(5) of the Exchange Act With Respect to the Operation of the Proposed Reporting of End-of-day Security Ownership Balances

The Commission examines below whether the Exchange has met its burden to demonstrate that its proposal is consistent with Sections 6(b)(1) and 6(b)(5) of the Exchange Act

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<sup>150</sup> See supra note 115 and accompanying text.

with respect to additional aspects of the proposal. The Commission first considers whether the record explains sufficiently the processes by which a Wallet Manager will write to the Ethereum blockchain. As discussed below, the Commission concludes that the Exchange has not met its burden to demonstrate how the Exchange would, consistent with Section 6(b)(1) of the Exchange Act, be able to ensure compliance by the Exchange with its own rules, or that the Exchange's proposed rules would protect investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act.<sup>151</sup> Next, the Commission considers the processes by which BSTX Participants will obtain allowlisted wallet addresses, BSTX Participants will provide end-of-day Security ownership balances to BSTX, and BSTX will provide Security ownership balances to a Wallet Manager, as well as the costs or other burdens market participants would face as a result of the end-of-day Security ownership balance reporting requirements. As discussed below, the Commission concludes that the Exchange has not met its burden to demonstrate that the Exchange would be able to carry out its necessary functions or fulfill its obligations as an SRO to comply with its own rules, pursuant to Section 6(b)(1) of the Exchange Act; or that the Exchange's rules would facilitate transactions in securities, remove impediments to a free and open market and national market system, or protect investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act.<sup>152</sup>

The Commission examines how the Exchange might use its proposed discretion to suspend the requirements for BSTX Participants to obtain allowlisted wallet addresses and report end-of-day Security ownership balances as to a particular BSTX Participant or Security. As discussed below, the Commission concludes that the Exchange has not met its burden to

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<sup>151</sup> See infra Section III.C.1.

<sup>152</sup> See infra Section III.C.2.

demonstrate that it would be able to carry out its necessary functions, in accordance with Section 6(b)(1) of the Exchange Act; and that the Exchange’s rules are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers, as required by Section 6(b)(5) of the Exchange Act.<sup>153</sup>

The Commission then examines specific issues presented by the Exchange’s proposed listing of Securities—specifically, the lack of fungibility between a BSTX-listed Security and other classes of securities of the same issuer, whether the Exchange has sufficiently addressed issues posed by potential listings by the Exchange or its affiliate, and its proposed continued listing requirement that all BSTX-listed Securities remain compliant with the BSTX Protocol. As discussed below, the Commission concludes that the Exchange has not met its burden to demonstrate that (1) notwithstanding the described lack of fungibility, the Exchange’s rules would prevent fraudulent and manipulative acts and practices, promote just and equitable principles of trade, remove impediments to a free and open market and national market system, or protect investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act,<sup>154</sup> and (2) based on a lack of explanation about issuer compliance with the BSTX Protocol, that the proposal is designed to remove impediments to and perfect the mechanism of a free and open market and a national market system, and is not designed to permit unfair discrimination between issuers, as required under Section 6(b)(5) of the Exchange Act.<sup>155</sup>

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<sup>153</sup> See infra Section III.C.3.

<sup>154</sup> See infra Section III.C.4(a).

<sup>155</sup> See infra Section III.C.4(b).

1. Wallet Manager Writing to Blockchain

a) Exchange's Representations and Comments Received

According to the Exchange, it will enter into a contractual arrangement with a Wallet Manager as a third-party service provider for the Exchange that will establish wallet addresses for BSTX Participants and update the Ethereum blockchain with Security ownership balances.<sup>156</sup> The Exchange states that it intends to evaluate each potential Wallet Manager's capability to receive information from BSTX related to BSTX Participants' end-of-day Security balances and its ability to update the Ethereum blockchain.<sup>157</sup>

The Exchange states that, initially, it expects to contract with only one Wallet Manager, tZERO, who would also be a 50% owner of BSTX.<sup>158</sup> According to the Exchange, following the end of a trading day, BSTX Participants (or their carrying firms) would be required to send Security balance information to BSTX, and BSTX would deliver that information to the Wallet Manager (or Wallet Managers) who would be responsible for updating the Security ownership balances on the Ethereum blockchain "by allocating balances among the wallet addresses of

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<sup>156</sup> See OIP, supra note 7, 85 FR at 51257. The Exchange states that it believes that the Wallet Manager's functions do not meet the definition of "facility" under Section 3(a)(2) of the Exchange Act. See id.

<sup>157</sup> See OIP, supra note 7, 85 FR at 51258. The Exchange also describes that it intends to perform due diligence on potential Wallet Managers and that it will require in its service agreements with Wallet Managers that they agree to comply with applicable securities laws. The Exchange states its belief that its listed criteria for evaluating potential Wallet Managers may prevent fraudulent and manipulative act and practices, consistent with Section 6(b)(5) of the Exchange Act. See id.

<sup>158</sup> See OIP, supra note 7, 85 FR at 51258, n.68. The Exchange also states that there is nothing to preclude the use of another Wallet Manager capable of operating software that is compatible with the BSTX Protocol. See id.

BSTX Participants and the omnibus address.”<sup>159</sup> The Exchange states that the Ethereum blockchain would not reflect any particular transactions, but would instead record allocations of end-of-day Security balances that may result from, among other things, trading and lending activity.<sup>160</sup>

Specifically, the Exchange states that the Wallet Manager would make updates to the balances associated with wallet addresses by reallocating Tokens (which represent Securities) between wallet addresses, including the omnibus wallet address, so that, according to the Exchange, after each trading day the wallet address account balances reflect the new Security ownership balances reported to BSTX pursuant to BSTX Rule 17020. The Exchange also states that these reallocations based on end-of-day Security ownership balance reports from BSTX Participants are not designed to reflect actual transactions that occurred during the trading day, but that instead, the reallocation process focuses on having the correct number of Tokens attributed to each wallet address based on the end-of-day Security ownership balance reports.<sup>161</sup>

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<sup>159</sup> OIP, supra note 7, 85 FR at 51257. See also proposed BSTX Rule 17020(d). The Exchange also states that pursuant to the Exchange’s agreement with the Wallet Manager (or Wallet Managers), the Wallet Manager would be required to record balances to the Ethereum blockchain following each trading day. Thus, Tokens representing Security balances of BSTX Participants would be updated each trading day, but not on non-trading days. See OIP, supra note 7, 85 FR at 51258, n.69.

<sup>160</sup> See OIP, supra note 7, 85 FR at 51257. See also supra note 65 discussing how short sales and borrowed shares would appear in the end-of-day Security ownership balances.

<sup>161</sup> See OIP, supra note 7, 85 FR at 51259, n.76. The Exchange gives as an example that if there were only two transactions in the entire marketplace during the trading day—a sale of 100 Securities from BSTX Participant A to BSTX Participant B and a subsequent sale of 100 Securities from BSTX Participant B to BSTX Participant C—the end-of-day reallocation process would result in a reallocation of 100 Tokens from BSTX Participant A to BSTX Participant C, and would consequently not reflect any actual transactions. See id.

The Exchange states that, to create a new Token on the Ethereum blockchain for purposes of facilitating the recording and dissemination of Security ownership balances, the issuer of the securities must create a new smart contract that is configured to detail, among other things, the name of the issuer and total supply of the Tokens that correspond to the BSTX-listed Security.<sup>162</sup> According to the Exchange, the recording of Security ownership balances would not commence until the conclusion of the first day of Security trading on BSTX.<sup>163</sup> As discussed above, the Exchange states that, using Etherscan.io, an individual member of the public would be able to see holders of Tokens representing the Securities and the associated quantity, as well as “other information (e.g., transfers made as a result of the Wallet Manager(s) reallocation

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<sup>162</sup> See OIP, supra note 7, 85 FR at 51255. The Exchange states that the BSTX Protocol would require a BSTX-listed company to use three related smart contracts as follows: (1) the “Asset Smart Contract” would define and establish the “Tokens,” such as setting the maximum number of Tokens available for a particular issuance, and record a list of market participant wallet addresses and the Tokens associated with each address; (2) the “Registry Smart Contract” would define the permissions available to different types of market participants to perform certain functions and contain the list of allowlisted wallet addresses and additional information associated with each address; and (3) the “Compliance Smart Contract” would contain a set of rules that could be configured to abide by and ensure compliance with applicable laws and regulations, such as by restricting a movement of Securities to a wallet address that has not been added to the Registry Smart Contract. See OIP, supra note 7, 85 FR at 51256-57.

<sup>163</sup> See OIP, supra note 7, 85 FR at 51253. According to the Exchange, all offerings of securities that are intended to be listed as Securities on BSTX would be conducted in the same general manner as offerings of exchange-listed equity securities are conducted today under the federal securities laws. See id. The Exchange states that an issuer would enter into a firm commitment or best efforts underwriting agreement with a sole underwriter or underwriting syndicate, the underwriter or underwriters would market the securities and distribute them to purchasers, and secondary trading in the securities (that are intended to trade on BSTX as Securities) would thereafter commence on BSTX. See id.

process).”<sup>164</sup> In describing how the term “smart contract” is commonly used, the Exchange asserts that in the context of Tokens representing Securities, smart contracts generally may have three components: (i) functions, (ii) configurations; (iii) and events; and that “events” are the functions of a smart contract that, when executed, result in a log or record being recorded to the Ethereum blockchain, such as “the transfer of tokenized assets from one address to another.”<sup>165</sup> The Exchange also states that with a Token “transfer” no transaction is actually sent to the recipient of the “Token.”<sup>166</sup> The Exchange explains that a transaction “transferring” a Token to an address only changes the state of the Token contract, and that, instead of a wallet address being full of “Tokens,” it is the Token smart contract that contains the wallet addresses and associated balances.<sup>167</sup> Additionally, the Exchange states that in the context of the BSTX Protocol, a “transfer” of a Token refers to a reallocation of the digital representation of a Security on the Ethereum blockchain as an “ancillary” recordkeeping mechanism to reflect corresponding changes in ownership of the Security.<sup>168</sup>

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<sup>164</sup> See OIP, supra note 7, 85 FR at 51261. See also supra note 60 and accompanying text (discussing the Exchange’s assertions regarding what would be publicly available on Etherscan.io).

<sup>165</sup> See OIP, supra note 7, 85 FR at 51255. The Exchange states that in the context of Tokens representing Securities and the ability to query a particular address to determine the quantity of Tokens that belong to that address, the term “address” refers to a number that is associated with a particular market participant that can be updated to “reflect changes in ownership of tokenized assets.” See OIP, supra note 7, 85 FR at 51256, ns.49-50 and accompanying text.

<sup>166</sup> See OIP, supra note 7, 85 FR at 51256.

<sup>167</sup> See id.

<sup>168</sup> See OIP, supra note 7, 85 FR at 51256, n.54. See supra Section III.B.1 (discussing the Exchange’s use of the term “ancillary”).

The Exchange states that, in connection with the operation of BSTX, it proposes to use a series of “new forms” to facilitate becoming a BSTX Participant and for issuers to list their Securities,<sup>169</sup> and includes as one of these what it refers to as an overview of the BSTX Protocol.<sup>170</sup> Pursuant to the proposed BSTX Protocol Summary Overview, it is the Asset Smart Contract that will contain the balances of Tokens associated with each wallet address and carry out the functions necessary to effect changes in ownership for “ancillary” recordkeeping purposes.<sup>171</sup> Specifically, the proposed BSTX Protocol Summary Overview states that the Asset Smart Contract defines and creates the maximum number of Tokens available for a particular issuance for purposes of recording and disseminating end-of-day Security ownership balances on the Ethereum blockchain and records a list of each “BSTX Participant or non-BSTX Participant broker-dealer address[.]” and the Tokens held at each address.<sup>172</sup> Pursuant to the proposed BSTX Protocol Summary Overview, the Asset Smart Contract includes the function “Transfer,” which allows for the transfer of Tokens to other specified, allowlisted addresses, and requires two

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<sup>169</sup> See OIP, supra note 7, 85 FR at 51283.

<sup>170</sup> See OIP, supra note 7, 85 FR at 51286. The Exchange filed the BSTX Protocol Summary Overview as Exhibit 3N. See supra note 92.

<sup>171</sup> See BSTX Protocol Summary Overview, supra note 92, at 344; OIP, supra note 7, 85 FR at 51256. The Exchange states that the Asset Smart Contract defines and creates the Tokens (e.g., the maximum number of Tokens available for a particular issuance) for purposes of the Ethereum blockchain ancillary recordkeeping function and records a list of each BSTX Participant or non-BSTX Participant broker-dealer addresses and the Tokens held at each address. See BSTX Protocol Summary Overview, supra note 92, at 344; OIP, supra note 7, 85 FR at 51255. The Exchange also states that the smart contracts of a Security cannot run on their own, but rather lie dormant until a transaction triggers them to carry out a specified operation, and that a “transaction” in this context is an operation triggering a smart contract to carry out its specified function, which must ultimately originate from a human source. See BSTX Protocol Summary Overview, supra note 92, at 342; OIP, supra note 7, 85 FR at 51256.

<sup>172</sup> See BSTX Protocol Summary Overview, supra note 92, at 344.

parameters: the receiver address and the amount of Tokens being sent.<sup>173</sup> Also, one of the Asset Smart Contract’s events, which generates a record on the Ethereum blockchain that is publicly viewable, will be “Transfer.” According to the proposed BSTX Protocol Summary Overview, this event records the details of the movement of the digital Token representation of a BSTX-listed Security from one address to another, as recorded in the ledger of the Asset Smart Contract.<sup>174</sup>

With respect to the role of Wallet Managers under the proposal, in the context of SR-BOX-2019-19, one commenter stated that further clarification is warranted for, among other things, “rules regarding ‘Wallet Managers.’”<sup>175</sup> This commenter also stated that it is unclear “why a ‘Wallet Manager’ would improve rather than complicate current market structure.”<sup>176</sup> Another commenter stated that the Exchange should address why BSTX will act as an intermediary between BSTX Participants and Wallet Managers in the reporting of end-of-day Security ownership balances instead of allowing direct reporting from BSTX Participants to Wallet Managers.<sup>177</sup>

In response, the Exchange contended in the context of SR-BOX-2019-19 that it added more information regarding Wallet Managers in Amendment No. 2, and reiterated its discussion from the proposal without further elaboration.<sup>178</sup> The Exchange also stated that the Exchange

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<sup>173</sup> See id. at 346.

<sup>174</sup> See id. at 347.

<sup>175</sup> See Letter from David A. Schrader, Partner, Paykin Krieg & Adams, LLP (February 25, 2020) (“PKA Law Letter”), at 1.

<sup>176</sup> PKA Law Letter, supra note 175, at 1-2.

<sup>177</sup> See IEX Letter, supra note 77, at 5.

<sup>178</sup> See BSTX Response Letter I, supra note 82, at 18. See also OIP, supra note 7, 85 FR at 51257-58.

has determined to have BSTX act as an intermediary between BSTX Participants and Wallet Managers “for several reasons,” including that the Exchange contends that it is less burdensome for a BSTX Participant to report to BSTX rather than establish a new relationship with a Wallet Manager.<sup>179</sup> The Exchange stated that it may consider other models in the future, which would be subject to the rule filing requirements of Section 19 of the Exchange Act.<sup>180</sup>

b) Analysis

The Commission believes that the Exchange’s proposed rules for using third-party service providers to act as Wallet Managers to perform the function of recording and updating Security ownership balance information on the Ethereum blockchain lacks clarity, and agrees with commenters that further clarification is warranted with respect to Wallet Managers.<sup>181</sup> This lack of clarity prevents the Commission from assessing whether the publicly available information about end-of-day Security ownership balances on the Ethereum blockchain will be inaccurate and misleading, and therefore whether the proposal would be consistent with the protection of investors and the public interest pursuant to Section 6(b)(5) of the Exchange Act, and how the Exchange would enforce compliance with its own rules, pursuant to Section 6(b)(1) of the Exchange Act. The areas needing clarification include how Wallet Managers will update BSTX Participants’ account balances and how the smart contracts will be triggered to effectuate changes in the end-of-day ownership balances that are recorded using Tokens on the Ethereum blockchain. In addition, as described further below, the Wallet Manager’s process of updating end-of-day Security ownership balances on the Ethereum blockchain will result in transfers

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<sup>179</sup> See BSTX Response Letter I, supra note 82, at 18. The Commission notes that the Exchange did not provide any other reasons in its response.

<sup>180</sup> See id.

<sup>181</sup> See supra notes 175-177 and accompanying text.

between wallet addresses being publicly visible on the Ethereum blockchain, where these transfers may reflect the Wallet Manager’s reallocation process but not correspond to actual transactions between the particular Securities holders associated with those specific wallet addresses.

While the Exchange states that it would provide end-of-day Security ownership balances to Wallet Managers to update the Ethereum blockchain, neither the proposed rules nor the Exchange’s description in the proposal explain how the balances will be updated by the Wallet Managers, including what procedures the Wallet Manger must follow to update the account balances of BSTX Participants on the blockchain. Among other things, the Exchange does not describe in its proposal many aspects of the proposed BSTX Protocol Summary Overview, such as the “Transfer” function and the “Transfer” event aspects of the Asset Smart Contract component of the protocol set forth in the BSTX Protocol Summary Overview, including what would be “publicly viewable” as a result. Additionally, the Exchange does not explain how the Asset Smart Contract, Registry Smart Contract, and Compliance Smart Contract interact, and what roles and authorities BSTX, the Exchange, the Wallet Manager or Wallet Managers, or other market participants would have with respect to each of the smart contracts, and whether and how those roles or authorities may change over time. For example, while the Exchange states that the process of reallocating Token balances among different wallet addresses is a function that will be performed by the Exchange “in coordination with the Wallet Manager(s),”<sup>182</sup> the Exchange does not specify when the Exchange will direct the Wallet

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<sup>182</sup> See infra note 217. The Exchange states that the process of reallocating Token balances among different wallets addresses is a function performed by the Exchange in coordination with the Wallet Manager, and that the proposed use of blockchain technology is “almost passive” for BSTX Participants, but for obtaining a wallet address

Manager, and when the Wallet Manager will act according to its discretion. Furthermore, the proposed BSTX Protocol Summary Overview states that the Asset Smart Contract will record a list of each non-BSTX Participant broker-dealer wallet address and the Tokens held at each wallet address; however, non-BSTX Participants are neither required to, nor may they voluntarily, report their end-of-day Security ownership balances to the Exchange for recording to the Ethereum blockchain.<sup>183</sup>

As discussed above, the proposal is unclear as to what information will be publicly observable on the Ethereum blockchain, including what details beyond the wallet addresses of holders of Securities and associated quantities may be observable, but the Exchange has indicated that such information may include transfers made as a result of the Wallet Manager's reallocation process.<sup>184</sup> Given that BSTX Participants will not report individual transactions and will only update their end-of-day Security ownership balances at the end of each trading day, it is unclear how a transfer would work and whether issues could arise that might prevent the Wallet Manager from allocating the same number of Tokens representing Securities to a BSTX Participant's wallet address as the number of Securities that the BSTX Participant reports to the Exchange. The Commission believes that the proposal does not clearly address, for example,

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and the end-of-day reporting of balances. The Exchange also states that the Exchange would be responsible for maintaining wallet addresses for the entire life cycle of a Security and the associated Token and life cycle of participants' accounts. See OIP, supra note 7, 85 FR at 51257, n.58.

<sup>183</sup> See supra note 27 and accompanying text. The proposal also does not explain how the updating of the Ethereum blockchain will be achieved if there is a separate Wallet Manager used by another trading center, such as a national securities exchange trading Securities pursuant to UTP or an alternative trading center trading Securities OTC. See infra Section III.D for discussion about other trading centers' ability to trade BSTX-listed Securities.

<sup>184</sup> See supra note 60 and accompanying text. See also supra Section III.B.2.

what the role of the Wallet Manager would be and the procedures the Wallet Manager would follow to reallocate the end-of-day balances if the total of the Security ownership balances reported were to exceed the total issuance.<sup>185</sup> Also, while the Exchange gives examples of what may be viewable as a result of a reallocation,<sup>186</sup> the Exchange does not describe whether the public would be able to view “transfers” between specific accounts for the purpose of reallocating Tokens to achieve the updated end-of-day balances associated with each wallet address. The lack of clarity concerning how the Wallet Manager would update the Ethereum blockchain, and what information may be available on the Ethereum blockchain that is generated by the Wallet Manager’s actions, is an additional aspect that contributes to the Commission’s concerns regarding the public dissemination of inaccurate or misleading information and inhibits the Commission’s ability to find that the information to be recorded to the blockchain pursuant to the proposal is consistent with the protection of investors and the public interest. For example, if the publicly available information indicates that transactions have occurred between the holders of certain wallet addresses, when instead the Wallet Manager reallocated Securities from one wallet address to another wallet address to arrive at the reported end-of-day Security ownership balances without regard to what underlying transactions occurred, this would result in the

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<sup>185</sup> See supra note 69 and accompanying text (discussing the Exchange’s assertion that the Ethereum blockchain may not reflect the precise distribution of Securities among holders and the possibility that the number of reported Securities may exceed the number of outstanding Securities of a particular issuance) and infra note 253 and accompanying text (discussing the lack of clarity around whether in the case of over-reporting of an end-of-day ownership balance by a BSTX Participant to BSTX the Exchange would suspend the end-of-day reporting process or whether the Exchange would handle allocations in such a circumstance some other way). See also supra note 128 (providing an example of the possibility of over-reporting by a BSTX Participant) and note 172 and accompanying text (discussing how the Smart Contract will, among other things, define and create the maximum number of Tokens available for a particular issuance).

<sup>186</sup> See supra note 161.

appearance of false transactions, seriously risk misleading investors, and potentially affect investors' investment decisions.<sup>187</sup> Other market participants, such as BSTX Participants, could similarly be confused if, for example, the publicly disseminated information indicates Securities being reallocated between their wallet address and only one other wallet address, if in actuality their new balance is attributable to transactions with multiple counterparties.

The Commission cannot conclude that the proposal is consistent with the protection of investors and the public interest because the Exchange has failed to sufficiently describe both the process for Wallet Managers to produce updates in end-of-day ownership balances to the Ethereum blockchain and the public information resulting from these updates. In the absence of clarification about these processes and the resulting public information, the Commission cannot assess the extent to which the information on the Ethereum blockchain may be inaccurate or misleading, and therefore whether the dissemination of that information would be consistent with the protection of investors and the public interest.<sup>188</sup> For these reasons, the Commission finds that the Exchange has not met its burden to demonstrate that the Exchange's proposed rules would protect investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act.

Further, the proposal lacks information regarding the roles and authorities BSTX, the Exchange, the Wallet Manager or Wallet Managers, or other market participants would have with respect to smart contracts, as well as the possibility that these roles or authorities may

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<sup>187</sup> See supra note 161 discussing the Exchange's examples regarding how reallocations would be effectuated.

<sup>188</sup> While the Exchange asserts that its listed criteria for evaluating potential Wallet Managers may prevent fraudulent and manipulative acts and practices, consistent with Section 6(b)(5) of the Exchange Act (see supra note 157), it does not provide a basis for this assertion and therefore the Commission cannot determine whether it agrees with this conclusion.

change over time. Without such information, the Commission cannot assess how the Exchange would, consistent with Section 6(b)(1) of the Exchange Act, ensure compliance by the Exchange with its own rules requiring BSTX to provide end-of-day Security balance information to the Wallet Manager or Wallet Managers, and the updating of the blockchain by the Wallet Manager or Wallet Managers to reflect the end-of-day balance information reported to BSTX by BSTX Participants.

2. Allowlisting and End-of-Day Reporting

a) Exchange's Representations and Comments Received

According to the Exchange, a BSTX Participant must obtain an allowlisted wallet address and report certain end-of-day Security ownership balance information to BSTX.<sup>189</sup> Specifically, proposed BSTX Rule 17020(a) states that each BSTX Participant, either directly or through its carrying firm acting on its behalf, must contact BSTX to establish a wallet address to which its end-of-day Security balances may be recorded. Furthermore, a BSTX Participant must obtain this wallet address within five business days after the Exchange approves its application.<sup>190</sup> The Exchange states that the process of obtaining a wallet address will generally occur contemporaneously with the application to become a BSTX Participant, but states that if a BSTX Participant is unable to obtain a wallet address within the five day period, the BSTX Participant's end-of-day Security ownership balances would be attributed to the omnibus wallet address until the BSTX Participant obtains a wallet address.<sup>191</sup> The Exchange proposes not to require a BSTX

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<sup>189</sup> See OIP, supra note 7, 85 FR at 51256-57. According to the Exchange, an allowlisted wallet address is a permissioned wallet address associated with a market participant to which end-of-day Security ownership balances may be recorded. See id.

<sup>190</sup> See proposed BSTX Rule 17020(a).

<sup>191</sup> See OIP, supra note 7, 85 FR at 51257. The Exchange likens the requirement for BSTX Participants to obtain a wallet address to that of other exchanges requiring a market

Participant to have a separate wallet address for each Security issuance that it trades, because multiple Security issuances can be attributed to a BSTX Participant's wallet address.<sup>192</sup> The Exchange states that the requirement for BSTX Participants to obtain a wallet address is not discriminatory because all BSTX Participants must do so, and the Exchange will not propose to charge a fee for obtaining a wallet address.<sup>193</sup> Finally, the Exchange states that once the Exchange assigns a BSTX Participant a wallet address, the only further obligation of the BSTX Participant is to report its end-of-day Security ownership balances to BSTX.<sup>194</sup>

In the proposal, the Exchange describes the process for BSTX Participants reporting end-of-day Security ownership balances. The Exchange proposes to require each BSTX Participant, either directly or through its carrying firm, to report each business day to BSTX, in a manner and form acceptable to BSTX, the total number of Securities for each class of Security credited to either the BSTX Participant's DTC account or the BSTX Participant by its carrying firm.<sup>195</sup> The Exchange states that it would require BSTX Participants to provide the end-of-day Security

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participant identifier (MPID), because it is establishing an identifier that can be attributed to a particular BSTX Participant for reporting requirements. See id.

<sup>192</sup> See OIP, supra note 7, 85 FR at 51257, n.59. In the context of SR-BOX-2019-19, in response to a commenter's question about whether the a BSTX Participant could use multiple wallets, (see supra note 94), the Exchange stated that, pursuant to proposed BSTX Rule 17020, BSTX Participants would be required to contact the Exchange as part of the allowlisting process, and the Exchange intends to discuss related operational issues with BSTX Participants as appropriate (see supra note 107 and accompanying text).

<sup>193</sup> See OIP, supra note 7, 85 FR at 51257.

<sup>194</sup> See id.

<sup>195</sup> See OIP, supra note 7, 85 FR at 51258. For BSTX Participants that are participants at DTC, the report to BSTX would consist of the total number of Securities for each class of Security that is credited to each DTC account of the BSTX Participant, and for those that are not participants at DTC, the report would consist of the total number of Securities that are credited to the BSTX Participant by its carrying firm. See id.

ownership balance report to the Exchange each business day when DTC is open for business after such time as DTC has completed its end-of-day settlement process.<sup>196</sup> The Exchange represents that DTC typically makes end-of-day security position reports available to participants at approximately 7:30 p.m. Eastern time, and that it would notify BSTX Participants, via Regulatory Circular, of the time after 7:30 p.m. Eastern time by which they must report end-of-day Security ownership balances to BSTX.<sup>197</sup> Furthermore, the Exchange represents that it would notify BSTX Participants of the precise manner in which Securities should be reported via a Regulatory Circular.<sup>198</sup> The Exchange states that, in general, the report would simply require certain identifying information regarding the BSTX Participant (e.g., name, carrying firm, MPID) and a list of the end-of-day Security ownership balances of the BSTX Participant.<sup>199</sup> Furthermore, the Exchange states that BSTX Participants would be subject to potential disciplinary action for failing to comply with the requirement to report their end-of-day Security ownership balances.<sup>200</sup>

Once BSTX Participants have reported their end-of-day Security ownership balances to BSTX, BSTX would provide this information to the Wallet Manager (or Wallet Managers) to update the Ethereum blockchain with Security ownership balances.<sup>201</sup> Pursuant to proposed

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<sup>196</sup> See OIP, supra note 7, 85 FR at 51259. See also proposed BSTX Rule 17020(c).

<sup>197</sup> See OIP, supra note 7, 85 FR at 51259. See also proposed BSTX Rule 17020(c).

<sup>198</sup> See OIP, supra note 7, 85 FR at 51261.

<sup>199</sup> See id. The Exchange likens the requirement of BSTX Participants to report end-of-day Security ownership balances to BSTX to other exchanges' ability to request that members or participants furnish to the exchange records pertaining to transactions executed on or through the exchange in a time and manner required by such exchange. See id.

<sup>200</sup> See OIP, supra note 7, 85 FR at 51262, n.95.

<sup>201</sup> See OIP, supra note 7, 85 FR at 51258-59. See also proposed BSTX Rule 17020(d).

BSTX Rule 17020(d), the updates to the Ethereum blockchain would reflect updates in Security ownership balances in Token form.<sup>202</sup> The Exchange also represents that it would notify BSTX Participants via Regulatory Circular of the time by which BSTX would need to provide Security ownership balance information to the Wallet Manager so that the Wallet Manager would have sufficient time to update the Ethereum blockchain prior to the commencement of trading on BSTX the next trading day.<sup>203</sup> According to the Exchange, the result of the end-of-day Security ownership balance reporting requirement would be that the Ethereum blockchain, for each Security, would reflect the end-of-day ownership balance associated with each BSTX Participant's wallet address.<sup>204</sup> Furthermore, the Exchange states that the end-of-day Security balance reporting by BSTX Participants would "reflect a relatively more robust use of the functionality of the smart contracts," than just the use of the omnibus wallet, and that "[p]romoting this more robust use of the functionality of the smart contracts and their ability to allocate and re-allocate Security balances across multiple wallet addresses will enhance the ability of market participants, including the Exchange, to observe and evaluate the capabilities of blockchain technology as an ancillary recordkeeping mechanism."<sup>205</sup>

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<sup>202</sup> See proposed BSTX Rule 17020(d).

<sup>203</sup> See OIP, supra note 7, 85 FR at 51259.

<sup>204</sup> See OIP, supra note 7, 85 FR at 51261. As described in more detail above, the Exchange also states that as part of the end-of-day reporting process, the Exchange would provide information to the Wallet Manager(s) which would allow the Wallet Manager(s) to allocate Tokens (which represent Securities) among BSTX Participants consistent with their end-of-day Security balance reports, and to attribute the unreported Security balance for a given Security to an omnibus wallet address for each Security. See OIP, supra note 7, 85 FR at 51259. See also supra Sections III.B and III.C.1.

<sup>205</sup> OIP, supra note 7, 85 FR at 51261.

The Exchange asserts that imposing the end-of-day Security ownership balance reporting requirement on BSTX Participants would not be unfairly discriminatory or burden competition because all market participants would be free to choose whether or not to become a BSTX Participant.<sup>206</sup> The Exchange states that market participants that voluntarily choose to become BSTX Participants must comply with the rules of the Exchange, but remain free to become a member of another national securities exchange that supports trading of BSTX-listed Securities or to purchase BSTX-listed Securities OTC.<sup>207</sup>

In its notice of the proposal, the Exchange states that it currently functions as an exchange only for standardized options, and that equity securities would represent a new asset class for the Exchange.<sup>208</sup> According to the Exchange, in connection with the operation of BSTX, the Exchange would leverage many of the regulatory structures that it established to operate a national securities exchange in compliance with Section 6 of the Exchange Act.<sup>209</sup> The

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<sup>206</sup> See OIP, supra note 7, 85 FR at 51262, n.94.

<sup>207</sup> See id. The Exchange also asserts that the end-of-day Security ownership balance reporting process would not impose a substantial burden on BSTX Participants, because it would not require them to expend significant resources or time. See id. See also Letter from Lisa J. Fall, President, BOX Exchange LLC (September 17, 2020) (“BSTX Response Letter III”), at 5.

<sup>208</sup> See OIP, supra note 7, 85 FR at 51252. The Exchange also states that while BSTX may eventually support a wider variety of securities, subject to Commission approval, at the time that BSTX commences operations it would only support trading in Securities that are equity securities. See id.

<sup>209</sup> See OIP, supra note 7, 85 FR at 51286. The Exchange states that it will extend its Regulatory Services Agreement with FINRA to cover BSTX Participants and trading on the BSTX System, and this Regulatory Services Agreement will govern many aspects of the regulation and discipline of BSTX Participants, similar to how it functions for options regulation. See id. The Exchange also states that, as is the case with the Exchange’s options trading platform, the Exchange will supervise FINRA and continue to bear ultimate regulatory responsibility for BSTX. See id. The Exchange further states that it plans to join the Plan for the Allocation of Regulatory Responsibilities Regarding

Exchange states that it will perform Security listing regulation, authorize BSTX Participants to trade on the BSTX System, and conduct surveillance of Security trading on the BSTX System.<sup>210</sup> In addition, the Exchange states that it will oversee the onboarding and application process for BSTX Participants and compliance by issuers of Securities with the applicable initial and continued listing requirements, including those pertaining to compliance with the BSTX Protocol.<sup>211</sup> As discussed in more detail above, the Exchange also proposes to address the potential for inaccurate reporting by BSTX Participants with proposed BSTX Rule 17020(e), which, among other things, provides that the Exchange may request additional information regarding applicable reports and balances from any BSTX Participant if the Exchange has reason to believe that reported Security balances may be inaccurate.<sup>212</sup>

With respect to the end-of-day reporting requirements, in the context of SR-BOX-2019-19, one commenter raised a concern that BSTX might place additional reporting requirements on market participants.<sup>213</sup> Another commenter questioned how a BSTX Participant would obtain an allowlisted address, how the permissioning would be determined for the allowlisted wallet, and

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Regulation NMS and may choose to join certain Rule 17d-2 agreements such as the agreement allocating responsibility for insider trading rules. See id.

<sup>210</sup> See OIP, supra note 7, 85 FR at 51286. The Exchange states that it will perform automated surveillance of trading on BSTX for the purpose of maintaining a fair and orderly market at all times and monitor BSTX to identify unusual trading patterns and determine whether particular trading activity requires further regulatory investigation by FINRA. See id. at 51286-87. The Exchange also states that it will oversee the process for determining and implementing trade halts, identifying and responding to unusual market conditions, and administering the process for identifying and remediating “clearly erroneous trades.” See id. at 51287.

<sup>211</sup> See OIP, supra note 7, 85 FR at 51287.

<sup>212</sup> See supra notes 116-126 and accompanying text. See also OIP, supra note 7, 85 FR at 51260; proposed BSTX Rule 17020(e).

<sup>213</sup> See PKA Law Letter, supra note 175, at 1.

who would control this permissioning.<sup>214</sup> This commenter also asked how allowlisting would be maintained for the entire life-cycle of a Security and for the life-cycle of participant accounts.<sup>215</sup>

The Exchange responds that it would be the only source for obtaining wallet addresses and that the Exchange would be responsible for permissioning wallet addresses.<sup>216</sup> According to the Exchange, a BSTX Participant would not have the ability to move Tokens to or from its wallet address or otherwise “control” the wallet address, and the process of reallocating Token balances among different wallet addresses would be a function performed by the Exchange in coordination with a Wallet Manager.<sup>217</sup> The Exchange states that the use of the blockchain technology would be “almost entirely passive” for the BSTX Participants, excluding the obtaining of a wallet address and the end-of-day reporting of ownership balances.<sup>218</sup> Lastly, the Exchange responds that the Exchange would be responsible for maintenance of allowlisting for the entire life-cycle of the allowlisted wallet address and that an unlimited number of wallet addresses may be established for a Security and could be removed as necessary.<sup>219</sup>

A commenter asserted, in the context of SR-BOX-2019-19, that the proposed rule change did not explore in sufficient detail the costs or other impacts to firms associated with adopting systems to accommodate the infrastructure needed to manage the Securities’ distributed ledger

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<sup>214</sup> See SIFMA Letter II, supra note 110, at 5.

<sup>215</sup> See SIFMA Letter II, supra note 110, at 5.

<sup>216</sup> See OIP, supra note 7, 85 FR at 51256-57, n.58. See also BSTX Response Letter II, supra note 105, at 5.

<sup>217</sup> See OIP, supra note 7, 85 FR at 51256-57, n.58. See also BSTX Response Letter II, supra note 105, at 5.

<sup>218</sup> See OIP, supra note 7, 85 FR at 51256-57, n.58. See also BSTX Response Letter II, supra note 105, at 5.

<sup>219</sup> See OIP, supra note 7, 85 FR at 51256-57, n.58. See also BSTX Response Letter II, supra note 105, at 5.

technology, including allowlisted wallet addresses and associated recordkeeping.<sup>220</sup> This commenter stated that although the Exchange suggests that firms could avoid these impacts by not becoming BSTX Participants, that would not be the case if the Securities start trading on other exchanges pursuant to UTP.<sup>221</sup> This commenter further stated that, in that scenario, firms would likely need to implement systems and other infrastructure to be able to submit reports of end-of-day Security ownership balances to the Exchange, assuming they determine that they need to become BSTX Participants.<sup>222</sup> In the context of SR-BOX-2020-14, this commenter noted its prior comment that if exchanges were to adopt different forms of distributed ledger technology to track ownership of equity securities, that could cause additional costs to market participants.<sup>223</sup>

Also in the context of SR-BOX-2020-14, this commenter noted that certain firms, by virtue of their business (such as order consolidation), may need to become BSTX Participants.<sup>224</sup>

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<sup>220</sup> See SIFMA Letter II, supra note 110, at 3. In the context of SR-BOX-2020-14, this commenter stated that it continues to believe that the Proposal contains novel aspects related to the current recordkeeping processes for equity securities that are potentially inconsistent with the Exchange Act, and that it continues to have some concerns about the proposal’s “ancillary” recordkeeping requirements. See Letter from Ellen Greene, Managing Director, Equities & Options Market Structure, & Thomas F. Price, Managing Director, Operations, Technology, Cyber & BCP, Securities Industry and Financial Markets Association (September 10, 2020) (“SIFMA Letter IV”), at 3. This commenter also noted its previously stated concerns, citing its comments in the context of SR-BOX-2019-19. See id. at 4.

<sup>221</sup> See SIFMA Letter II, supra note 110, at 3.

<sup>222</sup> See SIFMA Letter II, supra note 110, at 3.

<sup>223</sup> See SIFMA Letter IV, supra note 220, at 4 (citing SIFMA Letter III).

<sup>224</sup> See SIFMA Letter IV, supra note 220, at 4-5. This commenter stated that, for example, order consolidators for other firms may need to become BSTX Participants if customers of those other firms trade BSTX-listed Securities. See SIFMA Letter IV, supra note 220, at 5.

This commenter also stated that as a result of the Order Protection Rule under Regulation NMS,<sup>225</sup> trading centers such as OTC market makers and firms that internalize order flow may need to become BSTX Participants to satisfy their firms' policies and procedures reasonably designed to prevent trade-throughs. This commenter stated that firms in these lines of business would take on additional burdens if subject to the end-of-day Security ownership balance reporting obligations or potentially be subject to regulatory exposure from BSTX if they err in reporting end-of-day ownership balances.<sup>226</sup> This commenter stated that although the Exchange asserts, in response to its concerns, that the end-of-day Security ownership balance reporting obligations are no different than other reporting obligations imposed on firms, such as the large options positions reporting requirements adopted by the options exchanges and FINRA that obligate firms to report large options positions at the end of the day to the exchanges and FINRA, the end-of-day Security ownership balance reporting obligation is not related to any regulatory objectives.<sup>227</sup>

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<sup>225</sup> Rule 611 of Regulation NMS under the Exchange Act is also known as the "Order Protection Rule" or "Trade-through Rule," and requires a trading center to implement policies and procedures that are reasonably designed to prevent trade-throughs on that trading center of protected quotations in NMS stocks that do not fall within one of certain specified exceptions. See 17 CFR 242.611.

<sup>226</sup> See SIFMA Letter IV, supra note 220, at 5. This commenter also stated that it is unclear from the Proposal whether a firm that is a member of other exchanges and is also a BSTX Participant would be subject to the end-of-day Security ownership balance reporting obligation in connection with effecting or clearing trades in Securities that are trading on other exchanges pursuant to UTP. See id.

<sup>227</sup> See id. This commenter stated that it has concerns when new processes and technology with wider implications for the equity market infrastructure are considered in the framework of a proposed rule change by a single exchange. See SIFMA Letter IV, supra note 220, at 5-6.

The Exchange states that, to the extent any market participant does not want to perform the end-of-day Security ownership reporting obligations, it could avoid these obligations by choosing not to become a BSTX Participant.<sup>228</sup> The Exchange also states that a BSTX Participant would only need to obtain a wallet address from the Exchange and comply with the end-of-day Security ownership balance reporting requirement.<sup>229</sup> According to the Exchange, the proposal would not require BSTX Participants to make a technological investment related to the use of distributed ledger technology,<sup>230</sup> and the Exchange does not propose any fees associated with the end-of-day Security ownership balance recordkeeping process.<sup>231</sup> In the context of SR-BOX-2019-19, the Exchange stated, however, that BSTX Participants would likely need to include in their policies and procedures a process for complying with the end-of-day Security ownership balance reporting requirement to promote compliance with the proposed BSTX rules.<sup>232</sup>

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<sup>228</sup> See OIP, supra note 7, 85 FR at 51263.

<sup>229</sup> See OIP, supra note 7, 85 FR at 51263, n.106. Additionally, with respect to the ability of market participants to trade Securities OTC, the Exchange states its belief that the additional requirements of acquiring a wallet address and end-of-day Security balance reporting impose only a minimal burden on BSTX Participants and should not have any material or undue burden or impact on competition between BSTX Participants and non-BSTX Participants. See OIP, supra note 7, 85 FR at 51289. In response to comments in the context of SR-BOX-2019-19, the Exchange also stated that the end-of-day Security ownership balance reporting process would impose only a “minimal” reporting burden on BSTX Participants that would be similar to other reporting obligations currently required by SROs, such as large options position reporting. See BSTX Response Letter II, supra note 105, at 3. See also OIP, supra note 7, 85 FR at 51288 (analogizing the end-of-day reporting requirement to reporting of end-of-day large options position reporting); and infra note 347 (discussing the purpose of large options position reporting).

<sup>230</sup> See OIP, supra note 7, 85 FR at 51263, n.105.

<sup>231</sup> See OIP, supra note 7, 85 FR at 51287.

<sup>232</sup> See BSTX Response Letter II, supra note 105, at 3, n.13.

The Exchange also responded that no market participant would be forced to become a BSTX Participant as a result of the proposal, including if operating as a carrying firm or order consolidator; that the only potential circumstance in which a firm would be required to execute a trade in a Security on BSTX would be to comply with the Order Protection Rule, if the firm wanted to trade through on an away market a protected quotation on BSTX; and that even then the firm could choose to execute the trade through a BSTX Participant instead of becoming a BSTX Participant.<sup>233</sup> The Exchange further responded that the Exchange has addressed in the Proposal the issue of whether a market participant that trades Securities on multiple exchanges would be subject to the end-of-day Security ownership balance reporting obligation in connection with effecting or clearing trades in Securities that are trading on another exchange, and that a BSTX Participant would be required to report its end-of-day balance in Securities at DTC (or at its carrying firm) in the relevant Security pursuant to proposed BSTX Rule 17020(b).<sup>234</sup> In addition, the Exchange responded that it disagrees with a commenter's assertion that the end-of-day Security ownership balance reporting obligation is not related to any regulatory objective, citing its assertion in the proposal that the requirement will allow market participants to observe and increase their familiarity with the capabilities and potential benefits of blockchain technology in a context that advances and protects the public's interest.<sup>235</sup>

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<sup>233</sup> See BSTX Response Letter III, *supra* note 207, at 2-3. The Exchange stated that a routing broker that chooses to become a BSTX Participant would be acting on an agency basis and would not have an end-of-day balance in Securities arising from this function, and that accordingly, reporting a zero end-of-day balance to the Exchange would not be burdensome. See *id.*

<sup>234</sup> See *id.*

<sup>235</sup> See BSTX Response Letter III, *supra* note 207, at 4. See also *infra* notes 330-331 and accompanying text.

Additionally, the Exchange responded that it maintains its views expressed in the Proposal, including that the Exchange does not believe that imposing the end-of-day Security ownership balance reporting requirements on BSTX Participants is unfairly discriminatory or burdens competition, and that the end-of-day Security ownership balance reporting process would not impose a substantial burden on BSTX Participants.<sup>236</sup> While the Exchange stated that it recognizes a commenter’s assertion that the Proposal may require market participants that wish to become BSTX Participants to bear certain costs, the Exchange contends that it is incorrect that the costs related to the end-of-day Security ownership balance reporting obligation will be significant.<sup>237</sup> The Exchange also stated that the Proposal is not inconsistent with the Exchange Act, “simply because market participants might not want to take on the additional operational processes and minimal costs associated with” the end-of-day Security ownership balance reporting obligation.<sup>238</sup>

b) Analysis

The Commission concludes that the Exchange’s proposed rules concerning the process for obtaining an allowlisted wallet address and reporting end-of-day Security ownership balances does not contain sufficient detail about how BSTX Participants must satisfy their obligations. The Commission also does not believe that the Exchange has addressed commenters’ concerns regarding the costs or other burdens that would be imposed on market participants as a result of the end-of-day Security ownership balance reporting process.

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<sup>236</sup> See BSTX Response Letter III, supra note 207, at 5-6. See also supra note 206.

<sup>237</sup> See BSTX Response Letter III, supra note 207, at 6.

<sup>238</sup> Id.

The Exchange does not provide support for its assertion that BSTX Participants would not need to expend significant resources or time on the end-of-day Security ownership balance reporting process.<sup>239</sup> The Exchange concedes that market participants will have to bear costs from the Proposal, and then characterizes those costs as “minimal,”<sup>240</sup> but the Commission finds no support for that characterization. The Exchange acknowledges that BSTX Participants may need to add to their policies and procedures a process to comply with the end-of-day Security ownership balance reporting requirement,<sup>241</sup> but does not discuss the potential outlines of that process. The Exchange states that BSTX Participants would not need to make a technological investment related to the distributed ledger technology,<sup>242</sup> but does not discuss whether BSTX Participants would need to update their systems to facilitate the reporting of end-of-day Security ownership balances.<sup>243</sup> The Exchange states that a commenter’s assertion that market participants might not want to take on the additional operational processes and minimal costs associated with the end-of-day Security ownership balance reporting obligation does not make the proposal inconsistent with the Exchange Act.<sup>244</sup> But the Exchange has not clarified what those processes and costs may be and why, in light of the additional burden, the proposed end-of-day Security ownership reporting obligations are consistent with the Exchange Act.<sup>245</sup> Also,

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<sup>239</sup> See supra note 207.

<sup>240</sup> Id.

<sup>241</sup> See supra note 232 and accompanying text.

<sup>242</sup> See supra note 230 and accompanying text.

<sup>243</sup> See supra note 222 and accompanying text (commenter stating that firms would likely need to implement systems and other infrastructure to be able to submit reports of end-of-day Security ownership balances to the Exchange).

<sup>244</sup> See supra note 238 and accompanying text.

<sup>245</sup> The Exchange asserts that market participants can decide voluntarily whether to become a BSTX Participant (see supra notes 206-207 and accompanying text), and although the

pursuant to proposed BSTX Rule 17020(e), a BSTX Participant would be required to send a corrected end-of-day Security balance report to the Exchange upon the BSTX Participant's discovery that it submitted an inaccurate end-of-day report that has not already been corrected or superseded.<sup>246</sup> Yet the Exchange does not explain whether BSTX Participants would be obligated to monitor the end-of-day Security ownership balances on the blockchain associated with their assigned wallet addresses and whether the Exchange would provide any process by which BSTX Participants could contest or rectify discrepancies between their reported end-of-day Security ownership balances and the balances attributed to their addresses as observable on the blockchain.

The Exchange asserts that the end-of-day Security balance reporting by BSTX Participants and recording to the Ethereum blockchain will allow market participants to observe and increase their familiarity with the capabilities and potential benefits of blockchain technology in a context that advances and protects the public's interest,<sup>247</sup> but the fact that the information on the blockchain will not be accurate undercuts the benefit. Moreover, the Exchange asserts that the balance information that will be publicly observable on the Ethereum

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Exchange recognizes that a firm may need to execute a trade on BSTX to comply with the Order Protection Rule if BSTX is the protected quote, it further states that the firm could choose to execute the trade through a BSTX Participant instead of becoming a BSTX Participant. See supra note 233 and accompanying text. And a firm could also choose not to execute a trade that would trade through a protected quote on BSTX. However, the Exchange does not examine whether there may be additional factors for broker-dealer firms, including compliance with best-execution requirements, that might influence whether a broker-dealer firm decides to become a BSTX Participant. Also, as one commenter recognized, whether BSTX-listed Securities traded on other national securities exchanges pursuant to UTP may influence whether a broker-dealer firm would need to become a BSTX Participant. See supra notes 224-225 and accompanying text.

<sup>246</sup> See supra note 116 and accompanying text (discussing proposed BSTX Rule 17020(e)).

<sup>247</sup> See supra note 235 and accompanying text.

blockchain would not be useful to inform a market participant's trading in Securities.<sup>248</sup> BOX does not explain how knowingly recording and disseminating to the public inaccurate information regarding BSTX Securities ownership on the blockchain is consistent with the purposes of the Exchange Act, or even with BOX's stated purposes of the proposed rule change.<sup>249</sup>

The Exchange also does not propose a standard for how the Exchange will determine what to include and remove from the omnibus account, beyond stating that the omnibus account will comprise the unreported Security balance for a given Security.<sup>250</sup> While the Exchange states that the Security ownership balance that it would allocate to the omnibus account would account for instances in which a BSTX Participant fails to report its end-of-day Security ownership balance or inaccurately reports such balance, and for the positions of Security holders that are not BSTX Participants,<sup>251</sup> the Exchange has not described how it will determine when a BSTX

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<sup>248</sup> See supra note 115 and accompanying text.

<sup>249</sup> See supra Section III.B.

<sup>250</sup> See supra note 135. Pursuant to proposed BSTX Rule 17020(d), the Exchange would determine any difference between the Security position balance(s) reported to BSTX regarding a Security and the number of shares outstanding for the Security, and provide that information to the Wallet Manager(s) for allocation to an omnibus wallet address for the Security. See proposed BSTX Rule 17020(d).

<sup>251</sup> See supra notes 56-57 and accompanying text. As described above, BSTX Participants would report their Security ownership balances at the end of each trading day and the Wallet Manager would reallocate Tokens (representing Securities) as needed to reflect the reported balances, without regard to whether these transfers correspond with actual transactions. See supra Section III.C.1. Therefore, if a BSTX Participant fails to report its end-of-day Security ownership balance or inaccurately reports such balance, and the Exchange allocates Securities owned by such BSTX Participant to the omnibus account, or if a BSTX Participant that previously failed to report or inaccurately reported subsequently reports its end-of-day Security ownership balance, the Wallet Manager's reallocation of Tokens to reflect reported balances may not include a transfer between the wallet addresses associated with that BSTX Participant and the omnibus account.

Participant's report is late or inaccurate, other than stating that it will provide additional information about the time, after 7:30 p.m. Eastern time, by which reports are due.

The Exchange also acknowledges that it is possible that, due to inaccurate reporting, the total of the Security ownership balances reported to BSTX could exceed the number of Securities actually issued,<sup>252</sup> but does not explain, given that it is not possible to over-allocate Token balances on the blockchain, how the Exchange would then determine how to allocate balances to wallet addresses.<sup>253</sup> For example, the Exchange does not address whether, in the case of over-reporting by BSTX Participants, it might assign a negative balance to the omnibus wallet address or take some other action. And the proposal does not indicate whether, if the BSTX Participants' wallet addresses account for the full balance of the Securities, the wallet address associated with the omnibus account would appear on the Ethereum blockchain with a balance of zero or the wallet address for the omnibus account would be omitted. This lack of information about how the Exchange will carry out its functions with respect to determining the Security balance to be associated with the omnibus account for a particular Security would impede the Commission from being able to carry out its obligations to ensure that the Exchange is complying with its own rules.

Further, the Commission concludes that the record does not demonstrate that the Exchange's proposed use of surveillance will enable the Exchange to carry out its necessary

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<sup>252</sup> See supra note 69 and accompanying text.

<sup>253</sup> The Commission notes that, while in the case of over-reporting by BSTX Participants in a particular Security, the Exchange would have the ability to use its discretion, pursuant to proposed BSTX Rule 17020(f), to suspend the requirements regarding reporting of end-of-day Security balances for that Security, the Exchange has not indicated that it would necessarily do so in such circumstances. See supra note 104 and accompanying text; infra Section III.C.3. See also BSTX Response Letter I, supra note 82, at 11.

functions or enforce BSTX Participants' compliance with its rules. Specifically, while the Exchange states that it will extend its Regulatory Services Agreement with FINRA to BSTX Participants and trading in the BSTX Market,<sup>254</sup> the record does not demonstrate how the Exchange will perform surveillance regarding and enforce the unique obligations that it would impose on BSTX Participants to obtain an allowlisted wallet address and report end-of-day-Security ownership balances, including whether or how it would surveil for or reconcile inaccurate reporting of these end-of-day Security ownership balances.<sup>255</sup> For example, as discussed above, in response to commenters' concerns regarding surveillance and enforcement of the end-of day-reporting requirement to ensure that BSTX Participants accurately report their Security ownership balances,<sup>256</sup> as well as how differences in reporting between the records maintained by the Exchange, DTC, and NSCC and the end-of-day Security ownership balances would be reconciled,<sup>257</sup> the Exchange stated that it could use its general authority under BSTX rules to request from a BSTX Participant records related to its business, which could include the reports provided by DTC to the BSTX Participant that the BSTX Participant used to report end-of-day Security ownership balance information to the Exchange.<sup>258</sup> As the Commission stated above, the record does not, however, demonstrate how the Exchange will perform surveillance

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<sup>254</sup> See supra note 209.

<sup>255</sup> See supra Section III.B for additional discussion about whether or how the Exchange would surveil the end-of-day Security ownership balance reporting.

<sup>256</sup> See supra notes 121-122 and accompanying text.

<sup>257</sup> See supra notes 123-124 and accompanying text.

<sup>258</sup> See supra notes 125-126 and accompanying text. Pursuant to proposed BSTX Rule 17020(e), the Exchange may also request additional information regarding the applicable reports and balances from any BSTX Participant, if the Exchange has reason to believe that Security balances reported by one or more BSTX Participants may be inaccurate. See supra note 117 and accompanying text.

for BSTX Participant compliance, particularly with respect to the end-of-day Security ownership balance reporting requirement, such as whether it would request such records from BSTX Participants on a routine basis or use alternative means to determine whether a BSTX Participant has accurately reported its end-of-day Security ownership balances, and how it might surveil for and correct against late reporting by BSTX Participants.<sup>259</sup>

For these reasons, the Exchange has not provided sufficient information for the Commission to be able to find that the Exchange's rules would facilitate transactions in securities, remove impediments to a free and open market and national market system, or protect investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act. In the absence of information about, among other things, when and how a BSTX participant must obtain an allowlisted wallet address and the associated costs, as well as the time and manner by which a BSTX Participant must submit end-of-day Security balances to BSTX and the costs to comply with the reporting obligation, the Commission cannot evaluate whether imposing a burden on BSTX Participants to obtain an allowlisted wallet address and report end-of-day Security balance information to BSTX is reasonable in light of the intended purpose for recording end-of-day balances on the Ethereum blockchain. Particularly given that BSTX Participants would be subject to disciplinary action if they fail to comply with either obligation, the Commission is not able to find that the obligations to obtain a wallet address and to report end-of-day Security balances are consistent with the requirements of Exchange Act Section 6(b)(5), and, in particular, the requirement that the rules of a national securities exchange be designed to remove impediments to and perfect the mechanism of a free and open market and a national market system.

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<sup>259</sup> See supra Section III.B.2.

Also, due to the lack of information discussed above regarding, among other things, anticipated timeframe regarding when BSTX must provide the reported information to the Wallet Manager, the way in which balances are allocated to the omnibus account, and the Exchange’s infrastructure to surveil and enforce compliance by BSTX Participants to accurately report end-of-day Security ownership balances, the Commission cannot assess whether the Exchange would be able to carry out its responsibilities and enforce compliance by BSTX Participants with their obligations. Therefore, the Commission is not able to find that the Exchange would be able to carry out its necessary functions or fulfill its obligations as an SRO to comply with its own rules, pursuant to Section 6(b)(1) of the Exchange Act.

### 3. Suspension of Allowlisting and End-of-Day Reporting Requirements

#### a) Exchange’s Representations

The Exchange states that, in addition to controls and mechanisms for ensuring the accuracy of reported records,<sup>260</sup> the Exchange may need to implement further measures in situations where the ability to update blockchain records may be affected by “exogenous factors,” for example a disruption to the website through which ownership balances may be observed (i.e., Etherscan.io), to the Ethereum blockchain itself that prevents the updating of end-of-day balances, or to the architecture or functioning of a particular Security.<sup>261</sup> To account for these situations, the Exchange proposes that the Exchange would, in its discretion, be able to suspend the allowlisting and end-of-day reporting requirements regarding any BSTX Participant and/or regarding one or more Securities.<sup>262</sup> The Exchange also proposes that in the case of such

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<sup>260</sup> See supra notes 116-120 and accompanying text.

<sup>261</sup> See OIP, supra note 7, 85 FR at 51260 and n.81.

<sup>262</sup> See proposed BSTX Rule 17020(f). The Exchange states that suspension of the ancillary recordkeeping process would not impact trading in a Security and that trading and

a suspension, the Exchange would be required to provide prompt notice, including the reasons for the suspension, to BSTX Participants, and must also notify the Commission within two hours.<sup>263</sup> The Exchange proposes that the suspension may not continue for more than thirty days unless the Exchange submits a proposed rule change to the Commission seeking approval of the suspension, in which case the suspension may continue until the Commission approves or disapproves the proposed rule change.<sup>264</sup> The Exchange states its belief that the proposal to allow for suspension of the allowlisting and end-of-day reporting requirements may foster coordination with persons processing information with respect to Securities and is not designed to permit unfair discrimination, because it will allow the Exchange to suspend certain rule requirements in events where there may be difficulty coordinating or sharing pertinent information with BSTX Participants or Wallet Managers.<sup>265</sup> The Exchange also states that its proposed suspension provision is designed to apply to all market participants equally, and to provide notice to affected participants and regulators of BSTX, in order to allow such individuals and entities to coordinate with the Exchange and react to potential issues as deemed necessary.<sup>266</sup>

b) Analysis

The Commission concludes that the Exchange’s proposal, which would give the Exchange discretion to suspend the requirements for obtaining an allowlisted wallet address or the end-of-day reporting requirements, is insufficient to support a finding that the Exchange’s

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clearance and settlement of Securities can operate entirely independently from the “ancillary” recordkeeping process. See OIP, supra note 7, 85 FR at 51258, n.67.

<sup>263</sup> See id.

<sup>264</sup> See id.

<sup>265</sup> See OIP, supra note 7, 85 FR at 51260, n.86.

<sup>266</sup> See id.

proposed rules are consistent with the Exchange Act, and with Section 6(b)(5) in particular. The Exchange failed to propose in its suspension provision a standard for the Exchange to suspend the allowlisting and end-of-day ownership reporting requirements. Under the proposal, the Exchange appears to retain complete discretion to suspend the allowlisting and end-of-day ownership balance reporting requirements as to some BSTX Participants or Securities but not others. The Exchange also appears to have discretion to suspend its own reporting of information to Wallet Managers to in turn update the Ethereum blockchain. Absent a standard for determining the suspension of allowlisting and end-of-day ownership reporting that would mitigate against the Exchange differently treating BSTX Participants or classes of Securities, the Commission has concerns about the potential for unfair discrimination among brokers-dealers, and also among issuers.

While the Exchange states that the proposed suspension provision is designed to apply to all market participants equally, and has listed several examples of when it may be appropriate to suspend the allowlisting or end-of-day ownership balance reporting requirements, the proposal does not provide any specificity regarding when the Exchange would be required to suspend these requirements or any conditions that must be met to warrant suspension.<sup>267</sup> Furthermore,

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<sup>267</sup> For example, while the Exchange states that it may use its suspension authority in the case of over-reporting of end-of-day Security ownership balances, it does not state, and the proposed rule does not require, that it would necessarily do so. See supra note 253. The Exchange also does not explain how it would mitigate any potential conflicts of interest that may impact its discretionary use of its suspension authority with respect to an Affiliate Security. The Exchange would define “Affiliate Security” as “any security or Security issued by an Exchange Affiliate or any Exchange-listed option on any such security.” See proposed BSTX Rule 26140(a)(2). The Exchange would define “Exchange Affiliate” as “the Exchange and any entity that directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with the Exchange, where ‘control’ means that the one entity possesses, directly or indirectly, voting control of the other entity either through ownership of capital stock or equity

while the Exchange states that it will provide prompt notice to market participants in the case of a suspension, the proposal does not describe who at BSTX is empowered to make the decision to suspend or the standard that would be applied when deciding whether to suspend. Specific information regarding the extent of the Exchange’s discretion and standards that it would apply in determining when to suspend the allowlisting and end-of-day ownership balance reporting requirements is necessary for the Commission to assess whether the Exchange’s rules are not designed to permit unfair discrimination between issuers and between brokers or dealers, consistent with the requirements of Section 6(b)(5).

Due to the proposal’s failure to explain how the Exchange’s broad discretion to suspend requirements related to end-of-day reporting, which is the cornerstone of the Security as an NMS stock, is consistent with the Exchange Act, the Commission cannot find that the Exchange’s rules are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers, as required by Section 6(b)(5) of the Exchange Act.<sup>268</sup> Further, due to the lack of information regarding how the Exchange will determine whether to suspend the requirements for allowlisting and end-of-day reporting, the Commission is not able to find that the Exchange would be able to carry out its necessary functions, in accordance with Section 6(b)(1) of the Exchange Act.

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securities or through majority representation on the board of directors or other managements body of such entity.” See proposed BSTX Rule 26140(a)(1). The Exchange would define “Exchange” to mean “BOX Exchange LLC and its facilities.” See proposed BSTX Rule 17000(a)(20).

<sup>268</sup> Additionally, the Exchange has not addressed how it would mitigate any potential conflicts of interest that could arise if Affiliate Securities were listed and traded on BSTX or if a broker-dealer affiliate of BSTX or the Exchange were to trade Securities as a BSTX Participant or otherwise, which could impact the Exchange’s determination to use its suspension authority.

#### 4. Listed Companies

The proposal contains proposed rules concerning the listing of Securities, and the Exchange states that its proposed listing rules are substantially similar to the listing rules of another national securities exchange, with certain additions or modifications to the rules that are specific to the Exchange's market.<sup>269</sup> The Commission considers the proposed lack of fungibility between BSTX-listed Securities and other classes of securities of the same issuer, and concludes that the Exchange has not sufficiently addressed the potential implications on the trading of these securities and how these securities would trade in a manner consistent with the Exchange Act. In addition, the Commission considers the Exchange's proposed rules requiring that a Security comply and continue to comply with the BSTX Protocol, and concludes that the record does not demonstrate how the Exchange will apply these provisions in a manner that is consistent with the Exchange Act.<sup>270</sup>

##### a) Fungibility of BSTX-Listed Securities

###### (1) Exchange's Representations and Comments Received

The Exchange states that potential issuers on BSTX could include (1) new issuers that do not currently have any class of securities registered on a national securities exchange; and (2) issuers who currently have securities registered on another national securities exchange, and who are seeking registration of a separate class of equity securities for listing on BSTX.<sup>271</sup> The

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<sup>269</sup> See OIP, supra note 7, 85 FR at 51277 (citing Parts 1-12 of the NYSE American LLC Company Guide).

<sup>270</sup> The Commission's conclusions that the Exchange has not demonstrated that its proposal is consistent with the Exchange Act focus on these two specific aspects of the Exchange's proposed listing rules. The Commission does not reach a conclusion about whether other aspects of the Exchange's proposed listing rules are consistent with the Exchange Act.

<sup>271</sup> See OIP, supra note 7, 85 FR at 51253.

Exchange also states that BSTX does not intend for Securities listed on BSTX to be fungible with any other class of securities from the same issuer.<sup>272</sup>

In the context of SR-BOX-2019-19, one commenter questioned why a class of BSTX-listed Securities would not be fungible with any other class of securities from the same issuer.<sup>273</sup> This commenter also questioned what implications a lack of fungibility would have for the overall equity market infrastructure.<sup>274</sup> In response, the Exchange stated that Securities would not be fungible with another class of securities of the same issuer, because no class of an issuer's securities would be fungible with a separate class of its securities, and that it was not proposing any changes to the existing framework for different classes of securities.<sup>275</sup> The Exchange gave as an example that two classes of shares of the same issuer, each of which have different ticker symbols, different rights (such as different voting rights), and different dividend rates, would not, according to the Exchange, be fungible with one another.<sup>276</sup>

## (2) Analysis

The Exchange asserts that its proposed use of blockchain technology to record and disseminate end-of-day Security ownership balances would operate separately from the existing market infrastructure and would not have an impact on the trading, clearing, or settlement of BSTX-listed Securities.<sup>277</sup> For the Commission to make a finding that the rules of the Exchange

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<sup>272</sup> See OIP, supra note 7, 85 FR at 51253.

<sup>273</sup> See SIFMA Letter II, supra note 110, at 5.

<sup>274</sup> See SIFMA Letter II, supra note 110, at 5.

<sup>275</sup> See OIP, supra note 7, 85 FR at 51253, n.34. See also BSTX Response Letter II, supra note 105, at 4.

<sup>276</sup> See BSTX Response Letter II, supra note 105, at 4, n.22.

<sup>277</sup> See infra note 339 and accompanying text. For a discussion of other trading centers' ability to trade BSTX-listed Securities, see infra Section III.D.

are designed to, among other things, prevent fraudulent and manipulative practices, it is important for the Exchange to comprehensively analyze the potential relationship between a Security listed on BSTX and another class of securities from the same issuer that is listed on another national securities exchange. The Exchange asserts that, while issuers who have a class of securities listed on another national securities exchange may issue a separate class of securities to list on BSTX, the Securities listed on BSTX would not be fungible with any other class of securities from the same issuer.<sup>278</sup> However, the proposal does not address whether BSTX would require that there be any differences in the rights and obligations associated with two classes of securities from the same issuer, only one of which is a Security listed on BSTX, other than that the BSTX-listed Security would have to have associated smart contracts that are compliant with the BSTX Protocol and adhere to the associated obligations relating to allowlisting and end-of-day reporting, which according to the Exchange would not impact trading, clearing or settling of BSTX-listed Securities.

Moreover, as discussed above, the Exchange would be able to suspend the allowlisting and end-of-day reporting requirements for Securities listed on BSTX without an articulated standard in its rules.<sup>279</sup> The Exchange does not address the possibility that, if the Exchange suspended these requirements with respect to a particular BSTX-listed Security, there might not be any difference in the rights and obligations associated with two classes of securities, or whether this lack of different characteristics would impact the fungibility of the classes. The Exchange also does not explain whether there might be possibilities for arbitrage between the two classes of securities of same issuer, if, due to a suspension of the allowlisting and end-of-day

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<sup>278</sup> See supra notes 271-272, 275-276, and accompanying text.

<sup>279</sup> See supra Section III.C.3 for discussion about the Exchange's ability to suspend the allowlisting and end-of-day reporting requirements.

reporting requirements for the particular BSTX-listed Security, there are no remaining differences between the rights and obligations of the two classes of securities. Further, the Exchange does not explain whether a lack of remaining differences between the two classes of securities would impact trading in the securities. For example, in the instance the Exchange suspends allowlisting, which could occur at any time and for any reason as proposed under the Exchange's rules, the Exchange does not explain whether it anticipates the two classes of securities would trade at the same or different prices and why there might be a discrepancy in prices. The lack of clarity about differences between multiple classes of securities of the same issuer, particularly where only one is a Security with an associated Token representation and that Token representation for a Security is suspended by the Exchange, and how this may impact the fungibility of the classes or how they trade, prevents the Commission from determining whether the relationship between the classes might create the potential for fraudulent or manipulative trading practices. Due to the Exchange's failure to explain whether or how its proposed use of blockchain technology to record and disseminate end-of-day Security ownership balances could impact trading of the BSTX-listed Securities, the Commission cannot find that the Exchange's rules would prevent fraudulent and manipulative acts and practices, promote just and equitable principles of trade, remove impediments to a free and open market and national market system, or protect investors and the public interest, in accordance with Section 6(b)(5) of the Exchange Act.

b) Compliance with BSTX Protocol

(1) Exchange's Representations

Proposed BSTX Rule 26230 would provide listing requirements relating to the architecture of a Security's associated smart contract that an issuer must satisfy to list and remain listed on the Exchange. The Exchange states that all listed companies' Securities must comply

with the BSTX Protocol to ensure that all Securities are governed by the same set of specifications and controls that allow for their ownership to be recorded on the Ethereum blockchain using Tokens as an “ancillary” recordkeeping mechanism.<sup>280</sup> Prior to approving a Security for trading on the Exchange, the Exchange would conduct an audit of the Security’s smart contract architecture to ensure compliance with the BSTX Protocol.<sup>281</sup> The Exchange states that the purpose of this initial listing requirement is to ensure that the design and structure of a prospective BSTX-listed company’s Security smart contract is compatible with the BSTX Protocol, for purposes of facilitating updates to the blockchain as an ancillary recordkeeping mechanism.<sup>282</sup> The Exchange states that it may use third party service providers that have demonstrated sufficient technical expertise in blockchain technology and an understanding of the BSTX Protocol to conduct this audit on behalf of the Exchange.<sup>283</sup>

After being listed on the Exchange, as a continued listing requirement, a BSTX-listed company would remain responsible for ensuring that its Security smart contract remains compatible with the BSTX Protocol and accurately reflects the number of shares outstanding.<sup>284</sup> The Exchange states that it recognizes that there may be circumstances in which it becomes

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<sup>280</sup> See OIP, supra note 7, 85 FR at 51256. See also proposed BSTX Rule 26138.

<sup>281</sup> See proposed BSTX Rule 26230(a). In addition, an applicant that was denied initial listing pursuant to this section would be able to appeal the decision via the process outlined in the proposed BSTX Rule 27200 Series. See id.

<sup>282</sup> See OIP, supra note 7, 85 FR at 51278.

<sup>283</sup> See OIP, supra note 7, 85 FR at 51278. The Exchange states that it expects that some issuers may choose to use an outside vendor to help build their Security smart contract in a manner that complies with the BSTX Protocol, and that it understands that there are numerous technology companies that offer this service. See id. at 51278, n.300.

<sup>284</sup> See proposed BSTX Rule 26230(b).

necessary to modify certain aspects of the smart contract corresponding to the Security.<sup>285</sup> The Exchange adds that, for example, in the case of a stock split, a BSTX-listed company may need to increase the total supply of Securities as programmed into its Security smart contract.<sup>286</sup> Under the proposal, the BSTX-listed company would be required to provide notice to the Exchange at least five days prior to implementing any modification that it would make to a smart contract corresponding to a Security (e.g., to increase the total supply), to allow the Exchange to audit the proposed modification.<sup>287</sup> If additional time is needed to implement the modification, the Exchange would be able to exercise its authority to suspend the ancillary recordkeeping process relating to that Security pursuant to proposed BSTX Rule 17020(f).<sup>288</sup>

The Exchange asserts that the primary circumstances under which a modification to a smart contract corresponding to a Security may be necessary would be where there is a change to the total supply of the Security, which could occur in the case of a stock split, a reverse stock split, a buy-back, or a dividend in kind.<sup>289</sup> The Exchange states that any delay in the implementation of a change to a smart contract that corresponds to a Security would not impact the record date or ex-dividend date for any dividend, distribution, or other action.<sup>290</sup> According to the Exchange, it believes that proposed BSTX Rule 26230 facilitates end-of-day Security ownership balance reporting for BSTX-listed Securities, and that this reporting is a first step

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<sup>285</sup> See OIP, supra note 7, 85 FR at 51278.

<sup>286</sup> See OIP, supra note 7, 85 FR at 51278.

<sup>287</sup> See proposed BSTX Rule 26230(b).

<sup>288</sup> See proposed BSTX Rule 26230(b). See supra Section III.C.3 for a discussion of suspension of the end-of-day ownership balance reporting requirement.

<sup>289</sup> See OIP, supra note 7, 85 FR at 51278.

<sup>290</sup> See OIP, supra note 7, 85 FR at 51278-79.

towards the potential integration of blockchain technology to securities transactions.<sup>291</sup> The Exchange states that, without ensuring that BSTX-listed companies' Securities are compatible with the BSTX Protocol, the use of blockchain technology as an ancillary recordkeeping mechanism could be impaired.<sup>292</sup>

(2) Analysis

The record fails to explain clearly how the Exchange will implement its proposed continued listing requirement that smart contracts associated with BSTX-listed Securities must remain in compliance with the BSTX Protocol. The proposal contemplates circumstances in which the smart contracts associated with Securities would need to be changed due to corporate actions by the BSTX-listed company that would change the outstanding number of Securities.<sup>293</sup> However, the record does not contain any discussion about the impact on a BSTX-listed company's obligations under circumstances in which the Exchange initiates changes to the BSTX Protocol. In such circumstances, proposed BSTX Rule 26230(b) would require an issuer to make changes to the smart contract associated with its Security so that its Security remains compliant with the BSTX Protocol.<sup>294</sup> Yet the proposal does not contain any discussion about what policies and procedures the Exchange would use to evaluate the ability of BSTX-listed companies to respond to changes in the BSTX Protocol initiated by the Exchange or resulting from changes to the Ethereum blockchain itself and to ensure that the BSTX-listed company's Securities continue to meet this continued listing requirement under BSTX's proposed rules.

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<sup>291</sup> See OIP, supra note 7, 85 FR at 51279.

<sup>292</sup> See OIP, supra note 7, 85 FR at 51279.

<sup>293</sup> See supra notes 284-287, 289, and accompanying text.

<sup>294</sup> See supra note 284 and accompanying text.

The lack of procedures increases the risk of the Exchange unfairly discriminating between issuers.

In particular, the proposal does not address whether any protections would be in place to ensure that the BSTX-listed company has adequate notice of changes to the BSTX Protocol and has the technical capability to make any changes necessary to its Security smart contract to maintain its Security in compliance with the BSTX Protocol. Although a BSTX-listed company may hire an external vendor prior to initial listing to help it build its smart contracts,<sup>295</sup> assessing capabilities to comply with the BSTX Protocol prior to listing, when an issuer can decide whether to undertake the work necessary to ensure that its smart contracts comply with the BSTX Protocol, presents different concerns than what is needed to make changes to maintain compliance with the BSTX Protocol after listing, when the failure to comply can lead to the delisting of a listed and actively-traded security. In addition, it is unclear how a fork in the Ethereum blockchain might impact the BSTX Protocol and the steps necessary for a BSTX-listed company to maintain compliance. Moreover, the proposed rule provision concerning the Exchange's audit of the architecture of a Security's associated smart contract prior to listing states explicitly that an applicant denied listing pursuant to that provision would be able to appeal that decision via the process outlined in the proposed BSTX Rule 27200 Series,<sup>296</sup> but the proposal does not set forth procedures for appeal of a decision by the Exchange that a Security has fallen outside of compliance with the BSTX Protocol. To the extent that the general procedures in the proposed BSTX Rule 27000 Series (Suspension and Delisting) would apply,

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<sup>295</sup> See supra note 283.

<sup>296</sup> See supra note 281.

the Exchange has not demonstrated that these procedures are adequate for technical determinations about compliance with the BSTX Protocol.

For the Commission to conclude that the proposal is not designed to, among other things, impose continued listing requirements on issuers in an arbitrary manner or permit unfair discrimination between issuers, it is important for the Exchange to provide sufficient explanation about how the Exchange will implement its continued listing requirement that a BSTX-listed Security remain compliant with the BSTX Protocol, and how issuers will be able to ensure that their listed Securities remain compliant. Due to the lack of such information, the Commission is unable to find that the proposal is designed to remove impediments to and perfect the mechanism of a free and open market and a national market system, and is not designed to permit unfair discrimination between issuers, as required under Section 6(b)(5) of the Exchange Act.

D. Whether BOX Has Sufficiently Explained the Burden the Proposal Would Place on Other National Securities Exchanges' Ability to Trade BSTX-Listed Securities and Met its Burden To Demonstrate that the Proposal Is Consistent with Section 6(b)(8) of the Exchange Act

The Commission examines below whether the Exchange has met its burden to demonstrate that its rules do not impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Exchange Act, as required by Section 6(b)(8) of the Exchange Act. As discussed further below, the Exchange has not sufficiently explained the burden that the proposal would place on national securities exchanges to provide end-of-day reporting of Security ownership balances for their members. Moreover, the Exchange has not adequately addressed the potential burden on competition that would result from the Exchange's control over the end-of-day reporting process or the burden on other national securities exchanges that seek to either participate in the end-of-day reporting process of the Exchange or develop their own. Accordingly, the Commission does not have sufficient information to assess

whether the burden on competition imposed by the proposed end-of-day reporting functionality is necessary or appropriate in furtherance of the Exchange Act, in accordance with Section 6(b)(8) of the Exchange Act.

1. Exchange's Representations and Comments Received

The Exchange states that the end-of-day Security ownership balance reporting by BSTX Participants and the public dissemination of the end-of-day Security ownership balances on the blockchain does not impact the ability of Securities to trade on other national securities exchanges or OTC.<sup>297</sup> The Exchange states that Securities would be eligible for trading on other national security exchanges that extend UTP to them, and therefore Securities would be able to trade on other national securities exchanges and OTC in the same manner as other NMS stocks.<sup>298</sup> Specifically, the Exchange states that because Securities would trade, clear, and settle in the same manner as other NMS stock, other national securities exchanges could extend UTP to BSTX-listed Securities that are NMS stock in accordance with Commission rules.<sup>299</sup> Additionally, the Exchange states that a national securities exchange that chooses to extend UTP to Securities could trade them without any end-of-day or blockchain reporting structure.<sup>300</sup> Furthermore, the Exchange states that, with regard to other national securities exchanges extending UTP to Securities, the Exchange does not believe that the proposed BSTX Rules

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<sup>297</sup> See OIP, supra note 7, 85 FR at 51262.

<sup>298</sup> See OIP, supra note 7, 85 FR at 51262.

<sup>299</sup> See OIP, supra note 7, 85 FR at 51289.

<sup>300</sup> See OIP, supra note 7, 85 FR at 51263.

would impose a burden on competition that is not necessary or appropriate in furtherance of the purposes of the Exchange Act.<sup>301</sup>

The Exchange states that there are many ways another national securities exchange could adopt its own end-of-day Security ownership balance reporting requirement. The Exchange also states that it cannot predict whether another exchange would want to adopt its own reporting requirement, and if it did, what model it would choose, and how or whether that model would interact with the Exchange's end-of-day Security ownership reporting structure.<sup>302</sup> Further, the Exchange states that it is not proposing any limitation that would prevent another national securities exchange from participating in the Exchange's end-of-day Security ownership balance reporting process or establishing its own alternative or complementary process, and that it is not proposing to limit another exchange's ability to establish a similar, different, or integrated reporting structure.<sup>303</sup> If another exchange decides to trade Securities, but not to use blockchain

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<sup>301</sup> See OIP, supra note 7, 85 FR at 51289. See infra notes 328-331 and accompanying text (discussing the Exchange's assertions concerning the benefits of the proposal).

<sup>302</sup> See OIP, supra note 7, 85 FR at 51262-63. The Exchange gives as examples of potential alternatives that another national securities exchange could employ: collecting end-of-day Security ownership balance information from its members and then relaying that information to BSTX to deliver to a Wallet Manager for recording to the Ethereum blockchain; trading BSTX-listed Securities without any end-of-day reporting requirement; engaging its own version of a wallet manager to communicate with BSTX's Wallet Manager(s) to facilitate updates to the Ethereum blockchain; or designing its own reporting process and technology, with no nexus to the BSTX end-of-day Security balance reporting structure. See OIP, supra note 7, 85 FR at 51263. In the case of a national securities exchange that determined to relay balance information from its members to BSTX, the Exchange states that no development of blockchain technology, smart contract functionality, or other similar technology would be required, because an exchange that adopts such a reporting structure would be in a position similar to a BSTX Participant, in that it would simply deliver end-of-day Security balance information to BSTX (or a Wallet Manager). See OIP, supra note 7, 85 FR at 51263, n.103 and accompanying text.

<sup>303</sup> See OIP, supra note 7, 85 FR at 51263.

technology to record end-of-day ownership balances reported by its members, the Exchange states that the other exchange's process would not be able to leverage the smart contract functionality built into BSTX-listed issuers' Securities pursuant to the BSTX Protocol.<sup>304</sup> The Exchange states that in such a case, there would be separate sets of end-of-day ownership balance records – the balances of BSTX Participants would be recorded on the Ethereum blockchain and the balances of the other exchange's members would be separately reflected.<sup>305</sup>

One commenter questioned, in the context of SR-BOX-2019-19, whether other national securities exchanges would be in a position to extend UTP to BSTX-listed Securities.<sup>306</sup> This commenter asked if the distributed ledger technology proposed by BSTX would be exclusive to BSTX and if other national securities exchanges would have access to the technology or its source code.<sup>307</sup> This commenter asked if other national securities exchanges would have the ability currently to trade BSTX-listed Securities, and, if not, what changes they would need to make to be able to do so.<sup>308</sup> This commenter stated that, to the extent that other national securities exchanges adopt their own distributed ledger technology to track ownership of equity securities traded on their markets, complications may arise in the equities markets if varying

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<sup>304</sup> See OIP, supra note 7, 85 FR at 51263, n.105.

<sup>305</sup> See id.

<sup>306</sup> See SIFMA Letter II, supra note 110, at 6.

<sup>307</sup> See SIFMA Letter II, supra note 110, at 4. This commenter also asked, if the distributed ledger technology and its source code is exclusive to BSTX, what other national securities exchanges would have to do to gain access. See id. at 4-5.

<sup>308</sup> See SIFMA Letter II, supra note 110, at 6. This commenter also stated that it is unclear whether the Exchange could limit UTP trading in BSTX-listed Securities in the future. See id.

forms of this technology are used.<sup>309</sup> Another commenter, in the context of SR-BOX-2019-19, stated its belief that the Exchange should address the implications in terms of burden on competition for other national securities exchanges that would like to extend UTP to BSTX-listed stocks.<sup>310</sup>

Also in the context of SR-BOX-2019-19, one commenter stated that the proposal appears to provide insufficient detail regarding the digital security infrastructure and how technology would pair with existing equities market infrastructure.<sup>311</sup> This commenter stated that to avail itself of the blockchain technology associated with the proposed Securities (which this commenter asserted is the only unique characteristic of the Securities), the purchaser must be a BSTX Participant.<sup>312</sup> This commenter further stated that the proposal is designed to provide an advantage to the Exchange as the exclusive provider of blockchain technology for Securities, because the Exchange will not accept end-of-day Security ownership balance reports from non-BSTX Participants.<sup>313</sup> This commenter asserted that, as such, the Exchange’s proposal places an “unreasonable” burden on competition.<sup>314</sup> This commenter also stated it would be inappropriate, and perhaps beyond the scope of the Commission’s authority, to allow NMS plans to be used for the “specialized competitive purposes” of an individual national securities exchange.<sup>315</sup>

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<sup>309</sup> See SIFMA Letter II, *supra* note 110, at 3. This commenter also questioned whether other market participants would have the ability to change the source code underlying the distributed ledger technology. See *id.* at 5.

<sup>310</sup> See IEX Letter, *supra* note 77, at 5.

<sup>311</sup> See Nasdaq Letter, *supra* note 77, at 1.

<sup>312</sup> See Nasdaq Letter, *supra* note 77, at 2.

<sup>313</sup> See Nasdaq Letter, *supra* note 77, at 3.

<sup>314</sup> See Nasdaq Letter, *supra* note 77, at 3.

<sup>315</sup> See Nasdaq Letter, *supra* note 77, at 3.

In response, in the context of SR-BOX-2019-19, the Exchange asserted that the trading of Securities does not impose any additional burden compared to the trading of other NMS stocks.<sup>316</sup> The Exchange stated that end-of-day Security ownership balance reporting and the publication of such information on the Ethereum blockchain does not impact the ability of Securities to trade on other national securities exchanges or OTC, and that Securities are fully capable of trading on other national securities exchanges or OTC without an “ancillary” recordkeeping mechanism.<sup>317</sup> Therefore, according to the Exchange, if any other national securities exchange sought to extend UTP to a BSTX-listed Security, it could do so under the existing regulatory framework.<sup>318</sup>

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<sup>316</sup> See BSTX Response Letter I, supra note 82, at 3. Also, with respect to other exchanges extending UTP to Securities, the Exchange states that it does not believe that the proposal would impose a burden on competition that is not necessary or appropriate in furtherance of the purposes of the Exchange Act, in that Securities would trade, clear, and settle in the same manner as other NMS stock, and accordingly, other exchanges would be able to extend UTP to Securities in accordance with Commission rules. See OIP, supra note 7, 85 FR at 51289. See also supra notes 301, 303, and accompanying text (discussing the Exchange’s statement regarding burden on competition in the context of other exchanges extending UTP).

<sup>317</sup> See OIP, supra note 7, 85 FR at 51262; BSTX Response Letter I, supra note 82, at 3. See also id. at 16 (stating that Securities are fully capable of trading on other national securities exchanges or OTC without an “ancillary” recordkeeping mechanism); BSTX Response Letter II, supra note 105, at 5 (same).

<sup>318</sup> See BSTX Response Letter I, supra note 82, at 3. See also BSTX Response Letter II, supra note 105, at 5 (stating that any national securities exchange would be free to extend UTP to Securities consistent with applicable regulatory requirements). The Exchange also states, in response to whether other exchanges would be able to access the distributed ledger technology that BSTX proposes to use, that use of Ethereum blockchain technology, which is an open source public blockchain that supports smart contract functionality, is not exclusive to BSTX, and thus, all market participants would have open access to the distributed ledger technology associated with the Exchange’s proposal. See OIP, supra note 7, 85 FR at 51289, n.366.

The Exchange responded further that there is no limitation in its proposal that would prevent another national securities exchange from adopting its own process and requirements to record and disseminate end-of-day Security ownership balances.<sup>319</sup> The Exchange stated that it encourages other national securities exchanges to consider taking steps to promote the use of blockchain technology and help familiarize market participants with its potential uses and benefits.<sup>320</sup> The Exchange also stated that it proposes to use a “common distributed ledger” in the form of the public Ethereum blockchain that any other national securities exchange could use to implement its own recordkeeping process.<sup>321</sup> According to the Exchange, any other national securities exchange that wants to trade Securities would have access to the publicly available, open-source code from the BSTX Protocol, and also would be able to leverage the pre-established Security architecture to facilitate any similar end-of-day reporting requirements.<sup>322</sup> The Exchange stated that it would impose the end-of-day reporting requirement only on BSTX Participants because of the limits of its legal authority, and that while it would not initially accept voluntary reporting from non-BSTX Participants, it may consider accepting such voluntary reports in the future.<sup>323</sup>

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<sup>319</sup> See OIP, supra note 7, 85 FR at 51290; BSTX Response Letter I, supra note 82, at 3, 4.

<sup>320</sup> See BSTX Response Letter I, supra note 82, at 4.

<sup>321</sup> See BSTX Response Letter I, supra note 82, at 4. See also BSTX Response Letter II, supra note 105, at 2-3 (reiterating that the distributed ledger technology that would be used is the Ethereum blockchain, which is not exclusive to BSTX, and is an open source public blockchain that supports smart contract functionality).

<sup>322</sup> See BSTX Response Letter I, supra note 82, at 4.

<sup>323</sup> See BSTX Response Letter I, supra note 82, at 4. See also OIP, supra note 7, 85 FR at 51257 (stating that the Exchange will not accept voluntary reports of end-of-day Security balances from non-BSTX Participants, but may consider doing so in the future, subject to any applicable or necessary rule filing requirements with the Commission); BSTX Response Letter III, supra note 207, at 3.

In response to comments on SR-BOX-2019-19, the Exchange stated its disagreement with a commenter’s assertion that the Exchange is proposing to use UTP to promote trading that uniquely benefits the Exchange, and states that it is not “using” UTP in any manner.<sup>324</sup> The Exchange asserted its belief that its proposal would not impose any burden on competition because other national securities exchanges would be free to determine whether to extend UTP to Securities.<sup>325</sup> The Exchange further asserted that there is no mechanism by which one national securities exchange can force another national securities exchange to extend UTP to its listed securities, and therefore any national securities exchange would be free to extend UTP to BSTX-listed Securities consistent with applicable regulatory requirements.<sup>326</sup> The Exchange also stated that, if a national securities exchange were to choose to extend UTP to BSTX-listed Securities and adopt a recordkeeping process utilizing the blockchain, it could do so in a manner consistent with BSTX’s proposed requirements and end-of-day reporting structure, or could develop and pursue another approach.<sup>327</sup>

With respect to the Exchange’s stated purpose for recording and publicly disseminating Security ownership balances, the Exchange states that it believes that initially using blockchain

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<sup>324</sup> See BSTX Response Letter I, supra note 82, at 4. The Exchange also stated that it was not proposing a fee related to the reporting of end-of-day ownership balances to the Ethereum blockchain, and therefore Securities trading on other national securities exchanges would not offer a unique benefit to the Exchange in this respect. See id. at 5.

<sup>325</sup> See BSTX Response Letter I, supra note 82, at 4, 5.

<sup>326</sup> See BSTX Response Letter I, supra note 82, at 4-5.

<sup>327</sup> See BSTX Response Letter I, supra note 82, at 5, 9-10. The Exchange also asserted its disagreement with a commenter’s statement that it would be inappropriate to allow national market system plans to be used for the specialized competitive purposes of an individual national securities exchange, and stated that the point is not relevant because the Exchange had not proposed any national market system plan relating to its proposal. See id. at 4, n.15.

technology as an “ancillary” recordkeeping mechanism, pursuant to which the Securities represented on the blockchain in Token form would not convey legal ownership, is the appropriate way to explore the potential benefits of blockchain technology consistent with the protection of investors and the public interest.<sup>328</sup> According to the Exchange, it believes that using blockchain technology to record and disseminate end-of-day Security ownership balances in parallel with the traditional trading, recordkeeping, and clearance and settlement structures that market participants are familiar with is an important first step toward exploring the potential uses and benefits of blockchain technology in securities transactions.<sup>329</sup> The Exchange further states that it believes that promoting the use of the functionality of smart contracts and their ability to allocate and re-allocate Securities balances in Token form across multiple wallet addresses in connection with end-of-day Security ownership balance information of BSTX Participants will allow market participants to observe and increase their familiarity with the “capabilities and potential benefits” of blockchain technology in a context that parallels the current equity market infrastructure.<sup>330</sup> Thereby, according to the Exchange, its proposal would advance and protect the public’s interest in the use and development of new data processing

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<sup>328</sup> See OIP, supra note 7, 85 FR at 51262. The Exchange also states that it believes that the public has an interest in exploring the use of new technology, such as blockchain technology, and that such technology may be able to help perfect the mechanism of a free and open market and a national market system. See id.

<sup>329</sup> See OIP, supra note 7, 85 FR at 51287. See also id. at 51262 (stating that the Exchange’s contention that the proposal is reasonably designed to introduce blockchain technology in a gradual way, and in coordination and cooperation with the industry, the Commission, and the existing regulatory framework).

<sup>330</sup> See OIP, supra note 7, 85 FR at 51263.

techniques that may create opportunities for more efficient, effective, and safe securities markets.<sup>331</sup>

In the context of SR-BOX-2019-19, several commenters raised questions about the purpose of the Exchange's proposed use of blockchain technology to record and disseminate end-of-day Security ownership balances.<sup>332</sup> One commenter asserted that it is unclear what efficiencies or purposes an end-of-day Security ownership balance would provide or that Securities would offer to the global securities marketplace, and that the proposed structure would introduce potential burdens on market participants.<sup>333</sup> According to this commenter, it seemed likely that the introduction and use of Securities would create an undue burden on market participants, exchanges, custodians, clearing firms, and retail and institutional investors.<sup>334</sup> Another commenter asked what the purpose of the proposed end-of-day Security ownership balance reporting mechanism would be.<sup>335</sup> This commenter further asked, if the purpose was to gradually introduce blockchain technology, what the next steps would be.<sup>336</sup> Another commenter asserted that the proposal did not provide sufficient detail regarding the ultimate purpose of the records of end-of-day Security ownership balances and the specific content and design of such

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<sup>331</sup> See *id.* See also BSTX Response Letter I, *supra* note 82, at 13. The Exchange also states that, while it believes that its proposal represents an introductory step in pairing the benefits of blockchain technology with the current equity market structure, other market participants and FINRA have recognized additional potential benefits to blockchain technology in various applications related to the securities markets. See OIP, *supra* note 7, 85 FR at 51263, n.110.

<sup>332</sup> See Eversheds Letter, *supra* note 91, at 1-2; IEX Letter, *supra* note 77, at 5; PKA Law Letter, *supra* note 175, at 1-2; SIFMA Letter II, *supra* note 110, at 3.

<sup>333</sup> See PKA Law Letter, *supra* note 175, at 1-2.

<sup>334</sup> See PKA Law Letter, *supra* note 175, at 2.

<sup>335</sup> See IEX Letter, *supra* note 77, at 5.

<sup>336</sup> See IEX Letter, *supra* note 77, at 5.

records, and that therefore the purpose and design of these records was unclear and could not be evaluated under the Exchange Act.<sup>337</sup> According to this commenter, a reader of the proposal could not identify and evaluate the ways in which the end-of-day Security ownership balance may benefit investors or add transactional, operational, and other types of risk.<sup>338</sup>

In response, in the context of SR-BOX-2019-19, the Exchange reiterated the purpose of the end-of-day Security ownership balances as previously stated and asserted its belief that the proposed “ancillary” recordkeeping process, which is designed to operate separate and apart from the existing market infrastructure and would not impact trading, clearance, or settlement of Securities, would not pose any transactional or operational risks.<sup>339</sup> According to the Exchange, it believed that its explanation about the purpose of the end-of-day Security ownership balances that it provided in SR-BOX-2019-19 as amended by Amendment No. 2 provided “sufficient information for market participants to independently arrive at this same conclusion.”<sup>340</sup> The Exchange stated that the record of end-of-day Security balances on the blockchain is for the public benefit.<sup>341</sup> The Exchange asserted its belief that blockchain technology may offer benefits to the trading of securities, and that the Exchange had proposed a limited use of the technology in the form of end-of-day Security ownership balances on the blockchain to help it evaluate whether such benefits might be realized.<sup>342</sup> The Exchange stated that it may consider a variety of

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<sup>337</sup> See Eversheds Letter, supra note 91, at 1-2. See also IEX Letter, supra note 77, at 5, n.8 (agreeing with the concerns identified in the Eversheds Letter and stating that these concerns were not fully or clearly addressed by Amendment No. 2).

<sup>338</sup> See Eversheds Letter, supra note 91, at 2.

<sup>339</sup> See BSTX Response Letter I, supra note 82, at 13.

<sup>340</sup> BSTX Response Letter I, supra note 82, at 13.

<sup>341</sup> See BSTX Response Letter I, supra note 82, at 14.

<sup>342</sup> See BSTX Response Letter I, supra note 82, at 14.

next steps towards potential further integration of blockchain technology, any of which would be subject to the rule filing requirements, and public notice and comment, pursuant to Section 19 of the Exchange Act.<sup>343</sup>

Also in the context of SR-BOX-2019-19, one commenter asserted that the proposal's requirements with respect to maintaining end-of-day Security ownership balances on the blockchain are inconsistent with the requirement in Section 6(b)(5) of the Exchange Act that a national securities exchange's rules may not regulate matters not related to the purposes of this title or the administration of the exchange, because the maintenance of these records does not appear to be necessary for the clearance and settlement of the Securities, the fair and orderly trading of Securities, or any purpose regulated by the Exchange Act.<sup>344</sup> The Exchange responds that it believes that the proposal is not designed to regulate matters outside those contemplated and authorized by the Exchange Act.<sup>345</sup> The Exchange states that Section 2 of the Exchange Act sets forth the reasons for the Exchange Act, which include that ““transactions in securities as commonly conducted upon securities exchanges and over-the-counter markets are effected with a national public interest which makes it necessary to provide for regulation and control of such transactions and of practices and matters related thereto, including . . . to require appropriate reports.”<sup>346</sup> According to the Exchange, the Exchange Act and the rules of SROs include reporting requirements that regulate and control matters and practices related to securities

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<sup>343</sup> See BSTX Response Letter I, supra note 82, at 9.

<sup>344</sup> See Eversheds Letter, supra note 91, at 3.

<sup>345</sup> See also OIP, supra note 7, 85 FR at 51288.

<sup>346</sup> See OIP, supra note 7, 85 FR at 51288 (quoting 15 U.S.C. 78(b) (emphasis in OIP)). See also BSTX Response Letter I, supra note 82, at 16.

transactions conducted on national securities exchanges and in OTC markets.<sup>347</sup> As noted above, the Exchange also reasserts its belief that the end-of-day reporting requirements will allow market participants to observe and increase their familiarity with the capabilities and potential benefits of blockchain technology in a context that parallels current equity market infrastructure.<sup>348</sup>

In the context of SR-BOX-2019-19, one commenter stated that the Exchange appeared to be proposing a proprietary Ether-based distributed ledger technology to be used to track ownership on an “ancillary” basis for BSTX-listed Securities.<sup>349</sup> This commenter asserted that the Exchange is encouraging the adoption of this technology with the likely eventual goal of having it become a system for tracking equity security ownership outside of the current system maintained by DTC and broker-dealers.<sup>350</sup> This commenter further asserted that the end-of-day Security balance reporting “appears to be nothing more than a way to force industry participants to sign up for the Exchange’s blockchain service, adding cost while providing no apparent value

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<sup>347</sup> See OIP, supra note 7, 85 FR at 51288; BSTX Response Letter I, supra note 82, at 16-17. The Exchange states that, for example, all of the U.S. options exchanges and FINRA maintain rules approved by the Commission that require their member broker-dealers to prepare and submit daily large options position reports, and that these reports do not concern the trading or clearance and settlement of securities transactions themselves, but instead are reports relating to end-of day positions. The Exchange asserts that the requirements regarding the end-of-day Security ownership balance reporting process would similarly require BSTX Participants to provide reports regarding their end-of-day ownership balances in Securities. See OIP, supra note 7, 85 FR at 51288. See also BSTX Response Letter I, supra note 82, at 17.

<sup>348</sup> See OIP, supra note 7, 85 FR at 51288. See also BOX Response Letter I, supra note 82, at 13; OIP, supra note 7, 85 FR at 51289, n.371 and accompanying text. See also supra notes 328-331 and accompanying text.

<sup>349</sup> See SIFMA Letter II, supra note 110, at 3.

<sup>350</sup> See SIFMA Letter II, supra note 110, at 3.

to firms, institutional clients, or retail investors.”<sup>351</sup> This commenter stated that while it supports adoption of new processes and technology to make the equity market infrastructure more efficient and robust and supports the use of technology to strengthen the security settlement system, it has concerns about the wider implications on the equity market infrastructure.<sup>352</sup> The Exchange responded that that proposal was designed to operate entirely within the existing equity market structure, including the requirements for clearance through NSCC and settlement through DTC, and that any future changes would be subject to the Commission’s rule filing process under Section 19 of the Exchange Act.<sup>353</sup>

In the context of SR-BOX-2020-14, this commenter stated that it previously expressed concerns regarding the end-of-day Security balance reporting aspect of the Exchange’s proposal, and that it had previously raised concerns about how other exchanges might trade Securities pursuant to UTP, whether they might be required to adopt BOX’s proprietary technology, and how having exchanges adopt different forms of distributed ledger technology to track equity ownership of equity securities could cause additional costs to the industry.<sup>354</sup> This commenter stated that the end-of-day Securities balance reporting requirements would serve as a potential

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<sup>351</sup> SIFMA Letter II, supra note 110, at 3.

<sup>352</sup> See SIFMA Letter II, supra note 110, at 3-4. This commenter suggested that the novel equity market infrastructure issues presented by the proposal are better suited for a concept release or other type of release by the Commission that is geared toward soliciting market-wide feedback, rather than an ad hoc proposal by a single national securities exchange. See id. at 4. See also SIFMA Letter IV, supra note 220, at 5-6 (stating continued concerns about new processes and technology with wider implications for the equity market structure infrastructure being considered in the framework of a proposed rule change by a single exchange without actively working with and soliciting input from the industry).

<sup>353</sup> See BSTX Response Letter II, supra note 105, at 3.

<sup>354</sup> See SIFMA Letter IV, supra note 220, at 4 (noting its prior comment).

impediment for other exchanges to trade the Securities pursuant to UTP, and that other exchanges may be hesitant to trade Securities pursuant to UTP because of the lack of clarity around the implications of BSTX's end-of-day Security ownership balance reporting requirements for their members.<sup>355</sup>

In response to the commenter's concerns about "how other exchanges might trade the Securities pursuant to UTP," the Exchange stated that no comments were submitted by any national securities exchanges following its filing of Amendment No. 1 to the proposal.<sup>356</sup> The Exchange also stated that a market participant that voluntarily chooses to become a BSTX Participant must comply with BSTX rules,<sup>357</sup> and that its proposal is clear that a BSTX Participant must report its end-of-day balance at DTC or its carrying firm in the relevant Security pursuant to proposed BSTX Rule 17020(b).<sup>358</sup> Additionally, the Exchange stated that, regarding costs associated with the end-of-day Security ownership balance reporting process, it does not believe that imposing the proposed requirement on BSTX Participants is unfairly discriminatory or burdens competition because all market participants are free to choose whether to become a BSTX Participant or not and there is no limitation imposed by the Exchange on the ability to trade Securities on other markets.<sup>359</sup> The Exchange also stated that its proposal represents an incremental change to incorporate blockchain technology within the current infrastructure and

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<sup>355</sup> See SIFMA Letter IV, supra note 220, at 5.

<sup>356</sup> See BSTX Response Letter III, supra note 207, at 5, n.13.

<sup>357</sup> See BSTX Response Letter III, supra note 207, at 6.

<sup>358</sup> See BSTX Response Letter III, supra note 207, at 3.

<sup>359</sup> See BSTX Response Letter III, supra note 207, at 5-6.

regulations for the equities market—including clearance and settlement—and that any future structural changes would be subject to the rule filing process pursuant to Section 19 of the Act.<sup>360</sup>

## 2. Analysis

As stated above, the Commission supports innovation in our securities markets, and its disapproval does not rest on an evaluation of the utility or value of blockchain technology as applied to the functions of a national securities exchange. Due to the Exchange's lack of analysis about the burden that other national securities exchanges would face to use an end-of-day Security ownership reporting mechanism in connection with the trading of Securities on their markets and the competitive impacts, however, the Commission cannot find that the proposal does not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Exchange Act, consistent with Section 6(b)(8). The Exchange asserts that it is not proposing any limitation that would prevent another national securities exchange from participating in the Exchange's end-of-day Security ownership balance reporting process or establishing its own alternative or complementary process, and that it is not proposing to limit another exchange's ability to establish a similar, different, or integrated reporting structure.

As discussed below, the Commission believes that the Exchange has not fully explained critical operational aspects of the end-of-day Security ownership reporting functionality, particularly with respect to how another national securities exchange may employ such functionality, on its own or in coordination with BSTX, and trade BSTX-listed NMS stock on its

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<sup>360</sup> See BSTX Response Letter III, supra note 207, at 6-7.

exchange.<sup>361</sup> Without this explanation, the Commission is unable to comprehensively assess the existence or scope of any burden resulting from the Exchange's proposed end-of-day Security ownership reporting functionality and concludes that the Exchange has not provided sufficient information to support a finding by the Commission that the proposed rules would not impose any burden on competition not necessary or appropriate in furtherance of the purposes of the federal securities laws.

Although the Exchange asserts that BSTX-listed Securities trading on another national securities exchange could trade, clear, and settle in the same manner as other NMS stock,<sup>362</sup> the Exchange will not accept, at least initially, end-of-day Security ownership balance reports from non-BSTX Participants that transact on other trading centers.<sup>363</sup> The Exchange asserts that another national securities exchange that wants to trade BSTX-listed Securities would be able to leverage the Exchange's pre-established Security architecture to facilitate similar end-of-day reporting requirements, or could develop and pursue its own approach,<sup>364</sup> and provides some broad examples of how it believes another exchange could develop its own end-of-day reporting requirement or participate in BSTX's process.<sup>365</sup> However, the Exchange has not provided sufficient information for the Commission to determine whether it would be feasible, and the associated burden, for another national securities exchange that extends UTP to BSTX-listed

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<sup>361</sup> Commenters raised concerns about the Exchange being an exclusive provider of a process that would use blockchain technology to record and disseminate end-of-day Security ownership balances and that other national securities exchanges would be unable to compete on this basis. See supra notes 307-315 and accompanying text.

<sup>362</sup> See supra note 299 and accompanying text.

<sup>363</sup> See supra note 323.

<sup>364</sup> See supra notes 319-322, 327, and accompanying text.

<sup>365</sup> See supra note 302.

Securities, or another trading center that trades BSTX-listed Securities, to implement a process that uses blockchain technology for end-of-day Security ownership balance reporting for its members. The Exchange has not explained, as proposed, how another national securities exchange would be able to participate in the Exchange's end-of-day Security ownership balance reporting mechanism without the Exchange's permission, and without complying with any conditions that the Exchange might place on access to this mechanism, including membership requirements. For example, only BOX would control the end-of-day reporting mechanism by requiring the issuer to set up the necessary smart contracts, contracting with the Wallet Manager, obtaining allowlisted wallet addresses for BSTX Participants, collecting end-of-day Security ownership balance reports from BSTX Participants, and instructing the Wallet Manager to update the Ethereum blockchain to reflect those ownership balances.<sup>366</sup> It is also unclear whether the Exchange would make its allowlisting and end-of-day reporting process available to other national securities exchanges or trading centers directly. For example, the Exchange provides as an example of how another exchange could adopt its own end-of-day reporting requirement, that the other exchange could choose to collect end-of-day Security ownership balance information from its members and then relay that information to BSTX to deliver to a Wallet Manager for recording to the Ethereum blockchain,<sup>367</sup> but it is unclear what that process would entail. While the Exchange suggests that the other exchange would be in a position similar to a BSTX Participant in such a case,<sup>368</sup> the Exchange also states that it would not accept

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<sup>366</sup> See supra Section III.C.2 for additional discussion of the process for allowlisting and end-of-day reporting.

<sup>367</sup> See supra note 302.

<sup>368</sup> See id.

voluntary reporting from non-BSTX Participants.<sup>369</sup> Further, the Exchange does not explain what would be necessary for the coordination of end-of-day reporting mechanisms.<sup>370</sup>

The Exchange also does not provide sufficient detail about how the end-of-day Security ownership balances of members of another national securities exchange could be included in the same smart contract on the Ethereum blockchain that is being used for BSTX Participants, and whether the Exchange's permission would be required. The Exchange states that other exchanges would be able to access the distributed ledger technology that BSTX proposes to use because Ethereum blockchain technology is an open source public blockchain that supports smart contract functionality and is not exclusive to BSTX.<sup>371</sup> However, the Exchange's proposal suggests that, for end-of-day Security ownership balances of trading centers' non-BSTX Participant members to be included in the same smart contract that contains the records for BSTX Participants, the non-BSTX Participants would need to obtain allowlisted wallet addresses, and that the Exchange would control the allowlisting process. In addition, either the other exchange or its non-BSTX Participant members would need to be allowed to provide end-of-day Securities ownership balances to the Exchange or its Wallet Manager, or if the other exchange was to work with another Wallet Manager, that Wallet Manager would need to have

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<sup>369</sup> See supra note 323. Although the Exchange states that it may determine to accept voluntary reporting from non-BSTX Participants in the future (see supra note 323 and accompanying text), the Commission must evaluate whether the current proposal is consistent with the Exchange Act.

<sup>370</sup> See OIP, supra note 7, 85 FR at 51264, n.104 (discussing the Exchange's lack of clarity as to whether it would be necessary for BSTX and another exchange that decides to trade Securities, establish an end-of-day balance reporting requirement for its members, and relay the balance information to BSTX for recording to the Ethereum blockchain to file an NMS plan with respect to coordinating end-of-day balance reporting mechanisms).

<sup>371</sup> See supra notes 318-322 and accompanying text.

the necessary security permissions to write to the same smart contract.<sup>372</sup> Moreover, the Exchange does not explain the implications for the recordkeeping process of having more than one Wallet Manager, particularly if there is a Wallet Manager that does not have a direct relationship with the Exchange. And the Exchange does not explain how it would calculate the Securities ownership balance to attribute to the omnibus wallet address if non-BSTX Participants did not report their ownership balances to the Exchange, but these ownership balances were associated with non-BSTX Participants' wallet addresses in the smart contract on the Ethereum blockchain.<sup>373</sup>

The Exchange also does not explain, alternatively, the potential implications of having two separate smart contracts with digital representations of ownership interest in the same Security if a national securities exchange extending UTP to BSTX-listed Securities (or other trading center trading BSTX-listed Securities) were to create its own smart contracts, using a parallel process for end-of-day Securities ownership balance reporting that is either similar to or differs greatly from that developed by the Exchange.<sup>374</sup> For example, the existence of competing

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<sup>372</sup> See supra Section III.C.1 for discussion of the process by which the Wallet Manager would write to the blockchain. For example, the Exchange indicated that one option might be for the other exchange to report its members' balances to BSTX's Wallet Manager or engage its own wallet manager to communicate with BSTX's Wallet Manager. However, the Exchange has not explained how that other exchange (or its wallet manager) could coordinate with BSTX's Wallet Manager, given that BOX has the contractual relationship with its Wallet Manager.

<sup>373</sup> See supra note 57 and accompanying text (stating that the Exchange would determine the number of Tokens to be allocated to the omnibus wallet address for a particular Security by subtracting the sum of the Security ownership balances reported by BSTX Participants from the total outstanding number).

<sup>374</sup> See also supra note 309 and accompanying text (commenter asserting that, to the extent that other national securities exchanges adopt their own distributed ledger technology and varying forms of technology are used, complications may arise in the equities markets).

sets of records could be confusing for investors and other market participants. One potential source of confusion is that even if one smart contract represented end-of-day Security ownership balances for BSTX Participants and a separate smart contract represented end-of-day Security ownership balances for another trading center's members, there could be double-counting if some BSTX Participants were also members of the other trading center. And whereas an issuer of a BSTX-listed Security must create a smart contract compliant with BSTX Protocol as a condition of listing on the Exchange,<sup>375</sup> that issuer would not have a direct relationship with another national securities exchange that extends UTP to its Security (or other trading center that trades its Security). The Exchange does not explain the likelihood that an issuer would be willing to work with another national securities exchange that wishes to trade the same BSTX-listed Security to create a separate smart contract associated with its Security, or whether there would be any logistical impediments to doing so post-issuance.

These deficiencies in the Exchange's explanation about how another national securities exchange may be able to use the proposed end-of-day Security ownership reporting functionality leaves the Commission with significant concerns about whether it would be feasible for another national securities exchange to make use of this functionality or create its own parallel reporting functionality. The Commission finds that the Exchange has not met its obligation to explain any burden its proposed end-of-day Security ownership reporting functionality would place on competition between BSTX and other national securities exchanges. Without being able to assess this potential burden on competition, particularly in light of commenters' concerns that meaningful competition among national securities exchanges with respect to the use of the end-

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<sup>375</sup> See *supra* Section III.C.4(b) for discussion of the obligations that companies have to comply with the BSTX Protocol as a condition of Exchange listing.

of-day Security ownership functionality may be foreclosed, the Commission is unable to assess the necessity or appropriateness of that burden on competition. Therefore the Commission does not need to reach the question of whether the Exchange's assertions about the purpose of its end-of-day Security ownership reporting functionality demonstrate that the burden on competition is necessary or appropriate in furtherance of the Exchange Act.<sup>376</sup> Accordingly, the Commission is unable to find that the Exchange's rules would not impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the federal securities laws, in accordance with Section 6(b)(8) of the Exchange Act.

For the reasons discussed above, considered independently or in combination, the Commission concludes that Exchange has not met its burden of demonstrating that the proposal is consistent with Exchange Act Sections 6(b)(1), 6(b)(5), or 6(b)(8),<sup>377</sup> and, accordingly, the Commission must disapprove the proposal.<sup>378</sup>

E. Other Aspects of the Exchange's Proposal and Comments Received

The Commission is disapproving the proposed rule change for the reasons discussed above. Therefore the Commission does not reach the question of whether other aspects of the Exchange's proposal, including proposed rules relating to participation on BSTX, business

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<sup>376</sup> See supra notes 328-360 and accompanying text. Moreover, the record does not contain any argument that the Exchange's proposed use of end-of-day Security ownership reporting functionality is necessary or appropriate in furtherance of the purposes of the Exchange Act, notwithstanding a significant burden imposed by such functionality on competition between national securities exchanges.

<sup>377</sup> 15 U.S.C. 78f(b)(1), (5), and (8).

<sup>378</sup> In disapproving the proposed rule change, the Commission has considered its impact on efficiency, competition, and capital formation. See U.S.C. 78c(f). For the reasons discussed throughout, the Commission is disapproving the proposed rule change because it does not find that the proposed rule change is consistent with the Exchange Act.

conduct for BSTX Participants, financial and operational provisions for BSTX Participants, supervision, trading practices, discipline, trading on the BSTX System, market making, and listing on the Exchange (with the exception of the specific topics discussed in Section III.C.4 above), are consistent with the Exchange Act. Other issues have been raised by commenters, in connection with SR-BOX-2019-19, including the settlement process for Securities;<sup>379</sup> what reporting facility would be used for trade reporting;<sup>380</sup> the process of trade confirmation reporting;<sup>381</sup> the proposal's compatibility with DTC and NSCC infrastructure;<sup>382</sup> the liquidity of Securities;<sup>383</sup> how the end-of-day Security ownership balance reporting mechanism would affect short sales, including the locate process, clearing, settling, and market maker compliance with short sale rules;<sup>384</sup> how end-of-day Security ownership balances would affect the margin methodology for member self-calculation;<sup>385</sup> the potential liability of custodians for differences between DTC records and end-of-day Security ownership balances;<sup>386</sup> the proposed listing requirements' compliance with penny stock rules;<sup>387</sup> the proposal's compliance with the anti-fraud or customer protection provisions of the Exchange Act or other Commission regulations;<sup>388</sup> Security ownership verification, including for purposes of compliance with know-your-customer

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<sup>379</sup> See PKA Law Letter, supra note 175, at 1.

<sup>380</sup> See PKA Law Letter, supra note 175, at 1.

<sup>381</sup> See PKA Law Letter, supra note 175, at 1.

<sup>382</sup> See PKA Law Letter, supra note 175, at 2.

<sup>383</sup> See PKA Law Letter, supra note 175, at 1.

<sup>384</sup> See IEX Letter, supra note 77, at 6; PKA Law Letter, supra note 175, at 1.

<sup>385</sup> See Nasdaq Letter, supra note 77, at 3.

<sup>386</sup> See Eversheds Letter, supra note 91, at 2.

<sup>387</sup> See IEX Letter, supra note 77, at 6.

<sup>388</sup> See Eversheds Letter, supra note 91, at 2; Nasdaq Letter, supra note 77, at 3.

and anti-money laundering rules;<sup>389</sup> access to the end-of-day Security ownership balance records and the safeguarding of customer non-public information;<sup>390</sup> the requirements of Exchange Act Rule 12f-5 relating to the extension of UTP by other national securities exchanges to BSTX-listed Securities;<sup>391</sup> the relationship among tZERO, Overstock.com, Inc. (“Overstock”),<sup>392</sup> and entities related to the Exchange;<sup>393</sup> whether any registered broker-dealer has indicated its intention to become a BSTX Participant;<sup>394</sup> and whether the Exchange is still working with FINRA regarding end-of-day Security ownership balance reporting requirements for FINRA members.<sup>395</sup> Additional discussion on these topics is unnecessary, as they do not bear on the basis for the Commission’s decision to disapprove this proposal.

#### IV. Conclusion

For the reasons set forth above, the Commission does not find, pursuant to Section 19(b)(2) of the Exchange Act, that the proposed rule change, as modified by Amendment No. 1, is consistent with the requirements of the Exchange Act and the rules and regulations thereunder

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<sup>389</sup> See Nasdaq Letter, supra note 77, at 3; PKA Law Letter, supra note 175, at 1.

<sup>390</sup> See Eversheds Letter, supra note 91, at 2.

<sup>391</sup> See Eversheds Letter, supra note 91, at 2-3; IEX Letter, supra note 77, at 3-4. One commenter also discussed aspects of requirements might be placed on a national securities exchange extending UTP to BSTX-listed Securities that the Exchange modified in Amendment No. 2 to SR-BOX-2019-19. See Eversheds Letter, supra note 91, at 3.

<sup>392</sup> In the Amended BSTX Governance Proposal, the Exchange states that Overstock, which is a publicly held corporation, wholly owns Medici Ventures, Inc., which owns 80.07% of tZERO. See Amended BSTX Governance Proposal, supra note 17, 85 FR at 50851.

<sup>393</sup> See PKA Law Letter, supra note 175, at 2.

<sup>394</sup> See IEX Letter, supra note 77, at 5.

<sup>395</sup> See IEX Letter, supra note 77, at 6.

applicable to a national securities exchange, and, in particular, with Sections 6(b)(1), 6(b)(5), and 6(b)(8) of the Exchange Act.<sup>396</sup>

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Exchange Act,<sup>397</sup> that the proposed rule change (SR-BOX-2020-14), as modified by Amendment No. 1, be, and hereby is, disapproved.

By the Commission.

Vanessa A. Countryman,

Secretary.

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<sup>396</sup> 15 U.S.C. 78f(b)(5).

<sup>397</sup> 15 U.S.C. 78s(b)(2).