

March 16, 2016

Mr. Christopher Kirkpatrick  
Secretary  
U.S. Commodity Futures Trading Commission  
Three Lafayette Centre  
1155 21st Street, N.W.  
Washington, D.C. 20581

**Re: Comment Letter on Proposed Regulation Automated Trading (RIN 3038-AD52)**

Dear Mr. Kirkpatrick:

The Asset Management Group of the Securities Industry and Financial Markets Association (“SIFMA AMG” or “AMG”)<sup>1</sup> welcomes the opportunity to provide the U.S. Commodity Futures Trading Commission (the “Commission”) with comments regarding the Commission’s proposed Regulation Automated Trading (the “Proposal” or “Proposed Reg AT”).<sup>2</sup>

Many AMG members fall within the Proposal’s scope because they are registered commodity pool operators (“CPOs”) or commodity trading advisors (“CTAs”) that use automated trading to reduce costs and improve trade execution, ultimately benefiting their clients. Because asset managers generally do not access designated contract markets (“DCMs”) through direct electronic access (“DEA”), their orders pass through a futures commission merchant’s (“FCM”) and DCM’s risk controls, making the controls proposed by virtue of CPO and CTA registration redundant.

While AMG supports the Commission’s aim of protecting DCMs from disruptions caused by algorithmic trading, we believe that any potential regulatory framework that aims to address the risks associated with algorithmic trading should be targeted and cost-effective. In particular, AMG believes that the futures industry has largely addressed the risks posed by automated trading through industry initiatives, including by adoption of recommendations made by the Futures Industry Association’s (“FIA”) Guide to the Development and Operation of Automated Trading Systems (“FIA Guide”)<sup>3</sup> as well as other significant risk controls imposed at DCMs. AMG’s members

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<sup>1</sup> SIFMA AMG’s members represent U.S. asset management firms whose combined global assets

<sup>2</sup> Regulation Automated Trading, 80 Fed. Reg. 78,824, 78,835 (proposed Dec. 17, 2015) *available at* <https://www.gpo.gov/fdsys/pkg/FR-2015-12-17/pdf/2015-30533.pdf> (the “Proposal”).

<sup>3</sup> Proposal at 78,835. For example, in March 2015, the FIA published recommendations regarding appropriate risk controls at the trader, FCM and DCM levels. Futures Industry Association, Guide to

depend upon the stability of DCMs to execute trading strategies on behalf of their client, and current industry approaches to risk mitigation have helped preserve market integrity.

AMG believes that the FIA Guide's recommendations,<sup>4</sup> which are currently implemented by many DCMs, FCMs and their clients, effectively satisfy the Proposal's policy goals through the application of kill switch functionality at algorithmic traders, FCMs and DCMs, and price banding controls and cancel-on-disconnect services offered by DCMs.<sup>5</sup> AMG supports the incorporation and codification of the FIA Guide's recommendations in the Proposal but believes that the Commission should only supplement the FIA Guide's recommendations where necessary to fill gaps not covered by current practices and only to the extent that these gaps create material risk to the market. As discussed below, the Proposal goes much further and, AMG respectfully submits, goes too far.

While AMG believes that formalizing and, where necessary, enhancing these controls will only help to solidify progress made to date, AMG is concerned that Proposed Reg AT is overly complex and unnecessarily increases burdens on market participants and DCMs. As such, as described in more detail below, AMG recommends that the Commission:

- **Adopt unambiguous definitions focused on systems that pose greater risk to market integrity and users of such systems.** AMG requests that the Commission amend the definitions of "AT Person"<sup>6</sup> and "Algorithmic Trading"<sup>7</sup> to sharpen the Proposal's focus on the risk that an algorithmic trader or algorithmic trading system potentially presents to U.S. exchange-traded derivatives markets through limiting the reach of the Proposal to traders who access a DCM through DEA, and to trading systems employed by such traders that generate the essential terms of an order. The Proposal should make clear that simply using an automated trading system that does not generate and submit orders to a DCM without human intervention in and of itself will not cause a trader to be captured by the AT Person definition. Further, the Proposal should make clear that an asset manager or other customer's electronic submission of an order to an FCM with instructions for the FCM to use its automated trading system will not bring the customer in scope as an AT Person.

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the Development and Operation of Automated Trading Systems (March 2015), *available at* <https://fia.org/sites/default/files/FIA%20Guide%20to%20the%20Development%20and%20Operation%20of%20Automated%20Trading%20Systems.pdf> ("FIA Guide").

<sup>4</sup> See FIA Guide.

<sup>5</sup> FIA Guide at 10, 14-15.

<sup>6</sup> Proposed Regulation 1.3(xxxx), Proposal at 78,937.

<sup>7</sup> Proposed Regulation 1.3(zzzz), Proposal at 78,937.

- **Tailor proposed Regulation 1.81<sup>8</sup> to the risks that the use of certain Algorithmic Trading systems could pose to the market.** Certain development and testing requirements related to source code, for example, should apply only to AT Persons that develop their own algorithmic trading systems. The Proposal's source code repository requirement in proposed Regulation 1.81(a)(1)(vi)<sup>9</sup> and the annual report requirement in proposed Regulation 1.83<sup>10</sup> should be eliminated.
- **Amend the natural person monitoring requirements.** Proposed Regulation 1.81(b)<sup>11</sup> should reflect the complexity of responding to a systems issue and the reality that a trader is best situated to effectively monitor his or her positions and determine whether an issue has occurred.
- **Remove references to an AT Person's internal policies or disruptions in the definitions of "Algorithmic Trading Compliance Issue"<sup>12</sup> and "Algorithmic Trading Disruption".<sup>13</sup>** These definitions should be revised to remove references to an AT Person's internal policies or disruption of its Algorithmic Trading to prevent unduly burdening DCMs and AT Persons with notifications of internal events that do not impact the market.
- **Permit DCMs to continue offering flexible solutions related to self-trade prevention tools.**
- **Clarify that experiencing an Algorithmic Trading Event<sup>14</sup> would not necessarily cause the Commission to take enforcement action against an AT Person.**

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<sup>8</sup> Proposal at 78,938.

<sup>9</sup> Proposal at 78,938.

<sup>10</sup> *Id.* at 78,939.

<sup>11</sup> *Id.* at 78,938.

<sup>12</sup> Proposed Regulation 1.3(tttt), Proposal at 78,937.

<sup>13</sup> Proposed Regulation 1.3(uuuu), Proposal at 78,937.

<sup>14</sup> Proposed Regulation 1.3(vvvv), Proposal at 78,937.

**I. Controls Currently in Place at DCMs, FCMs and Asset Managers Address Risks Posed by Asset Managers' Uses of Automated Trading Systems**

**A. Asset Managers Use of Automated Trading Systems**

Asset managers – registered CPOs, CTAs and investment managers acting in an unregistered capacity – are responsible for making investment decisions designed to achieve their clients' objectives. In fulfilling this role, many AMG members use algorithms to (i) generate investment strategies and (ii) execute trades on a DCM, typically through an executing FCM's access to DCMs. Once an algorithm generates an investment recommendation, a natural person typically exercises discretion in determining whether to execute the trade, and in so doing, may determine to execute the trade manually or with the aid of an automated order execution algorithm. Algorithms used by most asset managers either generate investment recommendations ("investment decision algorithm" or "model") or execute orders ("execution management system"), but one algorithm will not serve both functions.

An asset manager's portfolio management personnel engage in ongoing investment management activities for clients, establishing and continually adjusting holdings and exposures on behalf of client accounts. Some use investment decision algorithms for this purpose. These investment decision algorithms are either proprietary or licensed from a third party. Upon an investment decision algorithm generating a suggested strategy, or identifying a trading signal, portfolio management personnel typically determine whether to proceed with the recommendation. In many instances, no trade can occur without a natural person deciding that he or she agrees with the essential terms of the proposed trade (which commodity, buy/sell, and quantity). The portfolio manager, in her/his discretion, may determine to change certain of the essential terms suggested by the investment decision algorithm. The investment decision algorithm cannot itself communicate an order to an FCM or DCM. Rather, it must move to a separate process for execution of the trade.<sup>15</sup>

Indeed, many asset managers use separate personnel for trade execution, such that once the portfolio management personnel decides to move forward with an order, the essential terms of a trade are communicated to a trader (a natural person) through an order management system or otherwise.<sup>16</sup> The trader will then determine how to best seek execution of the trade. Many asset

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<sup>15</sup> Because these investment algorithms cannot communicate an order to an FCM, it is our understanding that they would not be subject to the definition of Algorithmic Trading under the Proposal.

<sup>16</sup> To communicate an order to a trader, a portfolio manager may use an order management system. An order management system communicates orders that are generated by portfolio management personnel. For example, a portfolio manager will enter order information into the order management system and a trader will view the information and place orders based on the portfolio manager's instructions.

managers' traders utilize automated trading systems to execute trades.<sup>17</sup> Some investment decision algorithms have features that allow portfolio management personnel to send a trade generated by such an algorithm into an execution management system. Similar to a "drag and drop", release order or approval function, auto-population of the order information obviates the need for a trader to key in the order, reducing (if not eliminating) the risk of keying errors. In all circumstances, however, the portfolio manager exercises discretion with respect to the transaction. It is this human intervention in the trade flow process that mitigates any risk posed by the investment algorithm and breaks the chain of automated decisions. It is possible, but rare, for an asset manager to use an automated execution management system that takes the trade directly from investment decision algorithm to the FCM for execution without human intervention, sometimes called "black box".

Investment decision algorithms and execution management systems are very different from "black box" trading and do not pose the same types of risk. By the term "Black Box," we are referring to a type of automated trading technology used to both generate and submit orders to a DCM without pre-trade human intervention; a Black Box generates the essential terms of the order by specifying the specific commodity interest contract, whether to buy or sell, the venue on which to place the order, as well as the order size and, in varying circumstances, the execution method. Operational or market integrity risk may arise with the use of a Black Box because it generates all essential aspects of an order and transmits the order to an FCM or DCM without human intervention in the order generation or submission process. A Black Box is distinguished from a system with more limited functionality (such as price, time or quantity partitioning discretion) that is not capable of generating an order. The risks posed by a Black Box are different from those of commonly used automated trading systems that have limited price or time discretion, or the ability to partition a large "parent" order into smaller "child" orders, but lack the ability to generate an order or change any of the essential parameters of the order (i.e., the specific contract, buy or sell, and quantity and limit price). These parameters must still be determined by a natural person.

Generally, an asset manager's trader will transmit DCM orders to an FCM in one of four ways:

- 1) The asset manager's trader may call a natural person broker at an FCM to verbally communicate an order. The trader may direct the broker to use a specific algorithm that the FCM provides to customers.
- 2) The asset manager's trader may electronically submit an order to its FCM using a web-based, locally-installed, or other type of front-end Automated Order-Routing System ("AORS") provided by the FCM. An AORS typically has its own risk controls built into

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<sup>17</sup> We have identified the more common types of automated trading systems that asset managers use in Appendix A, attached hereto, to provide the Commission with more detailed context of the types of automated trading systems typically used by asset managers and the goals that they are designed to achieve.

the system. To enter an order, the trader manually keys order details into the AORS or may use a touch screen or mouse click to trigger a pre-programmed macro used to transmit an order (such as a release button, “drag and drop” or other approval function). The trader may direct the FCM, using the front-end AORS, to execute the order using an execution management system provided by the FCM. Neither the AORS nor the execution management system can alter the order parameters that the trader has entered.

- 3) The asset manager’s trader may use its own execution management system<sup>18</sup> that resides on the asset manager’s server and electronically connects to its FCM’s order management platform to transmit an order to the FCM. The execution management system may be proprietary or licensed by the asset manager from a third party. The execution management system typically has its own risk controls built into the system.
- 4) The asset manager’s trader may transmit an order through an execution management system (provided by a third party, for example, Bloomberg) to its FCM with specific instructions that the FCM route the order to a DCM using the FCM’s automated trading systems. The FCM and its algorithm do not possess the ability to modify the essential parameters that the trader has entered.

AMG’s members, particularly CPOs and CTAs acting in a registered capacity, typically do not have DEA. While many asset managers can electronically communicate orders to an FCM, as described above, the orders pass through the FCM’s system, at which time the FCM’s risk controls are applied. For the asset managers that use automated trading systems for execution, it is common for the automated trading system to reside at the FCM.

## **B. Risk Controls Over Asset Managers’ Use of Automated Trading Systems<sup>19</sup>**

Absent DEA, an asset manager’s orders, whether they are generated using an investment decision algorithm or transmitted to an FCM or DCM using an automated trading system, will always pass through the risk controls of the FCM and/or the relevant DCM. Where appropriate, an FCM requires testing of an asset manager’s connectivity and systems to check that orders flowing to the DCM via the FCM’s systems will not pose uncontrolled risks. Additionally, asset managers commonly have their own practices to control risks unique to their firms. Existing FCM and DCM risk controls are reasonably tailored to address any risks associated with the orders that are submitted by asset managers, even where such orders may use an execution algorithm.

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<sup>18</sup> An execution management system assists traders in making execution decisions by providing real-time data relating to indications of interest and market statistics (e.g., how large an order is relative to average volume).

<sup>19</sup> In this Section, AMG has provided a brief overview of the controls imposed by FCMs and DCMs. However, AMG defers to comments filed by the FIA, CME, ICE and others directly representing the FCM and DCM perspectives.

In accordance with the FIA Guide, an FCM typically imposes pre-trade risk controls on an order regardless of the method used to transmit the order to the FCM.<sup>20</sup> The FCM's pre-trade risk controls are designed to prevent an order that breaches the FCM's risk controls from being transmitted to a DCM. In the event that an FCM's risk control is triggered, the order will not be routed to the DCM, and an FCM representative will notify the asset manager about the triggering of the risk control. An FCM is appropriately situated to determine specific parameters of risk controls, with the ability to tailor risk controls based on its knowledge of a certain customer's trading history, credit risk and other information.

The DCM itself also imposes risk controls to orders to prevent market disruptions, as each DCM has a vested interest in protecting the integrity of its markets. For example, CME subjects all orders that are entered on Globex to order size limits, price banding and an array of other risk controls. When a DCM sets order size limits on individual contracts, it subjects all orders and market participants to order size limits, rejecting orders whose quantity exceeds a pre-defined maximum quantity. Orders are also subject to price banding, which is a tool designed to prevent orders from being entered at erroneous prices to help mitigate the potential for market disruption.

Generally, DCMs offer a stop-logic functionality to mitigate artificial and disruptive market spikes potentially caused by the continuous triggering, election and trading of stop orders during an illiquid market period. CME's stop-logic functionality, for example, causes the market to automatically enter a reserve period for a certain number of seconds<sup>21</sup> when stop orders, if elected, would result in execution prices in excess of pre-defined thresholds. During this reserve period, new orders are accepted and CME publishes an indicative price. Trades do not occur until the reserve period concludes, providing participants an opportunity to respond to a demand for liquidity. CME has stated that the stop-logic functionality reversed the course of the Flash Crash.<sup>22</sup> During the Flash Crash, the stop-logic functionality caused a halt in trading, thereby providing enough time to replenish liquidity.<sup>23</sup> As these risk controls demonstrate, DCMs are well suited to identify where tools may enhance market integrity and develop and implement such tools.

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<sup>20</sup> See, e.g., FIA Guide at 7-16.

<sup>21</sup> The reserve period is from 5 to 20 seconds, depending on the characteristics of the product and time of day that the stop-logic functionality is triggered. Letter from Bryan Durkin, Chief Commercial Officer, CME Group, to Melissa Jurgens, Secretary, U.S. Commodity Futures Trading Commission (Dec. 11, 2013).

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

## **II. The Proposal's Requirements Impose Duplicative Tools, Policies and Procedures, Increasing Costs with Limited Benefit to Market Integrity**

The Proposal's requirements would apply to "AT Persons", specifically, Commission registrants who use "Algorithmic Trading" to trade commodity interests on a DCM. These defined terms, which establish the Proposal's scope, should be narrowed and clarified for the reasons set forth below.

### **A. The Definition of "AT Person" Should Not Import Every Commission Registration Status**

The CFTC has proposed a definition of "AT Person" that encompasses "any person registered or required to be registered as a—(1) Futures commission merchant, floor broker, swap dealer, major swap participant, commodity pool operator, commodity trading advisor, or introducing broker that engages in Algorithmic Trading on or subject to the rules of a designated contract market; or (2) Floor trader as defined in paragraph (x)(3) of this section."<sup>24</sup>

The Commission should not determine AT Person status by reference to a market participant's registration status or absence thereof, particularly because the registration categories applicable to asset managers are not based on their role or function in executing trades. The regulatory rationale for the registration of a CPO or CTA is due to the CPO's or CTA's responsibilities to investors whose funds are managed or who are being advised to trade in commodity interests, by the CPO or CTA, and not because a CPO or CTA trades in a particular manner.

The proposed inclusion of registered CPOs and CTAs within the definition of AT Person results in a significant disparity by capturing CPOs and CTAs that are registered with the Commission but not those that are not required to register. A person who uses an algorithm to generate orders, routes the orders to a DCM through an FCM (i.e., not through DEA) and is not otherwise registered with the Commission does not fall within the proposed AT Person definition, while a CPO or CTA that engages in the exact same algorithmic trading activity falls within the AT Person definition simply by virtue of the CPO's or CTA's registration status (thereby becoming subject to the burdens imposed by Proposed Reg AT).<sup>25</sup> Registration status in and of itself does not present operational risk to, or threaten the integrity of, the markets. However, the Proposal fails to explain any policy reason to support imposing an entirely new regime on the algorithmic trading of

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<sup>24</sup> Proposed Regulation 1.3(xxxx), Proposal at 78,937.

<sup>25</sup> The Proposal itself appears to implicitly recognize this disparity, offering three examples to illustrate when an algorithmic trader, such as an asset manager, would be deemed to be an AT Person. In all three examples, the algorithmic trader, a non-registrant, directs an order to an FCM using an algorithm, but the algorithmic trader does not use DEA. The Proposal states that the algorithmic trader is not an AT Person because "it is not registered and does not use DEA". Proposal at 78,862-63.



CPOs and CTAs by virtue of their registration status, but not imposing the same regime on other algorithmic traders that are not registered with the Commission despite being engaged in identical activities. The Proposal's focus on the registration status of an algorithmic trader is misplaced.

Instead of using registration status to determine which algorithmic trading firms should fall within the Proposal's scope, the Proposal should impose risk controls and related obligations that are based on the degree of the trader's interaction with the DCM. An algorithmic trader that uses a Black Box to trade on a DCM through DEA introduces a different set of risks to the marketplace than a trader with indirect access (i.e., through the order routing system of its FCM), because the order of an algorithmic trader that uses DEA will not flow through, or be subject to the risk controls of, an executing clearing firm before reaching the DCM. By tailoring the definition of AT Person to capture algorithmic traders using DEA, the Commission will more appropriately focus on risk and whether a market participant's activities have the potential to cause harm to the market. As stated in Section I.B., above, and in comment letters submitted by DCMs, the DCMs already have controls in place to prevent disruptions and may, as a result, already have a tested formulation for risk-based controls that the Commission could use instead.

Further, an asset manager's electronic submission of an order to an FCM with instructions for the FCM to use its automated trading system to efficiently execute the trade should not bring the asset manager in scope as an AT Person. Common execution algorithms, including those set forth in Appendix A, deployed by the FCM's servers and systems are squarely addressed by the FCM's risk management and do not pose any risks not already addressed by existing standards.

For these reasons, we respectfully request that the Commission modify the definition of AT Person to capture only the specific activity, and the persons directly engaged in such activity, that gives rise to the risks that the Commission is seeking to mitigate. We recommend that the Commission adopt a modified AT Person definition that (1) limits AT Person status solely to algorithmic traders using a Black Box system to access DCMs through DEA; and (2) eliminates the "commodity pool operator" and "commodity trading advisor" elements.

Alternatively, if "commodity pool operator" or "commodity trading advisor" are retained in the definition of "AT Person", the definition should be clarified to apply only to the person directly engaged in algorithmic trading.<sup>26</sup> For example, when a CPO engages in the common practice of

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<sup>26</sup> The Commission asked whether a commodity pool itself should be considered an AT Person. *Id.* at 78,843-44 (Question 15). AMG submits that this question should be answered in the negative. Importantly, pools do not act or trade of their own accord. A pool's trading activities and any algorithmic trading activities are controlled by the operators or advisors of the pool, as applicable. If the Commission chose to define a pool as an AT Person, and require a pool's sponsor or investment manager to become AT Persons, the pool's sponsor or investment manager would be required to implement duplicative policies and procedures for itself and each pool that qualifies as an AT Person under the Proposal. Application of the Proposal on a pool-by-pool basis would lead to confusion and

appointing a third-party advisor to perform investment management duties on behalf of its fund, the Proposal should be revised to make clear that, the CPO will not be deemed to be an AT Person so long as the CPO itself does not transmit algorithmic orders on behalf of the fund. Likewise, if registered CPOs and CTAs are kept within the AT Person definition, the Proposal should be revised to clarify that a CPO or CTA is only within the scope of the rule when it is acting in a registered capacity, such that pools managed that do not require CPO or CTA registration will not be impacted by virtue of the coincidence that the manager also has registered pools.

**B. The Definition of “Algorithmic Trading” Should Not Capture Every Mode of Automated Trading**

*1. The Commission Should Not Add to the Definition of Algorithmic Trading Algorithms Used Solely to Generate Trading Recommendations*

In the Proposal’s release, the Commission asked whether the definition of Algorithmic Trading should be expanded to encompass orders that are generated using algorithmic methods but are then manually entered into a front-end system by a natural person, who determines all aspects of the routing of the orders (Question 7).<sup>27</sup> AMG believes that the Proposal should not be expanded and that the Commission should make clear that algorithms that precede a human deciding to move forward with the trade should be outside of the definition of “Algorithmic Trading,” even when the human approval results in the trade then being communicated through automated means.

Given the Commission’s goal of mitigating the risk of market disruptions, the Commission should focus on that risk, and not on whether a natural person or an algorithm developed a trading recommendation because the generation of the recommended order in and of itself does not present

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would not address the real issue, which is risk mitigation by the party directly engaged in the algorithmic trading activity.

<sup>27</sup> The Commission asked for comment on the definition of Algorithmic Trading:

The Commission, recognizing that natural person traders who manually enter orders also have the potential to cause market disruptions, is considering expanding the definition of Algorithmic Trading to encompass orders that are generated using algorithmic methods (*e.g.*, an algorithm generates a buy or sell signal at a particular time), but are then manually entered into a front-end system by a natural person, who determines all aspects of the routing of the orders. Such order entry would not represent Algorithmic Trading under the currently proposed definition. The Commission requests comment on this proposed expansion of the definition of Algorithmic Trading, which the Commission may implement in the final rulemaking for Regulation AT. The Commission requests comment on the costs and benefits of this proposal, in addition to any other comments regarding the effectiveness of this proposal in terms of risk reduction.

Proposal at 78,841 (Question 7).

the risk of a market disruption. In the scenario in Question 7, a natural person has the opportunity to review a trading recommendation and make a determination whether or not to enter an order through a front-end system based on the recommendation that is generated by an algorithm. After the person decides to place the order, it will pass through the FCM's and DCM's risk controls. We fail to see where risk to the market arises simply by using an algorithm to generate a trading recommendation where there is subsequent human judgment exercised to decide whether to follow the trade recommendation.

Further, manually entering the trade should not be treated differently from systems that allow personnel to auto-populate an investment decision algorithm's trading recommendation. As explained above, rather than entering the trading recommendation manually into an AORS, some asset managers use software that enables the portfolio management personnel to move the recommendation into an execution management system by performing a "drag and drop" from the investment decision algorithm to the execution management system or by clicking a button that causes the order to be transmitted. This automation reduces risk of keying errors and should not, as a result, be disadvantaged under the Proposal from manual entry of the same order.

For these reasons, AMG recommends that the Commission not expand the definition of Algorithmic Trading to capture algorithmic tools that generate trading recommendations and clarify that auto-population after personnel approve the recommendation will not bring the investment decision algorithm in scope as "Algorithmic Trading."

2. *The Commission's Definition of Algorithmic Trading Should Be Revised to Appropriately Tailor the Proposal's Requirements to Black Boxes that Trade Through DEA*

As proposed, the definition of Algorithmic Trading would broadly encompass any computer algorithm or system that, "determines whether to initiate, modify, or cancel an order, or otherwise makes determinations with respect to an order, including but not limited to: the product to be traded; the venue where the order will be placed; the type of order to be placed; the timing of the order; whether to place the order; the sequencing of the order in relation to other orders; the price of the order; the quantity of the order; the partition of the order into smaller components for submission; the number of orders to be placed; or how to manage the order after submission", where the order is electronically submitted to a DCM for processing.<sup>28</sup>

This definition should be narrowed to more appropriately capture the types of algorithmic trading systems that present material risks to the market—namely, orders generated by a Black Box (possessing the attributes described above in Section I.A.) that are transmitted to a DCM without human intervention. Automated trading systems such as execution algorithms that employ discretion limited to time and price discretion, or, for example, volume-weighted average price ("VWAP") trading strategies, should not be included within the definition of "Algorithmic Trading" because

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<sup>28</sup> Proposed Regulation 1.3(zzzz), Proposal at 78,937.

they do not have the capability to execute orders beyond the specific parameters set by the trader and pose lower risks to the marketplace with less potential to disrupt trading on a DCM. Order optimization algorithms (such as execution management systems) have the effect of minimizing the impact an order has on the market without introducing new market risk.

The Proposal's inclusion of the broad phrase "otherwise makes determinations with respect to an order" in the definition of Algorithmic Trading<sup>29</sup> does not distinguish between Black Box and trades for which some human intervention is required to initiate trades. Order parameters differ in terms of materiality and, while some algorithms have limited discretion in selecting order parameters, others influence material parameters such that they could pose greater risk to market integrity if they generate and route orders to a DCM through DEA. As described earlier, a Black Box is empowered to initiate trades whereas VWAP and other standardized limited-discretion automated trading systems require a natural person to first determine the essential parameters (i.e., which contract, buy or sell, and quantity) of the order while an automated trading system only implements or optimizes the order within these parameters. An automated trading system requires some form of human intervention whereas a Black Box does not. This distinction is critical and, by failing to recognize it, the Proposal's definition of Algorithmic Trading encompasses several types of automated trading systems that do not pose the risks that the Proposal is attempting to mitigate.

Accordingly, we request that the Commission make revisions to its regulatory text of the definition of Algorithmic Trading to clarify that the definition only encompasses Black Boxes with DEA. AMG intends to supplement this comment letter with a submission to the Commission that provides suggested revisions in the form of a markup.

AMG further recommends that the Commission should add limiting language in paragraph (2) of the definition of Algorithmic Trading, that the order, modification or order cancellation must be electronically submitted "*by the computer algorithm or system that generated the order without human intervention*" for processing on or subject to the rules of a DCM. Adding the italicized language would make clear that the Proposal's definition of Algorithmic Trading applies to a Black Box system as opposed to all automated trading systems.

To illustrate the over-breadth of the Proposal's definition of Algorithmic Trading, consider that the definition of Algorithmic Trading would capture a "child" order created when an order for a certain number of contracts (the parent order) is partitioned by a natural person or when a natural person selects an order execution optimization algorithm to partition the order into multiple smaller orders (each a child order) equal in sum to the size of the parent order. When a natural person enters the parent order into a front-end system, and selects the relevant order execution optimization algorithm, and the algorithm optimizes the execution of the order (i.e., by determining whether to divide the order into smaller "child" orders and at what time to submit the child orders to the

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<sup>29</sup> *Id.*

DCM), the natural person has determined all of the essential parameters of the order (including the contract type, whether to buy or sell, total order size and, typically, a price limit). The algorithm does not have discretion to modify the essential terms of the parent order, and the parent order is at all times subject to the trader's discretion. Also, the child orders generated by the algorithm are subject to the FCM's risk parameters before they are submitted to the DCM, which has its own risk controls.

This example demonstrates the need for a more focused and clearer definition of Algorithmic Trading that avoids the application of Proposed Reg AT to widely-used automated trading systems that require human intervention to generate an order. An automated trading system that optimizes order execution, including one that enters child orders based on the constraints imposed by the terms of the parent order, does so simply by identifying an effective method to submit orders to the exchange without causing a disruption to the market.

3. *The Commission Should Clarify the Application of the Carveout from the Definition of Algorithmic Trading*

The Proposal states that Algorithmic Trading “does not include an order, modification, or order cancellation whose every parameter or attribute is manually entered into a front-end system by a natural person, *with no further discretion* by any computer system or algorithm, prior to its electronic submission for processing on or subject to the rules of a designated contract market.”<sup>30</sup> This carveout has the effect of increasing ambiguity of the definition of Algorithmic Trading because it is unclear under what circumstances the carveout will apply.

The Commission should clarify that the carveout encompasses any means of communication, AORS or other interfaces a customer uses to communicate orders to its FCMs (as discussed in Section I., above), even if a customer's FCM or the clearing FCM subsequently uses an Algorithmic Trading system to route an order to a DCM. As such, asset managers that do not directly access an algorithmic trading system and merely use an electronic interface to transmit an order electronically to an FCM for execution through the FCM's automated trading systems, such as a VWAP (or other order optimization program that exercises some degree of discretion by determining the exchange, timing or quantity of orders that the asset manager transmits through the FCM) would not fall within the definition of Algorithmic Trading.

A customer who has verbally or electronically transmitted an order to its FCM should not be viewed as an AT Person if the FCM subsequently transmits the order through an automated trading system that exercises a limited degree of discretion, including execution or order routing algorithms. We are concerned that Commission staff may view a customer who has manually entered order parameters into an AORS to transmit its order to an FCM as an AT Person simply because the FCM subsequently inputs the customer's order into the FCM's automated trading system (for example a

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<sup>30</sup> *Id.* (emphasis added).

VWAP program) for further processing before transmittal to the DCM. Whether communicated verbally or through an AORS, the order will pass through the FCM's own pre-trade risk controls and, ultimately, through the DCM's pre-trade risk controls, which should obviate the need to include the customer within the AT Person category.

For these reasons, AMG requests that the Commission delete the passage "with no further discretion by any computer system or algorithm, prior to its electronic submission for processing on or subject to the rules of a designated contract market" from the final definition of Algorithmic Trading to clarify that an FCM's handling of an order transmitted to the FCM by a customer will not cause the FCM's customer to be considered to be engaged in "Algorithmic Trading."

### **III. Proposed Reg AT's Controls Are Not Tailored to the Risks Presented by Different Types of Automated Trading Systems and Different Types of Access to DCMs**

The Proposal's approach to development, monitoring, and compliance of Algorithmic Trading systems as proposed in Regulation 1.81<sup>31</sup> applies a uniform standard of regulation to all types of AT Persons, regardless of whether they are customers or FCMs, or whether they design proprietary algorithms themselves or license algorithms from third parties. Such a uniform standard is overly burdensome and unnecessary in some instances because the standard fails to consider specific attributes of disparate types of algorithmic traders. One size regulation does not fit all. AMG believes that flexible, principles-based requirements are more likely to achieve the Proposal's desired effect.

#### **A. The Proposal's Development, Testing and Recordkeeping Requirements Related to Algorithmic Source Code Are Not Adequately Tied to a Market Participant's Potential to Introduce Risk into the Markets**

Proposed Regulation 1.81(a) requires that, at a minimum, AT Persons maintain "a development environment that is adequately isolated from the production trading environment," test "all Algorithmic Trading code and related systems and any changes to such code and systems prior to their implementation," and conduct regular back-testing and stress tests of "Algorithmic Trading" systems (as defined in the Proposal).<sup>32</sup> An AT Person would be required to test the Algorithmic Trading system's code and establish a plan of internal coordination and communication between staff who design, change, test, and develop controls for an Algorithmic Trading system and compliance staff.<sup>33</sup> AT Persons also would be required to designate and train all staff involved in designing and testing algorithms.<sup>34</sup>

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<sup>31</sup> Proposed Regulation 1.81, Proposal at 78,938.

<sup>32</sup> Proposed Regulation 1.81(a), Proposal at 78,938.

<sup>33</sup> Proposed Regulation 1.81(c)(2)(ii), Proposal at 78,938.

<sup>34</sup> Proposed Regulation 1.81(d), Proposal at 78,938.

Notwithstanding AMG's recommendation to reduce the scope of the Proposal (see Section II., above), asset managers typically use a third-party's Algorithmic Trading systems and/or do not have DEA. Thus, asset managers may find the obligations imposed by Proposed Reg AT impossible to fulfill. For example, asset managers that do not develop any of the third-party systems that they use or license (including an FCM's automated trading system) do not have access to the source code and are not able to test the algorithms. Likewise, although Proposed Regulation 40.21 requires DCMs to provide test environments for AT Persons,<sup>35</sup> asset managers that do not have DEA cannot place trades directly on DCMs and are only capable of testing their ability to place trades with the FCM through a front-end system. Requiring asset managers that use third-party systems to implement the proposed policies and procedures for the development and testing of third-party-provided Algorithmic Trading systems would be impossible for them to accomplish. Moreover, asset managers that employ proprietary algorithms could test the source code but the Proposal's other requirements related to risk controls would be duplicative and costly, with limited benefits. FCMs generally impose risk controls that are recommended in the FIA Guide.<sup>36</sup> Further measures are not required for trades that flow through the FCM's systems.

Alternatively, asset managers should be afforded the flexibility to design compliance and testing programs that are more appropriately tied to the manner in which they utilize algorithms. The FIA Guide recommends coordinating internal communication and implementing functional and non-functional tests, such as stress testing; however, FIA notes that such tests should be flexibly incorporated as necessary, depending on the type of code subject to the testing.<sup>37</sup> Similar to the FIA Guide, the Proposal should be designed with a flexible approach to compliance that permits an AT Person to choose appropriate measures and testing standards that relate to the potential risk of its systems.

**B. Requirement to Engage Non-Trading Personnel to Perform Continuous Real-Time Monitoring of Algorithmic Trading Systems Imposes Impractical, Expensive Burdens**

The Proposal requires that an AT Person ensure that each of its Algorithmic Trading systems is subject to continuous, real-time monitoring by staff knowledgeable in the Commodity Exchange Act, Commission regulations, DCM rules and the Algorithmic Trading system itself while the system is engaged in trading.<sup>38</sup> Monitoring staff must have the ability to disengage the system and contact a DCM if necessary, among other abilities, but must not be actively engaged in trading while monitoring the Algorithmic Trading systems.<sup>39</sup> Related to this proposed requirement, the

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<sup>35</sup> Proposed Regulation 40.21, Proposal at 78,941.

<sup>36</sup> See, e.g., FIA Guide at 27, 29.

<sup>37</sup> *Id.*

<sup>38</sup> Proposed Regulation 1.81(b), Proposal at 78,938.

<sup>39</sup> *Id.*

Commission asked for comment on the following question: “Is it typical that persons responsible for monitoring algorithmic trading do not simultaneously engage in trading activity?”<sup>40</sup>

The requirement to have a staff member oversee a trader’s actions continuously and in real time is a burdensome measure that is not common practice in the industry and may not be capable of being accomplished fully. This proposed requirement will add costs without addressing the complexity involved in analyzing a systems issue and determining an effective resolution. The Proposal does not explain how this measure will reduce risk in a way that is commensurate with the costs associated with complying with the requirement.

Rather than prescriptively mandate an impossible task, the Proposal should include a principles-based requirement to monitor as appropriate. For example, automated monitoring of trading with alerts that stop trades or flag personnel to review trades, are built into some Algorithmic Trading systems. Likewise, a trader may be in the best position to determine whether an order was entered incorrectly or an issue has occurred with an Algorithmic Trading system. Traders typically monitor their positions and will know which orders have been submitted to a DCM.

Thus, the Commission should modify the requirement that an AT Person engage staff responsible for continuous real-time monitoring and, instead, provide greater flexibility by allowing an AT Person to determine how best to monitor its Algorithmic Trading systems.

### **C. The Annual Report Requirement is an Unnecessary and Costly Burden**

The Proposal requires AT Persons to submit an annual report to each DCM on which the AT Person is engaged in Algorithmic Trading.<sup>41</sup> AMG does not believe that the annual reports will assist DCMs in performing their duties, or that these reports will mitigate risk and, therefore, recommends removing the annual report requirement in its entirety.

### **D. The Source Code Repository Requirement Puts Highly Proprietary Information at Risk Without Measurable Benefits**

The Proposal requires retention of source code in a repository in accordance with Commission Regulation 1.31,<sup>42</sup> which permits Commission or Department of Justice staff to access a registrant’s records (such as the source code).<sup>43</sup>

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<sup>40</sup> Proposal at 78,859 (Question 47).

<sup>41</sup> Proposed Regulation 1.83(a), Proposal at 78,939.

<sup>42</sup> 17 C.F.R. § 1.31.

<sup>43</sup> Proposed Regulation 1.81(a)(1)(vi) reads: “Maintaining a source code repository to manage source code access, persistence, copies of all code used in the production environment, and changes to such



The source code repository requirement threatens commercially valuable intellectual property and proprietary trading strategies. Maintaining a repository will require more personnel to access code in order to monitor that the code is being maintained (to the extent it can be maintained), exposing highly proprietary information to, for example, compliance personnel who check that policies are being followed and systems personnel who build and maintain the repositories, among others. Additionally, the release of source code to the Commission poses far different risks than routine records maintained by registrants. Not only would the source code be exposed to more people, including Commission staff and outside experts who likely would be required to interpret the information.

The source code requirement is also impractical and may impose requirements with which an AT Person may not be able to comply. As a threshold matter, asset managers that utilize a third party's Automated Trading systems will be unable to maintain a repository because they do not have access to the source code. Also, algorithms are continually being adjusted. While those adjustments are typically logged, a complete copy of each iteration of the source code is not retained. Moreover, retaining a complete copy of each version of the source code would not only be burdensome (if not impossible), but could actually increase the security risk posed to the AT person.

For these reasons, we request that the Commission remove the source code requirement or, at a minimum, apply it only to entities that use proprietary algorithms and possess the ability to comply with the requirement. Alternatively, if the Commission chooses not to eliminate the requirement, we request that the Commission utilize more appropriate retention standards than Commission Regulation 1.31 and mandate special confidentiality requirements and protections that would apply if the Commission requires access to the source code.

**E. The Obligation to Notify DCMs of Algorithmic Trading Events Is Unduly Burdensome and Weakens Effectiveness of Notifications**

The Proposal requires an AT Person to notify a DCM each time the AT Person experiences an "Algorithmic Trading Event,"<sup>44</sup> including minor disruptions to the AT Person's trading (such as system glitches and issues where only the trader's system is disrupted) and non-compliance with internal policies and procedures. The term "Algorithmic Trading Event"<sup>45</sup> casts a wide net due to it

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code. Such source code repository must include an audit trail of material changes to source code that would allow the AT Person to determine, for each such material change: who made it; when they made it; and the coding purpose of the change. Each AT Person shall keep such source code repository, and make it available for inspection, in accordance with § 1.31." Proposal at 78,938.

<sup>44</sup> Proposed Regulation 1.3(vvvv), Proposal at 78,937.

<sup>45</sup> *Id.*

being defined to include the broadly defined “Algorithmic Trading Compliance Issue”<sup>46</sup> and “Algorithmic Trading Disruption”.<sup>47</sup>

While AMG supports the Commission’s efforts to incorporate a requirement of warning DCMs, the requirement is too broad to have the intended effect. In fact, it could have the unintended impact of generating “noise” that could make truly important disruptions more difficult to communicate effectively. Internal disruptions or issues of non-compliance with the AT Person’s own internal policies, both of which are captured by “Algorithmic Trading Event”, will draw attention away from issues that could potentially cause harm to a DCM’s markets.<sup>48</sup>

Further, the requirement to notify DCM staff each time an Algorithmic Trading Event occurs is time consuming, distracts from the need to resolve the issue, and could cause unwarranted panic. Internal policies and procedures differ among algorithmic traders and are tailored to each algorithmic trader’s business. Some algorithmic traders’ policies and procedures may be more stringent than the Proposal’s requirements. Depending on an AT Person’s internal policies, DCM staff could be inundated with notifications because the proposed definition of Algorithmic Trading Compliance Issue does not incorporate a materiality standard. Therefore, DCM staff could receive a significant number of notifications, making it difficult to discern minor issues from those with the potential to adversely affect market integrity and potentially present risk to others.

A notice requirement based on internal policies and procedures forces AT Persons to consider the disruptive nature of the reporting requirements in adopting policies and procedures and may have the unintended consequence of causing AT Persons to adopt more lenient approaches than they otherwise would. DCMs already have effective notification procedures in place, tailored to their markets and customers. The FIA Guide offers flexible measures to address this kind of requirement, including emergency notification procedures to respond to an emergency situation and

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<sup>46</sup> Proposed Regulation 1.3(tttt), Proposal at 78,937. “Algorithmic Trading Compliance Issue” is defined to mean “an event at an AT Person that has caused any Algorithmic Trading of such entity to operate in a manner that does not comply with the Commodity Exchange Act or the rules and regulations thereunder, the rules of any designated contract market to which such AT Person submits orders through Algorithmic Trading, the rules of any registered futures association of which such AT Person is a member, the AT Person’s own internal requirements, or the requirements of the AT Person’s clearing member, in each case as applicable.” *Id.*

<sup>47</sup> Proposed Regulation 1.3(uuuu), Proposal at 78,937. “Algorithmic Trading Disruption” is defined to mean “an event originating with an AT Person that disrupts, or materially degrades—(1) The Algorithmic Trading of such AT Person, (2) The operation of the designated contract market on which such AT Person is trading, or (3) The ability of other market participants to trade on the designated contract market on which such AT Person is trading.” *Id.*

<sup>48</sup> An AT Person should not be required to report an issue that has no market impact, for example, where an FCM’s or DCM’s risk filters reject a trader’s order. In this situation, the FCM’s or DCM’s risk filters have worked exactly as intended and there should be no need to notify DCM staff about an order that was rejected by a risk control that was operating as it should.

notify the exchange upon discovery of an issue, periodically with the progress of the issue's resolution and upon conclusion of the issue.<sup>49</sup> We encourage the Commission to allow DCMs to continue to provide procedures for incident reporting that are tailored to each DCM's markets and its existing risk controls.

We request that the Commission remove the language "the AT Person's own internal requirements" and add a materiality standard to the definition of Algorithmic Trading Compliance Issue. We further request that the Commission eliminate clause (1) ("The Algorithmic Trading of such AT Person") from the definition of Algorithmic Trading Disruption. By revising the definitions in these ways, the Commission will codify an effective approach while obviating the need to notify DCM staff of Algorithmic Trading Events that are purely internal incidents or other types of incidents that have no material adverse effect on the market.

#### **IV. Proposed Reg AT Interferes With The Use of Appropriate Self-Trade Prevention Tools**

Proposed Regulation 40.23(a) would mandate a DCM to "either apply, or provide and require the use of, self-trade prevention tools that are reasonably designed to prevent self-trading and are applicable to all orders on its electronic trade matching platform."<sup>50</sup> The proposed requirement does not consider that a particular DCM's self-trade prevention tool may not satisfy all participants' needs in all circumstances. Market participants have varying business models and needs. Some market participants prefer to use existing DCM-provided tools while other market participants use alternate methods to comply with the prohibition on self-trading. Further, some market participants have enhanced self-trade prevention tools that may be stricter than, or incompatible with, a standard DCM self-trade prevention tool.

The Proposal's self-trade prevention proposal offers a solution to a non-existent problem. Wash trades consist of less than 1% of all trades on DCMs.<sup>51</sup> Instead of preserving market integrity, the Proposal's requirement would actually impede a firm's flexibility to use self-trade prevention tools appropriate for the firm's business. We encourage the Commission to reconsider the proposed

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<sup>49</sup> FIA Guide at 33.

<sup>50</sup> Proposal at 78,941. The Commission requested comment on the following question: "Proposed § 40.23(a) would require DCMs to either apply, or provide and require the use of, self-trade prevention tools. Please comment whether § 40.23(a) should, in addition, permit market participants to use their own self-trade prevention tools to meet the requirements of proposed § 40.23(a), and if so, what additional regulations would ensure that DCMs are able to: Ensure that such tools are comparable to DCM-provided tools; monitor the performance of such tools; and otherwise review such tools and ensure that they are sufficiently rigorous to meet the requirements of § 40.23." *Id.* at 78,881 (Question 94).

<sup>51</sup> Bryan Durkin, Chief Commercial Officer, CME Group, Remarks at the Commodity Futures Trading Commission Technology Advisory Committee Hearing (Feb. 23, 2016).

mandate and instead permit DCMs to continue to allow firms to use alternative tools appropriately tailored to their needs so long as the tools satisfy the DCM's standards.

**V. Enforcement Actions Should Not be Premised Upon System or Procedural Failures Alone**

Under proposed Regulation 1.81(c), an AT Person must “implement written policies and procedures reasonably designed to ensure that each of its Algorithmic Trading systems operates in a manner that complies with the Commodity Exchange Act and the rules and regulations thereunder.”<sup>52</sup>

The Proposal should make clear that Commission Regulation 1.81(c) will not itself become grounds for an enforcement action, other than through supervisory responsibilities pursuant to Commission Regulation 166.3,<sup>53</sup> if applicable. The Commission should appreciate that AT Persons will experience systems problems on occasion despite their best efforts to mitigate the risk that such issues will occur, and should not permit enforcement actions solely on the basis of experiencing any such issue to the extent it does not have a materially adverse effect on the market. We request that the Commission clarify this point.

**VI. The Proposal's Costs of Compliance Outweigh the Marginal Benefits of Proposed Reg AT that Extend Beyond DCM and Industry Practices**

By requiring a duplicative approach to pre-trade risk controls and related requirements, the Proposal would impose a very costly regime on the industry as a whole. Asset managers and their customers specifically will be subject to costs not proportionate with their business models or market activities. The costs imposed on asset managers will, ultimately, be borne by investors in mutual funds, beneficiaries of pension funds and other clients. At the same time, the Proposal fails to demonstrate a corresponding benefit to the public. In consideration of the fact that many market participants have already adopted many of the FIA Guide's recommendations, which have proven to be effective, we request the Commission to reconsider the overly burdensome and one-size-fits-all approach the Proposal imposes on disparate market participants and adopt more flexible measures calibrated to a market participant's use of automated trading systems and the risk such use may introduce to the market.

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<sup>52</sup> Proposal at 78,938.

<sup>53</sup> 17 C.F.R. § 166.3.

For the reasons stated above, SIFMA AMG recommends that the Commission:

- Adopt unambiguous definitions focused on systems that pose greater risk to market integrity and users of such systems by amending the definitions of “AT Person” and “Algorithmic Trading”.
- Tailor proposed Regulation 1.81 to the risks that the use of certain Algorithmic Trading systems could pose to the market and apply development and testing requirements related to source code only to AT Persons that develop their own algorithmic trading systems.
- Eliminate the Proposal’s source code repository and annual report requirements.
- Amend the natural person monitoring requirements to reflect the complexity of responding to a systems issue and that a trader can most effectively monitor his or her positions and determine whether an issue has occurred.
- Remove references to an AT Person’s internal policies or disruptions in the definitions of “Algorithmic Trading Compliance Issue” and “Algorithmic Trading Disruption” to prevent unduly burdening DCMs and AT Persons with notifications of internal events that do not impact the market.
- Permit DCMs to continue offering flexible solutions related to self-trade prevention tools.
- Clarify that experiencing an Algorithmic Trading Event would not necessarily cause the Commission to take enforcement action against an AT Person.

We appreciate the opportunity to provide the Commission with our comments and recommendations concerning the Proposal and are available to discuss our comments or any of the issues raised by the Proposal with the Commission or its staff. If the staff has any questions, please do not hesitate to contact Tim Cameron at 202-962-7447 or [tcameron@sifma.org](mailto:tcameron@sifma.org), Laura Martin at 212-313-1176 or [lmartin@sifma.org](mailto:lmartin@sifma.org), or Michael Philipp at 312-324-1905 or [michael.philipp@morganlewis.com](mailto:michael.philipp@morganlewis.com).

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March 16, 2016

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CC: The Honorable Timothy Massad, Chairman  
The Honorable Sharon Bowen, Commissioner  
The Honorable J. Christopher Giancarlo, Commissioner  
Mr. Vincent McGonagle, Director, Division of Market Oversight

## APPENDIX A

### Examples of Automated Trading Systems Used by Asset Managers and the Systems' Objectives

Algorithm	Objective
<b>Custom (Market + Float + Tick)</b>	Get a portion of the order done at the market and work the rest passively to seek price improvement.
<b>Curve spread trading</b>	Executes a spread (curve/butterfly) order with controlled pace and ratio to minimize legging risk.
<b>Iceberg</b>	Works a proportion of the order at a specified limit price. Automatically sends the next slice once the previous has executed. Similar to a traditional exchange iceberg order.
<b>Liquidity seeking (Minimize implementation shortfall)</b>	Liquidity taking algo that determines a fair price based on the historical spread and current market conditions.
<b>Opportunistic (Capture favorable price versus arrival)</b>	Executes at a higher rate when prices are favorable to the arrival price and at a lower rate when prices are less favorable.
<b>Peg</b>	Places resting orders pegged to the current inside market price of the instrument. The algo will move dynamically with market prices, ensuring the strategy will trade on the passive side.
<b>POV</b>	A limit order strategy designed to target a user-specified percentage of volume by following real-time trades over a specific trading interval.
<b>Tick</b>	Order is placed when a user wants to exercise price discretion of a single tick or more from their limit order. If bid or offer goes below a certain volume threshold, the order is executed.
<b>Time Slice</b>	Breaks a larger order into smaller pieces that are spread evenly over time. Auto reprice feature enables user to capture spread and minimize shortfall. The auto reprice feature adjusts an order's limit price to avoid the risk that the order will not be filled in its entirety. For example, if a large buy order is entered using time slice and has a limit price of \$100 but the market price increases to \$102, the limit price will be adjusted to \$102 so the order will be filled.
<b>Time Trigger</b>	Order is triggered or cancelled at a specified time.

<b>TWAP</b>	Targets a time-weighted average price over a specific time period. Linear execution profile. For example, if a trader has an order consisting of 300 contracts that the trader wishes to place over a 30-minute period, orders for 10 contracts will be entered each minute during the 30-minute time frame.
<b>Urgent liquidity seeking (Hidden footprint)</b>	Takes liquidity without showing orders to the market.
<b>VWAP</b>	Targets a volume-weighted average price over a specific time period based on historical volume profile.