

**NYSE ARCA, INC.**  
**LETTER OF ACCEPTANCE, WAIVER, AND CONSENT**  
**NO. 2019-07-00023**

TO: NYSE Arca, Inc.

RE: GTS Securities LLC, Respondent  
CRD No. 149224

Yaron Katz, Respondent  
CRD No. 6012416

Jinglei Zhou, Respondent  
CRD No. 6427569

**During the period from in or about September 2016 to April 7, 2022 (the “Relevant Period”), GTS Securities LLC (“GTS” or the “Firm”) violated (1) NYSE Arca Rule 9.2010-E, (2) NYSE Arca Rule 11.1(b), and (3) NYSE Arca Rule 11.18 in connection with a proprietary algorithmic trading strategy. In connection with the same trading strategy, during the period from in or about October 2016 to April 7, 2022, GTS also violated NYSE Arca Rule 9.5210-E with respect to its policies or procedures. GTS also violated NYSE Arca Rule 10.8210(c) for failing to provide complete and accurate information to NYSE Regulation during the course of its investigation. GTS consents to a censure and a monetary sanction totaling \$10,000,000 (with \$5,000,000 allocated to NYSE Arca, Inc. and \$5,000,000 allocated to the New York Stock Exchange LLC),<sup>1</sup> and an undertaking to retain an independent compliance consultant for a period of 18 months.**

**In connection with the same proprietary algorithmic trading strategy, two GTS employees, Yaron Katz and Jinglei Zhou, violated (1) NYSE Arca Rule 11.18 and (2) NYSE Arca Rule 11.1(b). Katz and Zhou each consent to a censure and a \$150,000 fine (with \$75,000 for each individual allocated to NYSE Arca, Inc. and \$75,000 allocated to the New York Stock Exchange LLC).**

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Pursuant to Rule 10.9216 of the NYSE Arca, Inc. (“NYSE Arca” or the “Exchange”) Code of Procedure, GTS, Yaron Katz, and Jinglei Zhou (collectively, “Respondents”) submit this Letter of Acceptance, Waiver, and Consent (“AWC”) for the purpose of proposing a settlement of the alleged rule violations described below. This AWC is submitted on the condition that, if accepted, NYSE Arca will not bring any future actions against the Respondents alleging violations based on the same factual findings described herein.

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<sup>1</sup> This matter is resolved simultaneously with New York Stock Exchange LLC Matter No. 2017-06-00049.

## **I. ACCEPTANCE AND CONSENT**

- A. Respondents hereby accept and consent, without admitting or denying the findings, and solely for the purposes of this proceeding and any other proceeding brought by or on behalf of NYSE Arca, or to which the NYSE Arca is a party, prior to a hearing and without an adjudication of any issue of law or fact, to the entry of the following findings by NYSE Arca:

### **RESPONDENTS AND JURISDICTION**

1. GTS Securities LLC is an electronic market making firm headquartered in New York, New York. GTS became an Equity Trading Permit Holder on NYSE Arca on October 9, 2014, and its registration remains in effect. During the Relevant Period, GTS operated a number of proprietary algorithmic trading strategies, one of which was TMS-45E, the trading strategy described in this AWC.
2. Yaron Katz is the Director of Trading Model Development at GTS, a role he has held since in or about early 2017. Katz joined GTS in December 2011. He has been registered with NYSE Arca since October 15, 2014. Katz holds Series 7, 24, and 57 licenses in the securities industry. In his role, Katz oversaw coding of TMS-45E.
3. Jinglei (Jenny) Zhou is a Trading Model Developer at GTS, a role she has held throughout the Relevant Period. Zhou joined GTS in December 2012. She has been registered with NYSE Arca since March 8, 2017. Zhou holds Series 7, 24, and 57 licenses in the securities industry. Zhou was the Trading Model Developer for TMS-45E since in or about April 2018. Zhou was also a designated supervisor for TMS-45E beginning in or about March 2020.
4. Katz and Zhou were members of a larger team that designed, developed, implemented, and/or supervised TMS-45E.

### **BACKGROUND**

#### *The NYSE Arca Closing Auction*

5. The NYSE Arca Equities Exchange is an all-electronic market for trading securities. At the end of core trading hours each day (typically 4:00 pm ET), NYSE Arca conducts an auction that establishes a single closing price for eligible buyers and sellers in each security (the “Closing Auction”).
6. NYSE Arca disseminates and regularly updates information about imbalances in supply and demand for each security in the Closing Auction, including, but not limited to, (i) the price at which a security would close at that point in time, including as a result of any imbalance (the “Indicative Match Price”), and (ii) the side and size of any imbalance remaining at the Indicative Match Price (collectively, the “Arca Auction Imbalance Information”).

7. Market participants who wish to participate in the Closing Auction can use various Closing Auction order types, including Market-on-Close Orders (“MOC Orders”) and Limit-on-Close Orders (“LOC Orders”). In addition, certain day orders were eligible for trading in both the continuous market and the Closing Auction during the Relevant Period, including orders to peg the price to the bid or offer (“Peg Orders”) or limit orders with instructions to “add liquidity only” (“ALO Orders”).<sup>2</sup>
8. NYSE Arca imposes a Closing Auction “freeze” beginning one minute before the Closing Auction, which is typically 3:59 pm (the “Closing Auction Freeze”). During the Closing Auction Freeze, NYSE Arca rejects requests to cancel or modify MOC and LOC Orders, but market participants may enter MOC/LOC orders on the opposite side of a published imbalance remaining at the Indicative Match Price provided they do not flip the imbalance, as well as limit orders that are eligible to participate in the Closing Auction.

### *The TMS-45E Trading Strategy*

9. From in or about June 2016 through April 7, 2022, GTS traded through a proprietary algorithmic strategy called TMS-45E.
10. GTS utilized the Arca Auction Imbalance Information and other data in order to calculate its own proprietary estimate of the imbalance in a security at any given moment in time (the “GTS Estimated Imbalance”).
11. TMS-45E traded in response to a variety of market data inputs, including the GTS Estimated Imbalance, in an attempt to profit from the price differences between trading in the continuous market for a given security and the ultimate closing price for that security. Generally speaking, for each security that it traded, TMS-45E entered MOC Orders beginning at 3:00 pm that were designed to offset a portion of the GTS Estimated Imbalance.
12. Following its initial MOC order in a given security on a given day, TMS-45E regularly amended its MOC Orders in response to several factors, including (i) updated GTS Estimated Imbalance information and (ii) internal risk limitations. Subject to these factors, TMS-45E generally sought to offset a similar portion of the GTS Estimated Imbalance.
13. At approximately 3:59 pm, after the Closing Auction Freeze, TMS-45E generally would begin passively accumulating a position in the continuous market on the opposite side of its MOC Orders, including through the use of Peg or ALO Orders.

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<sup>2</sup> Peg Orders are passive orders, meaning orders that will not execute against orders resting on the limit order book, whose reference prices are “pegged” relative to a dynamic reference price, such as the Protected Best Bid or Offer. As of July 2019, Peg Orders were no longer eligible to execute in the Closing Auction.

In addition, generally speaking, a limit order with the “add liquidity only” designation trades passively in the continuous market and, until a September 2019 rule change, could not execute against orders resting on the limit order book. ALO orders that do not execute in the continuous market are eligible to execute in the Closing Auction, at which point the orders lose their ALO designation and can execute to the full extent of their original limit price(s).

Thus, if TMS-45E entered MOC Orders to sell in a security, the strategy would buy shares of that security in the final minute leading up to the Closing Auction. The difference between the Closing Auction price for TMS-45E's MOC Orders and its average accumulation price in the continuous market constituted TMS-45E's profit or loss.

14. TMS-45E sought to end each day "flat," meaning that it bought and sold the same number of shares in each security that it traded.
15. As discussed in greater detail below, TMS-45E violated NYSE Arca rules in connection with two types of trading activity: (i) TMS-45E's configuration amended the size of its MOC orders to offset a smaller percentage of the GTS Estimated Imbalance shortly before the Closing Auction Freeze, which often resulted in the strategy amending down or cancelling its MOC orders in part; and (ii) TMS-45E executed certain of its Peg Orders and ALO Orders in the Closing Auction on the opposite side of the market as TMS-45E's MOC Orders. Such activity occurred in part because GTS did not establish, maintain, and enforce a reasonably designed supervisory system and written supervisory procedures.

## **VIOLATIONS**

### *TMS-45E Violations*

16. NYSE Arca Rule 9.2010-E requires that ETP Holders "observe high standards of commercial honor and just and equitable principles of trade."
17. NYSE Arca Rule 11.1(b) requires that "[e]very ETP Holder . . . all associated persons thereof, and all other participants therein, shall at all times adhere to the principles of good business practice in the conduct of its or their business affairs."
18. NYSE Arca Rule 9.5210-E provides that "[n]o ETP Holder shall publish or circulate, or cause to be published or circulated, any notice, circular, advertisement, newspaper article, investment service, or communication of any kind which purports to report any transaction as a purchase or sale of any security unless such ETP Holder believes that such transaction was a bona fide purchase or sale of such security; or which purports to quote the bid price or asked price for any security, unless such ETP Holder believes that such quotation represents a bona fide bid for, or offer of, such security." Transactions in a security resulting from the unintentional interaction of orders from the same firm that involve no change of beneficial ownership are generally considered bona fide; however, firms must have policies and procedures in place that are reasonably designed to review their trading activity for, and prevent, a pattern or practice of such transactions resulting from orders originating from a single algorithm or trading desk, or related algorithms or trading desks.
19. NYSE Arca Rule 11.18(b) requires that ETP Holders "establish and maintain a system to supervise the activities of its associated persons and the operations of its business" that is "reasonably designed to ensure compliance with applicable federal securities laws and regulations and NYSE Arca Rules." Every ETP Holder must

- designate “one or more persons who will be responsible for such supervision,” and “undertake reasonable efforts to determine that all supervisory personnel are qualified by virtue of experience or training to carry out assigned responsibilities.” NYSE Arca Rule 11.18(c) requires that each ETP Holder “establish, maintain, and enforce written procedures to supervise the business in which it engages and to supervise the activities of its associated persons that are reasonably designed to ensure compliance with applicable federal securities laws and regulations, and with NYSE Arca Rules.”
20. TMS-45E violated NYSE Arca rules in connection with two types of trading activity.
  21. *First*, subject to the factors discussed in paragraph 12 above, throughout the Relevant Period TMS-45E’s configuration amended the size of its MOC orders to offset a smaller percentage of the GTS Estimated Imbalance shortly before the Closing Auction Freeze. This configuration often resulted in the strategy amending down or cancelling in part its MOC orders shortly before the Closing Auction Freeze.
  22. *Second*, from in or about October 2016 through June 2019 (using Peg Orders), and then again from in or about July 2020 through in or about August 2021 (using ALO Orders), in certain circumstances TMS-45E entered Peg or ALO Orders shortly before the Closing Auction. While at times these orders executed fully in the continuous market, on thousands of occasions they executed in whole or in part in the Closing Auction in the same security, but on the opposite side of the market, as TMS-45E’s MOC Orders.
  23. Various features of TMS-45E’s use of Peg and ALO Orders increased the potential for these orders to execute in the Closing Auction. GTS failed to institute policies and procedures that were reasonably designed to review such trading activity for, and prevent, a pattern or practice of trades executing in the same security, but on opposite sides of the Closing Auction.
  24. The two types of trading activity described above occurred in part because GTS did not establish, maintain, and enforce a reasonably designed supervisory system and written supervisory procedures, including with respect to the development and implementation of TMS-45E and compliance monitoring tools applicable to the strategy.
  25. As a result of the above conduct, Respondents violated NYSE Arca Rules 11.18 and 11.1(b), and GTS also violated NYSE Arca Rule 9.2010-E.
  26. In addition, as noted above, firms are required to have policies and procedures as set forth in paragraph 18. GTS’s failure to maintain such policies and procedures violated NYSE Arca Rule 9.5210-E.

#### *Provision of Information to NYSE Regulation*

27. NYSE Arca Rule 10.8210(a) requires, upon request, “an ETP Holder . . . or covered person to provide information orally, in writing, or electronically . . . and to testify at a location specified by Exchange staff, under oath . . . with respect to any matter

involved in the investigation.” NYSE Arca Rule 10.8210(c) provides that “[n]o ETP Holder . . . or covered person shall fail to provide information or testimony or to permit an inspection and copying of books, records, or accounts pursuant to this Rule.”

28. On various occasions during NYSE Regulation’s investigation, GTS failed to provide complete and accurate information concerning, among other things, certain trade surveillances and parameters.
29. In addition, on various occasions GTS did not produce in a timely fashion information in response to NYSE Regulation requests.
30. GTS’s delay impeded NYSE Regulation’s investigation.
31. As a result of the conduct described in paragraphs 28-30, GTS violated NYSE Arca Rule 10.8210(c).

#### **RELEVANT PRIOR DISCIPLINARY HISTORY**

32. None of GTS, Katz, or Zhou have relevant prior disciplinary history.

#### **SANCTIONS**

B. The Respondents also consent to the imposition of the following sanctions:

1. **GTS Securities LLC consents to a censure and monetary sanction in the amount of \$10,000,000 of which \$5,000,000 is payable to NYSE Arca;**
2. **Yaron Katz consents to a censure and total fine in the amount of \$150,000 of which \$75,000 is payable to NYSE Arca; and**
3. **Jinglei Zhou consents to a censure and total fine in the amount of \$150,000 of which \$75,000 is payable to NYSE Arca.**

The Respondents agree to pay the monetary sanctions upon notice that this AWC has been accepted and that such payments are due and payable. The Respondents have each submitted a Method of Payment Confirmation form showing the method by which each will pay the monetary sanction imposed.

The Respondents specifically and voluntarily waive any right to claim that each is unable to pay, now or at any time hereafter, the monetary sanctions imposed in this matter.

#### **4. Undertaking as to GTS**

Within 60 days of the execution of this AWC, GTS agrees to retain an Independent Compliance Consultant on the terms described in the AWC for New York Stock Exchange LLC Matter No. 2017-06-00049.

The sanctions imposed herein shall be effective on a date set by NYSE Regulation staff.

## **II. WAIVER OF PROCEDURAL RIGHTS**

The Respondents specifically and voluntarily waive the following rights granted under the NYSE Arca Code of Procedure:

- A. To have a Formal Complaint issued specifying the allegations against the Respondents;
- B. To be notified of the Formal Complaint and have the opportunity to answer the allegations in writing;
- C. To defend against the allegations in a disciplinary hearing before a hearing panel, to have a written record of the hearing made and to have a written decision issued; and
- D. To appeal any such decision to the Exchange's Board of Directors and then to the U.S. Securities and Exchange Commission and a U.S. Court of Appeals.

Further, the Respondents specifically and voluntarily waive any right to claim bias or prejudgment of the Chief Regulatory Officer of NYSE Arca; the Exchange's Board of Directors, Disciplinary Action Committee ("DAC"), and Committee for Review ("CFR"); any Director, DAC member, or CFR member; Counsel to the Exchange Board of Directors or CFR; any other NYSE Arca employee; or any Regulatory Staff as defined in Rule 10.9120 in connection with such person's or body's participation in discussions regarding the terms and conditions of this AWC, or other consideration of this AWC, including acceptance or rejection of this AWC.

The Respondents further specifically and voluntarily waive any right to claim that a person violated the ex parte communication prohibitions of Rule 10.9143 or the separation of functions prohibitions of Rule 10.9144, in connection with such person's or body's participation in discussions regarding the terms and conditions of this AWC, or other consideration of this AWC, including its acceptance or rejection.

## **III. OTHER MATTERS**

The Respondents understand that:

- A. Submission of this AWC is voluntary and will not resolve this matter unless and until it has been reviewed by NYSE Regulation, and accepted by the Chief Regulatory Officer of NYSE Arca pursuant to NYSE Arca Rule 10.9216;
- B. If this AWC is not accepted, its submission will not be used as evidence to prove any of the allegations against the Respondents; and
- C. If accepted:
  - 1. The AWC shall be sent to each Director and each member of the CFR via courier, express delivery or electronic means, and shall be deemed final and shall constitute the complaint, answer, and decision in the matter, 10 days

after it is sent to each Director and each member of the CFR, unless review by the Exchange Board of Directors is requested pursuant to NYSE Arca Rule 10.9310(a)(1)(B);

2. This AWC will become part of the Respondents' permanent disciplinary record and may be considered in any future actions brought by the Exchange, or any other regulator against the Respondents;
  3. NYSE Arca shall publish a copy of the AWC on its website in accordance with NYSE Arca Rule 10.8313;
  4. NYSE Arca may make a public announcement concerning this agreement and the subject matter thereof in accordance with NYSE Arca Rule 10.8313; and
  5. The Respondents may not take any action or make or permit to be made any public statement, including in regulatory filings or otherwise, denying, directly or indirectly, any finding in this AWC or create the impression that the AWC is without factual basis. The Respondents may not take any position in any proceeding brought by or on behalf of the Exchange, or to which the Exchange is a party, that is inconsistent with any part of this AWC. Nothing in this provision affects the Respondents' (i) testimonial obligations; or (ii) right to take legal or factual positions in litigation or other legal proceedings in which the Exchange is not a party.
- D. A signed copy of this AWC and the accompanying Method of Payment Confirmation form delivered by email, facsimile or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy.
- E. The Respondents may attach a Corrective Action Statement to this AWC that is a statement of demonstrable corrective steps taken to prevent future misconduct. The Respondents understand that they may not deny the charges or make any statement that is inconsistent with the AWC in this Statement. Any such statement does not constitute factual or legal findings by the Exchange, nor does it reflect the views of NYSE Regulation or its staff.

GTS certifies that, in connection with each of the Exchange's requests for information in connection with this matter, GTS made a diligent inquiry of all persons and systems that reasonably had possession of responsive documents and that, to the best of its knowledge, all responsive documents have been produced or identified in a privilege log. In agreeing to the AWC, the Exchange has relied upon, among other things, the completeness of the document productions and the privilege log.

The undersigned, on behalf of the Respondents, certifies that a person duly authorized to act on their behalf has read and understands all of the provisions of this AWC and has been given a full opportunity to ask questions about it; that it has agreed to the AWC's provisions voluntarily; and that no offer, threat, inducement, or promise of any kind, other than the terms set forth herein and



the prospect of avoiding the issuance of a Complaint, has been made to induce the Respondents to submit it.

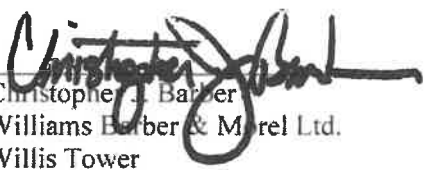
4/16/2023  
Date

GTS Securities LLC,  
Respondent

By: 

Ari Rubenstein  
Chief Executive Officer

Reviewed by:

  
Christopher J. Barber  
Williams Barber & Morel Ltd.  
Willis Tower  
233 S. Wacker Drive  
Chicago, IL 60606  
*Counsel for GTS Securities LLC*

\_\_\_\_\_  
Date

Respondent

\_\_\_\_\_  
Yaron Katz

Reviewed by:

\_\_\_\_\_  
Russell Johnston  
Seward & Kissel LLP  
One Battery Park Plaza  
New York, NY 10004  
*Counsel for Yaron Katz*

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\_\_\_\_\_  
Date

GTS Securities LLC,  
Respondent

By: \_\_\_\_\_  
Ari Rubenstein  
Chief Executive Officer

Reviewed by:


\_\_\_\_\_  
Christopher J. Barber  
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233 S. Wacker Drive  
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*Counsel for GTS Securities LLC*

04/06/2023  
\_\_\_\_\_  
Date

Respondent


  
Yaron Katz

Reviewed by:


  
\_\_\_\_\_  
Russell Johnston  
Seward & Kissel LLP  
One Battery Park Plaza  
New York, NY 10004  
*Counsel for Yaron Katz*

04/06/2023  
Date

Respondent

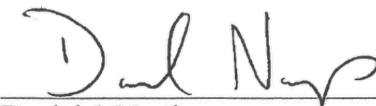
  
\_\_\_\_\_  
Jinglei Zhou

Reviewed by:

  
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Ben A. Indek  
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101 Park Avenue  
New York, NY 10178  
*Counsel for Jinglei Zhou*

Accepted by NYSE Regulation

April 13, 2023  
Date

  
\_\_\_\_\_  
Daniel J. Northrop  
Alexander R. DeLisi  
*NYSE Regulation Enforcement*

Signed on behalf of NYSE Arca, Inc., by  
delegated authority from its Chief  
Regulatory Officer