

PREPARING FINANCIAL REGULATION  
FOR THE SECOND MACHINE AGE:  
THE NEED FOR OVERSIGHT OF  
DIGITAL INTERMEDIARIES IN THE  
FUTURES MARKETS

Gregory Scopino\*

Nor shall you scare us with talk of the death of  
the race. How should we dream of this place  
without us?

— Richard Wilbur<sup>1</sup>

*Humanity is entering the Second Machine Age, in which artificially intelligent computers and software programs (artificial agents) will become involved in almost every aspect of society. Computers and software programs now drive and park cars, fly drones, compose music, sell insurance, manage investments, and even write news stories. Indeed, computers and software programs are far better—and quicker—than humans at jobs that involve looking at numbers and drawing conclusions from them, which would include jobs such as investment advisors and futures traders. The rise of automated trading systems (“ATSs”) that use high-frequency trading strategies in the futures markets is but one example of*

---

\* Adjunct Professor of Law, Cornell Law School; Special Counsel, Division of Swap Dealer and Intermediary Oversight (“DSIO”), U.S. Commodity Futures Trading Commission (“CFTC”). The research presented in this Article was authored by a CFTC employee writing in his personal capacity and not writing in his official capacity as a CFTC employee. The analyses and conclusions expressed in this Article are those of the author and do not reflect the views of other members of DSIO, other CFTC staff, the CFTC itself, or the United States. The author thanks Andrew Verstein for his insightful comments on earlier drafts.

<sup>1</sup> Richard Wilbur, *Advice to a Prophet*, AM. THEATRE, Nov. 2011, at 112.

*how technology is fundamentally changing the nature of the financial markets. As a result, humans who are operating as futures market intermediaries (such as commodity trading advisors or introducing brokers) are likely to be displaced by digital intermediaries, that is, artificial agents that perform critical roles related to enabling customers to access the futures and derivatives markets.*

*The Commodity Exchange Act (“CEA”) governs the U.S. derivatives markets and requires specified categories of intermediaries—such as commodity trading advisors (persons who are compensated to give advice about derivatives)—to register with the Commodity Futures Trading Commission (“CFTC”). Compulsory registration has been called “the kingpin” of the CEA’s “statutory machinery” because it serves to identify the persons acting as market professionals, and provides a mechanism for such persons to undergo background screenings for fitness to work in the industry, as well as proficiency testing and ethics training. Because technological advances are enabling artificial agents to perform many of the intermediary roles that previously were done by humans, Congress and the CFTC should modify the CEA and CFTC Regulations (1) to expand the scope of persons who must register to include, inter alia, persons who use ATSS and who have trading privileges on, or direct electronic access to, derivatives exchanges (or trading venues), and (2) to implement an identification program for ATSS and algorithms. Lastly, Congress and the CFTC should consider proposals in research by academics in philosophy and law concerning (1) ways to ensure that digital intermediaries are built not just to be intelligent but also to be ethical, and (2) methods for allocating liability for wrongdoing by digital intermediaries.*

I.	Introduction: The Financial Markets Enter the Second Machine Age .....	441
II.	The Existing Framework Governing the Regulation of Futures Market Intermediaries.....	459
	A. Registration: The Kingpin in the Statutory Machinery .....	463

- B. Background Fitness Screening: The Statutory Disqualification Framework.....468
- C. A Flexible Approach to Mandatory Ethics Training for Registrants.....473
- D. Supervisory Responsibilities for Registrants.....474
- III. Categories of Regulated Futures Market Intermediaries .....476
  - A. Commodity Trading Advisors—Giving Advice and Directing Client Accounts .....476
  - B. Commodity Pool Operators—Leaders of Collective Investment Vehicles .....480
  - C. Futures Commission Merchants—Gateways to the Futures Markets .....483
  - D. Associated Persons and Principals—Salespeople and Supervisors .....485
  - E. Introducing Brokers—Small, Independent Salespeople for Other Intermediaries .....487
  - F. Floor Brokers, Floor Traders, and Broker Associations—Governing Persons on the Floors of Trading Venues .....489
- IV. Recommended Statutory and Regulatory Changes ..494
  - A. Recommended Expansion of Compulsory Registration Under the Traditional Approach ...495
  - B. Looking Behind the Registrants to the Autonomous Artificial Agents .....507
- V. Conclusion.....518

I. INTRODUCTION: THE FINANCIAL MARKETS ENTER THE SECOND MACHINE AGE

While it might comfort human egos to imagine that only natural persons can perform many of the tasks related to important aspects of our society, with each passing day, computers and software programs are engaging in more and more activities that once were solely the domain of

humans<sup>2</sup>—from driving cars<sup>3</sup> and flying drones<sup>4</sup> to composing music<sup>5</sup> and writing news stories.<sup>6</sup> Software programs now can learn your music or shopping tastes and use that information to suggest other items for you to

---

<sup>2</sup> Claire Cain Miller, *Smarter Robots Move Deeper Into Workplace*, N.Y. TIMES, Dec. 16, 2014, at A1 (“Machines are even learning to taste: The Thai government in September introduced a robot that determines whether Thai food tastes sufficiently authentic or whether it needs another squirt of fish sauce.”).

<sup>3</sup> Molly Wood, *CES: Visions of Cars on Autopilot*, N.Y. TIMES BITS (Jan. 6, 2015, 4:10 PM), <http://bits.blogs.nytimes.com/2015/01/06/ces-visions-of-cars-on-autopilot>, archived at <http://perma.cc/7FGN-LUZQ> (“No more dancing around it: The major automakers now see a world of completely self-driving cars . . . Raj Nair, the chief technical officer and global product chief at Ford, said . . . that he expected some manufacturer to introduce a completely autonomous vehicle—one that requires zero human intervention—within five years.”).

<sup>4</sup> See Haven Daly, *Drones at CES: Sky’s the Limit*, ASSOCIATED PRESS, Jan. 8, 2015.

<sup>5</sup> CHRISTOPHER STEINER, *AUTOMATE THIS: HOW ALGORITHMS CAME TO RULE OUR WORLD* 77 (2012).

<sup>6</sup> For example, the Chicago-based company, Narrative Science, has developed a software program

called Quill, [that] uses artificial intelligence to analyze numbers and turn them into, well, narrative. An investor’s quarterly portfolio performance numbers can be turned into a story about how the individual stocks, bonds and funds are performing. A bank branch’s performance numbers can be automatically turned into a natural-language report about that facility’s strengths and weaknesses.

Penny Crosman, *Startup Outfit Applies AI to Tell Stories, Prevent Fraud*, AM. BANKER, Nov. 13, 2013, at 7; see also Bonnie Henry, *Robots Will Never Write This Column, Bonnie Said*, ARIZ. DAILY STAR, Aug. 24, 2014, at E2 (“Turns out, robot writing is nothing new to the Chicago-based company, Narrative Science, whose Quill program, according to its website, promises to crank out ‘artificial intelligence that works for you.’ Not only does Quill analyze facts and figures, it also produces ‘a story indistinguishable from a human-written one.’ . . . Narrative Science co-founder Kris Hammond . . . told the New York Times [in 2011] that he believed a computer could write stories worthy of a Pulitzer Prize by 2017.”).

purchase.<sup>7</sup> Indeed, thanks to recent advances in technological fields such as artificial intelligence<sup>8</sup> and machine learning,<sup>9</sup> robotic<sup>10</sup> computers and software programs are faster and better than humans at many

---

<sup>7</sup> See, e.g., Natasha Singer, *Listen to Pandora, and It Listens Back*, N.Y. TIMES, Jan. 5, 2014, at BU3; Murad Ahmed, *Facebook Understands You Better than Your Spouse*, FIN. TIMES, Jan. 12, 2015, available at <http://www.ft.com/intl/cms/s/0/3dfa397c-9a73-11e4-8426-00144feabdc0.htm>, archived at <http://perma.cc/5GBG-472S>.

<sup>8</sup> *Artificial Intelligence*, OXFORD ENGLISH DICTIONARY ONLINE, <http://www.oed.com/view/Entry/271625?redirectedFrom=artificial+intelligence#eid>, archived at <http://perma.cc/V9U6-YH9B> (“The capacity of computers or other machines to exhibit or simulate intelligent behaviour; the field of study concerned with this.”); see also John Markoff, *Study to Examine Effects of Artificial Intelligence*, N.Y. TIMES, Dec. 16, 2014, at A19 (“Artificial intelligence describes computer systems that perform tasks traditionally requiring human intelligence and perception.”). “Artificial intelligence” is frequently abbreviated as “AI.” See, e.g., ERIK BRYNJOLFSSON & ANDREW MCAFEE, *THE SECOND MACHINE AGE: WORK, PROGRESS, AND PROSPERITY IN A TIME OF BRILLIANT TECHNOLOGIES* 90 (2014) [hereinafter BRYNJOLFSSON & MCAFEE, *THE SECOND MACHINE AGE*].

<sup>9</sup> “[M]achine learning” is “the ability of a computer to automatically refine its methods and improve its results as it gets more data.” BRYNJOLFSSON & MCAFEE, *THE SECOND MACHINE AGE*, *supra* note 8, at 91. See also Aki Ito, *Your Job Taught to Machines Puts Half U.S. Work at Risk*, BLOOMBERG (Mar. 12, 2014, 12:01 AM), <http://www.bloomberg.com/news/articles/2014-03-12/your-job-taught-to-machines-puts-half-u-s-work-at-risk>, archived at <http://perma.cc/Y6B5-2YCU> (“Artificial intelligence has arrived in the American workplace, spawning tools that replicate human judgments that were too complicated and subtle to distill into instructions for a computer. Algorithms that ‘learn’ from past examples relieve engineers of the need to write out every command.”).

<sup>10</sup> *Robotic*, OXFORD ENGLISH DICTIONARY ONLINE, <http://www.oed.com.ezproxy.cul.columbia.edu/view/Entry/166642>, archived at <http://perma.cc/6YPP-EE5S> (“Of the nature of a robot; of or relating to robots. Also: that is a robot.”). *Robot*, OXFORD ENGLISH DICTIONARY ONLINE, <http://www.oed.com.ezproxy.cul.columbia.edu/view/Entry/166641> (“1.a. Chiefly Science Fiction. An intelligent artificial being typically made of metal and resembling in some way a human or other animal . . . . 2. A machine capable of automatically carrying out a complex series of movements, esp. one which is programmable.”).

activities.<sup>11</sup> For example, computers and software programs are ideally suited for work that involves analyzing numbers and drawing conclusions from them.<sup>12</sup> It just so happens that many of the tasks computers and software programs do extremely well significantly overlap with the tasks that human intermediaries do in the financial markets for futures contracts,<sup>13</sup> swaps,<sup>14</sup> and other derivatives,<sup>15</sup> which will

---

<sup>11</sup> Mian Ridge, *Where Does Watson the Supercomputer Leave Mere Human Workers*, FIN. TIMES BUS. BLOG (Nov. 26, 2014, 12:55 PM), <http://blogs.ft.com/businessblog/2014/11/where-does-watson-the-super-computer-leave-mere-human-workers>, archived at <http://perma.cc/XN4W-NBDG> (stating that Watson, the IBM supercomputer, “read every one of the 70,000 papers that have been published” on a given medical topic and turned up “six previously undiscovered connections . . . [I]t would take a human scientist nearly 38 years to read that number of papers.”).

<sup>12</sup> See Rob Enderle, *What the Robot Apocalypse Will Mean for IT, Jobs and Work*, COMPUTERWORLD (July 11, 2014, 11:08 AM), <http://www.computerworld.com/article/2489887/data-center/what-the-robot-apocalypse-will-mean-for-it-jobs-and-work.html>, archived at <http://perma.cc/KG9B-PJ2J> (stating that computers likely will replace “[w]orkers who basically look at numbers and draw conclusions”).

<sup>13</sup> The Commodity Exchange Act (“CEA”) does not define a futures contract, but a helpful general definition of the term is as follows:

A commodities futures contract is an executory contract for the sale of a commodity executed at a specific point in time with delivery of the commodity postponed to a future date. Every commodities futures contract has a seller and a buyer. The seller, called a “short,” agrees for a price, fixed at the time of contract, to deliver a specified quantity and grade of an identified commodity at a date in the future. The buyer, or “long,” agrees to accept delivery at that future date at the price fixed in the contract. It is the rare case when buyers and sellers settle their obligations under futures contracts by actually delivering the commodity. Rather, they routinely take a short or long position in order to speculate on the future price of the commodity.

Hunter v. FERC, 711 F.3d 155, 156 (D.C. Cir. 2013) (quoting Strobl v. N.Y. Mercantile Exch., 768 F.2d 22, 24 (2d Cir. 1985)).

<sup>14</sup> See generally MICHAEL DURBIN, ALL ABOUT DERIVATIVES 29 (2d ed. 2011) (defining a swap contract as “an agreement to exchange future cash flows”). More specifically, a swap can be described as “an agreement made between two parties to exchange payments on regular future dates, where

probably result in automated systems eventually replacing humans in these roles. This should not be entirely surprising because this trend is already present in the financial markets. Indeed, in February of 2015, the largest futures exchange operator, Chicago-based CME Group, announced that it would close most of its trading pits by the summer “in the latest sign of how electronic trading has taken over the old system of floor-based trading.”<sup>16</sup> In the securities markets, “robo-advisers” such as Betterment automatically make investment decisions on behalf of customers based on how they respond to online questionnaires about their circumstances and financial goals.<sup>17</sup> The decline, if not

---

each payment leg is calculated on a different basis.” ANDREW M. CHISHOLM, *DERIVATIVES DEMYSTIFIED: A STEP-BY-STEP GUIDE TO FORWARDS, FUTURES, SWAPS AND OPTIONS 2* (2d ed. 2010). For example, in an interest rate swap, one party will agree to pay a fixed interest rate on a set notional amount (e.g., \$100 million) at regular intervals for a specific period of time (e.g., 20 years), while the other party agrees to pay a floating interest rate on the same notional amount. DURBIN, *supra*, at 29–32.

<sup>15</sup> Enderle, *supra* note 12 (stating that “[t]he top jobs at risk [of being taken over by robots are the following]: Financial analyst, financial advisor, industrial buyer, administrator, chartered legal executive (compliance officer) and financial trader”). “A derivative is a financial product whose value is derived from a specific reference asset or underlying variable, such as a commodity or an interest rate.” Gregory Scopino, *Regulating Fairness: The Dodd-Frank Act’s Fair Dealing Requirement for Swap Dealers and Major Swap Participants*, 93 NEB. L. REV. 31, 33 (2014) (citations omitted) [hereinafter Scopino, *Regulating Fairness*].

<sup>16</sup> Neil Munshi, *CME to Close Futures Pits*, FIN. TIMES (Feb. 5, 2015, 1:37 AM), <http://www.ft.com/intl/cms/s/0/b212ee46-accd-11e4-9d32-00144feab7de.html>, archived at <https://perma.cc/43AX-ZHMQ>.

<sup>17</sup> Mohana Ravindranath, *Can Tech Firms Replace Human Financial Planners?*, WASH. POST, Sept. 15, 2014, at A11; Jonathan Guthrie, *Betterment: Ambitions of a Robo Adviser*, FIN. TIMES (Dec. 16, 2014, 11:41 AM), <http://www.ft.com/intl/cms/s/0/24f8031c-7941-11e4-9567-00144feabdc0.html>; Jon Stein, *4 Ways Automation Technology Is Changing the Way RIAs Invest*, INVESTMENTNEWS (Oct. 31, 2014, 11:46 AM), <http://www.investmentnews.com/article/20141031/BLOG02/141039978>, archived at <http://perma.cc/YVS3-ZBQ9>. Betterment is registered with the Securities and Exchange Commission as an investment adviser. Ravindranath, *supra*, at A11.

outright demise, of open outcry trading floors is well publicized,<sup>18</sup> as is the fact that U.S. financial markets have become largely electronic and computerized.<sup>19</sup> Many news reports about the computerization and automation of the financial markets have focused on a subset of firms that use automated trading systems (“ATs”)<sup>20</sup> that employ high-

---

<sup>18</sup> See Lynne Marek, *Will This Be the End of Trading Pits at CME?*, CRAIN’S CHI. BUS. (Nov. 29, 2014), <http://www.chicagobusiness.com/article/20141129/ISSUE01/311299948>, archived at <http://perma.cc/4NLV-CXA5> (“The trading floor, with 35 pits covering nearly 2 acres, once was the heart of the world’s futures market . . . But now about 90 percent of CME’s volume trades on the company’s electronic platform, leaving many pits quiet and rows of desks around them sitting empty.”). See generally Jerry W. Markham & Daniel J. Harty, *For Whom the Bell Tolls: The Demise of Exchange Trading Floors and the Growth of ECNs*, 33 J. CORP. L. 865, 866 (2008) (stating that technological advances are making trading floors obsolete).

<sup>19</sup> See, e.g., Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. 56,542, 56,544 (CFTC Sept. 12, 2013) (stating that in CFTC-regulated markets, persons use automated trading systems (ATSs) to transmit orders to futures exchanges (called designated contract markets, or DCMs) that have automated systems to match and execute orders); Gregory Scopino, *Do Automated Trading Systems Dream of Manipulating the Price of Futures Contracts? Policing Markets for Improper Trading Practices by Algorithmic Robots*, 67 FLA. L. REV. 221, 222–23 (2015) [hereinafter Scopino, *Do ATSs Dream?*] (describing the extent to which ATSs are operating in the derivatives markets); Alexander Campbell, *Artificial Intelligence and the Future of Financial Regulation*, RISK.NET (Oct. 16, 2014), <http://www.risk.net/operational-risk-and-regulation/feature/2374890/artificial-intelligence-and-the-future-of-financial-regulation>.

<sup>20</sup> Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,542:

U.S. derivatives markets have experienced a fundamental transition from human-centered trading venues to highly automated and interconnected trading environments. The operational centers of modern markets now reside in a combination of automated trading systems (“ATSs”) and electronic trading platforms that can execute repetitive tasks at speeds orders of magnitude greater than any human equivalent.



frequency trading (“HFT”)<sup>21</sup> strategies.<sup>22</sup> For example, in March of 2014, bestselling author Michael Lewis’s book about HFT, *Flash Boys*, stirred controversy about whether the markets were “rigged” to favor high-speed automated trading firms.<sup>23</sup> The book describes, among other things, one

---

*See also id.* at 56,544 n.7 (“While the [CFTC] has no regulatory definition of ATS, the term is generally understood to mean a computer-driven system that automates the generation and routing of orders to one or more markets.”).

<sup>21</sup> The CFTC’s Technology Advisory Committee “received a definition of HFT from its working group panel of experts” that listed “[t]he attributes of HFT” as including:

- (a) Algorithms for decision making, order initiation, generation, routing, or execution, for each individual transaction without human direction;
- (b) low-latency technology that is designed to minimize response times, including proximity and co-location services;
- (c) high speed connections to markets for order entry; and
- (d) recurring high message rates (orders, quotes or cancellations) determined using one or more objective forms of measurement, including (i) cancel-to-fill ratios; (ii) participant-to-market message ratios; or (iii) participant-to-market trade volume ratios.

Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,545. “Effectively, HFT is a form of automated trading, but not all automated trading is HFT.” *Id.*

<sup>22</sup> *See* Scott Patterson et al., *Futures Trades Scrutinized*, WALL ST. J., Mar. 18, 2013, at C1. *See also* Gregory Scopino, *The (Questionable) Legality of High-Speed “Pinging” and “Front Running” in the Futures Markets*, 47 CONN. L. REV. 607, 611–13 (2015) [hereinafter Scopino, *High-Speed “Pinging” and “Front Running”*]; Sam Mamudi & Matthew Leising, *Chicago Speed Trader Allston Withdraws From U.S. Stock Market*, BLOOMBERG (Jan. 23, 2015, 4:14 PM), <http://www.bloomberg.com/news/articles/2015-01-23/chicago-speed-trader-allston-withdraws-from-u-s-stock-market>, archived at <http://perma.cc/YGP4-YYEM> (noting that the HFT firm decided to stop trading in securities “to focus on more profitable trading in derivatives markets”).

<sup>23</sup> Some HFT firms and their supporters strongly disagreed with how Lewis characterized the activities of HFT firms in his book. *See* Ben Levisohn, *Speed Kills: How I Learned to Stop Worrying About High-Speed Trading*, BARRON’S (Mar. 31, 2014, 10:25 AM), <http://blogs>.

company's secretive and enormously expensive efforts to dig a tunnel through the mountains in Pennsylvania to lay fiber-optic cables in as straight a line as possible between the futures exchanges in Chicago and the servers for the securities exchanges in New Jersey, with the goal of creating a shorter—and therefore three milliseconds<sup>24</sup> faster—route for HFT firms to send and receive trading signals and information.<sup>25</sup> The book, along with statements from politicians<sup>26</sup> and investment industry leaders,<sup>27</sup> helped

---

barrons.com/stockstowatchtoday/2014/03/31/speed-kills-how-i-learned-to-stop-worrying-about-high-speed-trading/?mod=BOLBlog; Neil Munshi, *Lawsuit Claims CME Gives HFTs Unfair Advantage*, FIN. TIMES (April. 14, 2014, 2:59 AM), <http://www.ft.com/intl/cms/s/0/4dcda2ea-c372-11e3-94e0-00144feabdc0.html>. See generally MICHAEL LEWIS, *FLASH BOYS* (2014).

<sup>24</sup> A millisecond is one thousandth of a second. See *Millisecond*, MERRIAM-WEBSTER DICTIONARY ONLINE, <http://www.merriam-webster.com/dictionary/millisecond>, archived at <http://perma.cc/F69C-FXAF>. See also Eamon Javers, *How High-Speed Trading Is About to Get Speedier*, CNBC (Apr. 10, 2013, 1:08 PM), <http://www.cnbc.com/id/100631346>, archived at <http://perma.cc/d6cs-b63q> (“According to one study, it takes a human being between 400 and 500 milliseconds to recognize and respond to a visual stimulus—let alone make a complicated financial investment decision.”).

<sup>25</sup> See Paul Krugman, Op-Ed., *Three Expensive Milliseconds*, N.Y. TIMES, Apr. 14, 2014, at A23; Janet Maslin, *Hobbling Wall Street Cowboys*, N.Y. TIMES, Apr. 1, 2014, at C1.

<sup>26</sup> New York State Attorney General Eric T. Schneiderman is investigating what he has called “insider trading 2.0,” which involves circumstances where news and market data providers release information (such as consumer survey data from the University of Michigan) “two seconds earlier to high-frequency trading clients who paid an additional fee.” Vince Heaney, *The War Against “Insider Trading 2.0”*, FIN. TIMES (Oct. 20, 2013, 5:16 AM), <http://www.ft.com/intl/cms/s/0/bdb99a02-359a-11e3-b539-00144feab7de.html>.

<sup>27</sup> For example, Charles Munger, the vice chairman of Berkshire Hathaway, indicated that he viewed some HFT tactics as “basically evil” and “legalized front running.” Sam Mamudi, *Charlie Munger: HFT Is Legalized Front-Running*, BARRON’S (May 3, 2013, 1:25 PM), <http://blogs.barrons.com/stockstowatchtoday/2013/05/03/charlie-munger-hft-is-legalized-front-running/tab/print>. Warren Buffett has stated that he agrees with Munger’s characterization of HFT, saying that HFT “is not contributing anything to capitalism.” *CNBC Excerpts: Billionaire Investor*

contribute to the public impression that the super-fast, highly automated markets lack a moral compass.<sup>28</sup> Further harming the reputation of the financial markets, and high-speed trading in particular, were several well-publicized “malfunctions in ATS and trading platform systems, in both derivatives and securities markets.”<sup>29</sup> In one such example, the May 6, 2010 “Flash Crash,” a trader used an automated algorithm and sold \$4.1 billion worth of S&P 500 E-mini futures contracts in a short amount of time, triggering a rapid decline, and subsequent recovery, in the futures and securities markets that day.<sup>30</sup> The problematic algorithm, among other things, sold futures contracts without taking price or time into account, such that the algorithm continued placing orders even as prices dropped substantially.<sup>31</sup>

But the remarkable speed at which financial markets now move is only a small part of the story about how technological advances are changing—and will continue to

---

*Warren Buffett Sits Down with CNBC’s Becky Quick on “Squawk Box” Today*, CNBC (May 6, 2013, 11:38 AM), <http://www.cnbc.com/id/100711480>, archived at <http://perma.cc/D4B9-WGFX>.

<sup>28</sup> SEC Commissioner Daniel Gallagher stated, “The problem with high-frequency trading right now is that there’s a perception that for the little guy, the markets aren’t fair . . . . That perception to me is a reality. It’s something we need to address.” Nick Baker & Sam Mamudi, *High-Speed Traders Rip Investors Off*, *Michael Lewis Says*, BLOOMBERG (Mar. 30, 2014, 8:09 PM), <http://www.bloomberg.com/news/articles/2014-03-30/high-frequency-traders-ripping-off-investors-michael-lewis-says>, archived at <http://perma.cc/4CX2-CHDP>. See also Tom Petruno, *Investors Protest as Well—By Leaving*, L.A. TIMES, Oct. 15, 2011, at B1 (“But for many Americans, the market . . . has become more a symbol of fear than greed: fear of more losses, . . . and fear that stock trading is mostly controlled by computer algorithms, not by any semblance of rational human thought.”).

<sup>29</sup> Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,548 (stating that the malfunctions “illustrate the technological and operational vulnerabilities inherent to automated trading environments”).

<sup>30</sup> Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,547.

<sup>31</sup> *Id.* See also Nathaniel Popper, *In Search of a Market Speed Limit*, N.Y. TIMES, Sept. 9, 2012, at BU1.

change—our lives. According to Erik Brynjolfsson and Andrew McAfee, Director and Associate Director of the Massachusetts Institute of Technology’s Center for Digital Business, respectively, the world is entering the Second Machine Age, which they claim will revolutionize the way humans live and work thanks to, among other things, the use of highly-functional automated robots in practically all aspects of society.<sup>32</sup> Brynjolfsson and McAfee argue that humankind, having exited the First Machine Age of the Industrial Revolution, has arrived at the Second Machine Age now that technology has advanced to a point where computer and software programs exhibit capabilities once believed impossible, and at a cost that makes those advances sufficiently affordable for mass-market implementation.<sup>33</sup> In December 2014, a *New York Times* article observed that “[a]rtificial intelligence has become vastly more sophisticated in a short time, with machines now able to learn, not just follow programmed instructions, and to respond to human

---

<sup>32</sup> Andrew McAfee, *We’re Living Through a New Industrial Revolution*, FIN. TIMES (Oct. 16, 2014), <http://blogs.ft.com/andrew-mcafee/2014/10/16/were-living-through-a-new-industrial-revolution>. See also BRYNJOLFSSON & MCAFEE, THE SECOND MACHINE AGE, *supra* note 8, at 90 (“[T]he second machine age [will feature] sustained exponential improvement in most aspects of computing, extraordinarily large amounts of digitized information, and recombinant innovation.”).

<sup>33</sup> BRYNJOLFSSON & MCAFEE, THE SECOND MACHINE AGE, *supra* note 8, at 90–92. See Martin Wolf, *If Robots Divide Us, They Will Conquer*, FIN. TIMES (Feb. 4, 2014, 6:57 PM), <http://www.ft.com/intl/cms/s/e1046e2e-8aae-11e3-9465-00144feab7de> (reviewing the book, *The Second Machine Age*); Patrick Thibodeau, *One in Three Jobs Will Be Taken By Software or Robots by 2025*, COMPUTERWORLD (Oct. 7, 2014), <http://www.computerworld.com/article/2691607/one-in-three-jobs-will-be-taken-by-software-or-robots-by-2025.html>, archived at <http://perma.cc/2BUF-Y6W4> (quoting a computer expert as stating that the “cognitive capability in software will extend to . . . financial analysis . . . and data analytic jobs of all sorts”). See also Michael Dempsey, *Analytic Programs Can Learn to Make Accurate Predictions*, FIN. TIMES (Oct. 21, 2014, 9:00 PM), <http://www.ft.com/intl/cms/s/24ec2706-4fb9-11e4-908e-00144feab7de> (“So-called ‘machine learning’ allows the software to come up with its own set of ‘rules’, directions the software can follow . . .”).

language and movement.”<sup>34</sup> Within a matter of time, computers and software programs will essentially act as independent, autonomous artificial agents.<sup>35</sup> These robots are expected to displace whole categories of human jobs, from pilots and taxi drivers to many kinds of salespeople and marketers.<sup>36</sup> Some fear that the rise of artificially intelligent robots could cause far more serious problems for humans. Astrophysicist Stephen Hawking, PayPal co-founder Peter Thiel, and others have warned that artificial intelligence could prove dangerous to humanity “in the not-too-distant future.”<sup>37</sup> As such, some tech companies have implemented

---

<sup>34</sup> Cain Miller, *supra* note 2.

<sup>35</sup> Leon Neyfakh, *Robots on Trial: As Machines Get Smarter—And Sometimes Cause Harm—We’re Going to Need A Legal System that Can Handle Them*, BOS. GLOBE, Mar. 3, 2013, at K1. “And when these machines behave in ways unpredictable to their makers, it will be unclear who should be held legally responsible . . .” *Id.*

<sup>36</sup> *See id.*; Tom Randall, *How to Keep Your Job When Your Boss Is a Robot*, BLOOMBERG (Mar. 18, 2014, 3:12 AM), <http://www.bloomberg.com/news/articles/2014-03-17/how-to-keep-your-job-when-you-re-boss-is-a-robot>, archived at <http://perma.cc/AL63-UY2N>; Ito, *supra* note 9:

The[se] advances, coupled with mobile robots wired with this intelligence, make it likely that occupations employing almost half of today’s U.S. workers, ranging from loan officers to cab drivers and real estate agents, become possible to automate in the next decade or two, according to a study done at the University of Oxford . . . .

<sup>37</sup> Sally Davies, *Hawking Warns on Rise of the Machines*, FIN. TIMES (Dec. 2, 2014, 6:13 PM), <http://www.ft.com/intl/cms/s/9943bee8-7a25-11e4-8958-00144feabdc0>; Sally Davies & Richard Cookson, *DeepMind Buy Heralds Rise of the Machines*, FIN. TIMES (Jan. 27, 2014, 7:56 PM), <http://www.ft.com/intl/cms/s/1c9d5410-8739-11e3-9c5c-00144feab7de>.

Indeed, in his book, SUPERINTELLIGENCE: PATHS, DANGERS, STRATEGIES, author Nick Bostrom describes the various ways in which super-intelligent robots could wipe out humanity, from tricking humans to assist their takeover to hacking into the automated labs that build robots. *See generally* NICK BOSTROM, SUPERINTELLIGENCE: PATHS, DANGERS, STRATEGIES 95–99 (2014); Clive Cookson, *Superintelligence: Paths, Dangers, Strategies*, by Nick Bostrom, FIN. TIMES (July 13, 2014), <http://www.ft.com/intl/cms/s/2/021d3484-fd1d-11e3-8ca9-00144feab7de.html>, archived at <http://perma.cc/7LWL-74ZJ>.

oversight systems to address this concern. Google, for example, has established an ethics committee to monitor the work of DeepMind, an artificial intelligence start-up company it acquired in 2014.<sup>38</sup> Likewise, some experts argue that research and development related to artificial intelligence should not focus solely on creating the smartest robots, but on creating the smartest *ethical* robots.<sup>39</sup>

While autonomous artificial agents will play important roles in just about every part of human life in the future, this Article focuses on the involvement of artificial agents in the financial markets for futures and derivatives. The resulting increase in the presence of independent, automated robots—sometimes called “algorithmic robots” or “algo” for short<sup>40</sup>—operating in the futures markets, as digital<sup>41</sup>

---

<sup>38</sup> Davies, *Hawking Warns*, *supra* note 37. See also Nick Bilton, *Artificial Intelligence as a Threat*, N.Y. TIMES, Nov. 6, 2014, at E2 (stating that “we are starting to create machines that can make decisions like humans, but these machines don’t have morality and likely never will”).

<sup>39</sup> See, e.g., Colin Allen, *The Future of Moral Machines*, N.Y. TIMES OPINIONATOR (Dec. 25, 2011, 5:30 PM), <http://opinionator.blogs.nytimes.com/2011/12/25/the-future-of-moral-machines>, archived at <http://perma.cc/PQ5T-J64G> (stating that, with technological advances allowing for semi-autonomous machines in many facets of life, “we need to think long and hard about machine morality.”); John Gilbey, *Androids Dream of Ethical Sheep*, TIMES HIGHER EDUC. SUPPLEMENT, Feb. 26, 2009, at Books 52 (stating that “the study of machine morality will inevitably be of major importance to our future as a society”); John Markoff, *The Coming Superbrain*, N.Y. TIMES, May 24, 2009, at WK1 (mentioning “the idea of ‘friendly artificial intelligence,’ an engineering discipline that would seek to ensure that future machines would remain our servants or equals rather than our masters”). Ethical issues are unavoidable with the implementation of any automated system. For example, should a driverless car swerve to avoid hitting a school bus full of children even if doing so would almost certainly kill the driverless car’s passengers? See Tom Chatfield, *Automated Ethics*, AEON (Mar. 31, 2014), <http://aeon.co/magazine/technology/can-we-design-systems-to-automate-ethics>, archived at <http://perma.cc/U7NG-VUEC>.

<sup>40</sup> See Charles Duhigg, *Stock Traders Find Speed Pays*, in *Milliseconds*, N.Y. TIMES, July 24, 2009, at A1.

<sup>41</sup> This Article uses the word, “digital,” here to mean “using or characterized by computer technology” and “designating a virtual,

intermediaries<sup>42</sup> or in other capacities, has significant implications for the applicable law and regulations governing the futures markets. The federal statute providing the regulatory framework for the country's futures and derivatives markets, the Commodity Exchange Act (“CEA”), dates back to 1936.<sup>43</sup> The primary objectives of the CEA include reducing systemic risk,<sup>44</sup> preventing fraud,<sup>45</sup> and

---

computer-mediated counterpart of an object that exists in the physical world.” See *Digital*, MERRIAM-WEBSTER DICTIONARY ONLINE, <http://www.merriam-webster.com/dictionary/digital>, archived at <http://perma.cc/9SFD-DSLH>; *Digital*, OXFORD ENGLISH DICTIONARY ONLINE, <http://www.oed.com/view/Entry/52611>, archived at <http://perma.cc/V2AX-T59M>.

<sup>42</sup> “An ‘intermediary’ is a person or firm who acts on behalf of another person in connection with futures trading.” *Intermediaries*, CFTC.GOV, <http://www.cftc.gov/industryoversight/intermediaries/registration>, archived at <http://perma.cc/E9E7-QR78>; see also *Intermediary*, CFTC GLOSSARY, <http://www.cftc.gov/ConsumerProtection/EducationCenter/CFTCGlossary/index.htm#I>, archived at <http://perma.cc/B8FU-E8SE>.

<sup>43</sup> The Commodity Exchange Act, Pub. L. No. 74-675, 49 Stat. 1491 (1936) (codified as amended in 7 U.S.C. §§ 1–27). The CEA primarily updated the previous statute that governed the futures markets, which was the Grain Futures Act of 1922. See Lydie Nadia Cabrera Pierre-Louis, *Controlling a Financial Jurassic Park: Obtaining Jurisdiction Over Derivatives by Regulating Illegal Foreign Currency Boiler Rooms*, 8 U.C. DAVIS BUS. L.J. 35, 49–50 (2007).

<sup>44</sup>

Systemic risk is the risk that the failure of one significant financial institution can cause or significantly contribute to the failure of other significant financial institutions as a result of their linkages to each other. Systemic risk can also be defined to include the possibility that one exogenous shock may simultaneously cause or contribute to the failure of multiple significant financial institutions.

Hal S. Scott, *The Reduction of Systemic Risk in the United States Financial System*, 33 HARV. J.L. & PUB. POL’Y 671, 673 (2010). See e.g., CEA § 5b(f)(1), 7 U.S.C. § 7a-1(f)(1) (2012) (beginning, “In order to minimize systemic risk . . .”).

<sup>45</sup> The CEA has several antifraud provisions. See, e.g., CEA §§ 4b, 4o, 7 U.S.C. §§ 6b, 6o (2012).

eliminating abusive trading practices and market manipulation in the derivatives markets.<sup>46</sup>

The CEA currently requires specific categories of market intermediaries, such as futures commission merchants (i.e., futures brokers, or “FCMs”),<sup>47</sup> commodity trading advisors,<sup>48</sup> commodity pool operators,<sup>49</sup> and their associated persons (“APs”),<sup>50</sup> to register with the U.S. Commodity Futures Trading Commission (“CFTC”).<sup>51</sup> Compulsory registration

---

<sup>46</sup> COMMODITY FUTURES TRADING COMM’N, PRESIDENT’S BUDGET AND PERFORMANCE PLAN, FISCAL YEAR 2015 at 1 (Mar. 2014), <http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/cftcbudget2015.pdf>, archived at <http://perma.cc/47Q8-EDH6> [hereinafter CFTC FY2015 BUDGET PLAN]. See Jerry W. Markham, *Manipulation of Commodity Futures Prices—The Unprosecutable Crime*, 8 YALE J. ON REG. 281, 281–83 (1991).

<sup>47</sup> CEA § 1a(28), 7 U.S.C. § 1a(28) (2012) (defining “FCM”). “The [FCM], if in the securities business, would probably be called a *brokerage house* . . . . A person wishing to trade on the CFTC-regulated markets may open an account at a [FCM] . . . . Trading orders are given by the customer, directly or indirectly, to the FCM . . . .” 1 PHILIP MCBRIDE JOHNSON & THOMAS LEE HAZEN, DERIVATIVES REGULATION § 1.06[1], at 195–96 (3d ed. 2004).

<sup>48</sup> CEA § 1a(12), 7 U.S.C. § 1a(12) (2012) (defining “commodity trading advisor” as, *inter alia*, any person who, for compensation or profit, engages in the business of advising others as to the value or advisability of trading in any futures contract, commodity option, swap, or other derivative).

<sup>49</sup> CEA § 1a(11), 7 U.S.C. § 1a(11) (2012) (defining “CPO” as “any person engaged in a business that is of the nature of a commodity pool, investment trust, syndicate, or similar form of enterprise, and who, in connection [to that business], solicits, accepts, or receives [funds from others] . . . for the purpose of trading in commodity interests”).

<sup>50</sup> CFTC Regulation 1.3(aa), 17 C.F.R. § 1.3(aa) (2013) (defining “AP” as, generally speaking, a human—called a “natural person” in the CFTC Regulations—who is the agent of another registrant and who either solicits funds or trading orders or who supervises those who do so).

<sup>51</sup> For the specific registration requirements, see CEA §§ 4d, 4e, 4f, 4k, 4m, 4n, and 4s, 7 U.S.C. §§ 6d, 6e, 6f, 6k, 6m, 6n, and 6s (2012). The CFTC is analogous to the Securities and Exchange Commission (“SEC”), but regulates the markets for futures, options on futures, commodity options, swaps, and certain other derivatives, rather than securities. See generally 2 JOHNSON & HAZEN, *supra* note 47, § 4.03, at 944.



helps prevent fraud, abusive trading practices, and market manipulation by derivative trading professionals. In addition to complying with numerous regulatory requirements, CFTC registrants must undergo background checks to ensure their fitness for interacting with customers and operating in the derivative markets<sup>52</sup> and, in some instances, meet proficiency requirements by passing an industry examination<sup>53</sup> or completing ethics training.<sup>54</sup> Generally speaking, the CEA and CFTC regulations require registration for both persons who solicit customers and funds for the purpose of trading derivatives as well as their supervisors.<sup>55</sup> As such, many hedge funds<sup>56</sup> fall under the CFTC's regulatory authority.<sup>57</sup> It is critical to note, however, that only humans and business organizations—not computers or software programs—are considered “persons” for purposes of the law.<sup>58</sup> Thus, the existing registration

---

<sup>52</sup> See NAT'L FUTURES ASS'N, *General Registration Questions FAQs*, NAT'L FUTURES ASS'N, [http://www.nfa.futures.org/nfa-faqs/registration\\_faqs/general-registration-questions/index.HTML](http://www.nfa.futures.org/nfa-faqs/registration_faqs/general-registration-questions/index.HTML), archived at <http://perma.cc/G786-EMFL>.

<sup>53</sup> Overall, associated persons and some principals of registrants must pass the Series 3 examination, which is administered by the National Association of Securities Dealers (“NASD”). See NAT'L FUTURES ASS'N, *Proficiency Requirements*, NAT'L FUTURES ASS'N, <http://www.nfa.futures.org/nfa-registration/proficiency-requirements.html>, archived at <http://perma.cc/6U5M-3Z3L>.

<sup>54</sup> See 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[23], at 661–65; Appendix B to Part 3—Statement of Acceptable Practices with Respect to Ethics Training, 17 C.F.R. pt. 3, app. B (2012).

<sup>55</sup> See CEA §§ 4d, 4e, 4f, 4k, 4m, 4n, 4s, 7 U.S.C. §§ 6d, 6e, 6f, 6k, 6m, 6n, 6s (2012).

<sup>56</sup> Although most scholarly discussion of hedge funds appears to approach them from the perspective of securities regulation, many of the largest hedge funds also place trades in futures, swaps, or other derivatives and therefore are, in fact, CFTC-regulated commodity pool operators and commodity trading advisors. See 13 JERRY W. MARKHAM, *COMMODITIES REGULATION: FRAUD, MANIPULATION & OTHER CLAIMS* §§ 17A:3, 17A:3.10 (2014).

<sup>57</sup> *Id.* at §§ 17A:1, 17A:3.10.

<sup>58</sup> Business entities are “persons” for purposes of the law. See 1 U.S.C. § 1 (2012) (“In determining the meaning of any Act of Congress, unless the

requirements, which are directed at “persons,” would not apply to new digital intermediaries in the futures markets.<sup>59</sup>

As technological advances continue to enable computers and software programs to perform many of the intermediary roles previously performed by humans, the number and influence of these digital intermediaries, both already high, are guaranteed to increase with time.<sup>60</sup> As such, global review of the kinds of persons and intermediaries subject to compulsory registration in CFTC-regulated markets is warranted, if not overdue.

---

context indicates otherwise . . . the words ‘person’ and ‘whoever’ include corporations, companies, associations, firms, partnerships, societies, and joint stock companies, as well as individuals . . . .”); CEA § 1a(38), 7 U.S.C. § 1a(38) (2012) (“The term ‘person’ imports the plural or singular, and includes individuals, associations, partnerships, corporations, and trusts.”); CFTC Regulation 1.3(u), 17 C.F.R. § 1.3(u) (stating that the term “person” “includes individuals, associations, partnerships, corporations, and trusts.”).

<sup>59</sup> The issue of whether artificially intelligent machines or software programs should be accorded personhood and legal rights has been the subject of significant debate. *See generally* F. Patrick Hubbard, “Do Androids Dream?": *Personhood and Intelligent Artifacts*, 83 TEMP. L. REV. 405 (2011) (arguing that human artifacts should be afforded legal rights if the artifacts meet certain criteria); Lawrence B. Solum, *Legal Personhood for Artificial Intelligences*, 70 N.C. L. REV. 1231 (1992) (exploring the legal and cognitive science landscape surrounding the question of whether artificial intelligence objects should be granted legal rights).

<sup>60</sup> “Automation in the markets will continue to grow, and use of high speed technology will spread until in a few years’ time, the whole conversation will be entirely irrelevant, as the majority of the market will trade at the same ‘high speeds.’” Johannah Ladd, Secretary General of the Futures Industry Association European Principal Traders Association, *FIA EPTA Blog—High Frequency Trading or High Frequency Technology*, AUTOMATED TRADER (Dec. 17, 2014), [http://www.automatedtrader.net/news/at/152621/fia-epta-blog\\_-high-frequency-trading-or-high-frequency-technology](http://www.automatedtrader.net/news/at/152621/fia-epta-blog_-high-frequency-trading-or-high-frequency-technology), archived at <http://perma.cc/SV9A-236V> (stating that “[t]he majority of the market is already automated today”). Martin Wheatley, chief executive of the United Kingdom’s Financial Conduct Authority, has stated that “perhaps closer than we think, learning algorithms and self-improving artificial intelligence [will be] the prime decision-makers in electronic markets.” Campbell, *supra* note 19 (alteration in original).

The CFTC recognizes that technological advances have substantially changed the structure and operations of the markets for futures and other derivatives. To address these issues, on September 9, 2013, the CFTC issued a Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, which solicited comments in response to 124 questions in the document.<sup>61</sup> The Concept Release covered a broad array of issues related to automation in the derivatives markets, and touched on several matters related to the definitions (and regulation) of intermediaries. Specifically, the Concept Release raised a number of questions, such as (1) whether to require firms that use ATSs to register as floor traders (or some other category of intermediary),<sup>62</sup> (2) whether to require “software firms” that provide “algorithms” for ATSs to register,<sup>63</sup> and (3) whether to implement “measures to improve the identification of ATS or their underlying algorithms.”<sup>64</sup>

---

<sup>61</sup> Press Release, U.S. Commodities Futures Trading Comm’n, *CFTC Publishes Concept Release on Risk Controls and System Safeguards for Automated Trading Environments* (Sept. 9, 2013), available at <http://www.cftc.gov/PressRoom/PressReleases/pr6683-13>, archived at <http://perma.cc/9FG9-JJ5R>. See also Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,542, 56,564–69.

<sup>62</sup> *Id.* at 56,560.

<sup>63</sup> *Id.* at 56,561.

<sup>64</sup> *Id.* at 56,559. Likewise, the Financial Industry Regulatory Authority (“FINRA”), the self-regulatory organization for the securities industry, has “issued a proposal to establish a registration requirement for persons who are primarily responsible for the design, development or for directing the significant modification of an algorithmic strategy, or responsible for supervising such functions.” *Regulators Eye Algorithms*, MARKETS MEDIA (Oct. 24, 2014), <http://marketsmedia.com/regulators-eye-algorithms>, archived at <http://perma.cc/7HZV-GC92>. See also Carlo di Florio, *FINRA’s CRO Asks Whether Algo Trading Is “Ungovernable,”* AUTOMATED TRADER (Oct. 21, 2014), <http://www.automatedtrader.net/headlines/152094/finras-cro-asks-whether-algo-trading-is-ungovernable>, archived at <http://perma.cc/C5X3-A4WQ>:

FINRA will also publish guidance reminding firms of their existing supervisory obligations with regard to the

The goal of this Article is to subject the existing regulatory framework for derivatives market intermediaries to analysis taken from current philosophical and legal research concerning autonomous artificial agents. Part II of this Article outlines the existing registration and regulatory requirements for intermediaries in the futures and derivatives markets. Part III provides definitions of several common categories of futures market intermediaries. Part IV compares ways to expand the registration requirements to include persons who use ATs and software firms that provide algorithms or software code for ATs with the traditional, but implicit, theoretical framework that appears to have guided Congress in previous initiatives that broadened the scope of compulsory registration for players in the derivatives markets.

This Article concludes that, to some degree, expanding the registration and identification requirements is consistent with the theoretical framework Congress traditionally uses. This Article goes on to argue, however, that the traditional theoretical framework applied by Congress fails to fully address the more important question at issue: namely, how to ensure that high ethical standards will continue to prevail when all or most derivatives trading professionals and other market participants are “autonomous artificial agents”<sup>65</sup> as opposed to humans. As such, the current challenge before Congress and the CFTC goes beyond modifying the definitions of regulated intermediaries. The task will be to craft and implement a legal framework that ensures that digital intermediaries and other autonomous artificial agents

---

development and deployment of algorithmic trading strategies. [FINRA will] also provide additional guidance to firms on effective controls and practices to monitor for and prevent potential adverse impacts on the market. The guidance will also cover firms’ obligations in these areas, and supervision and control practices for firms and market participants that use algorithmic trading strategies.

<sup>65</sup> See generally SAMIR CHOPRA & LAURENCE F. WHITE, A LEGAL THEORY FOR AUTONOMOUS ARTIFICIAL AGENTS (2011).

will abide by the ethical standards and legal rules governing the markets.<sup>66</sup>

This Article further concludes that, while limited expansion of the compulsory registration requirements would be beneficial, Congress and the CFTC ultimately need to prohibit digital intermediaries, including ATs, from operating in the markets unsupervised, and hold civilly liable for regulatory violations the human operators and owners of digital intermediaries who fail to take reasonable efforts to prevent automated illegal activity. This Article is the first to analyze whether existing registration categories under the CEA must be modified and updated in light of the expansion of automated computers and software programs.

## II. THE EXISTING FRAMEWORK GOVERNING THE REGULATION OF FUTURES MARKET INTERMEDIARIES

The U.S. markets for futures, swaps, and other derivatives are a large and vital part of interstate—and even global—commerce. The CFTC-regulated futures and option markets represent contracts with a notional value of approximately \$31 trillion, while the CFTC-regulated swaps markets are even larger, with an estimated notional value of at least \$400 trillion.<sup>67</sup>

Congress has long recognized the importance of the commodity futures and derivatives markets. CEA Section 3(b) states that the purpose of the Act is “to serve the public interests . . . through a system of effective self-regulation of . . . market participants and market professionals under

---

<sup>66</sup> The CEA clearly gives the CFTC the authority to regulate the markets for futures, swaps, and derivatives. *See* CEA § 8a(5), 7 U.S.C. § 12a(5) (2012). As such, the CFTC has the ability to address issues related to the technological advances that are affecting the markets. However, Congress has the ability to modify the CEA and has done so in the past to address specific issues or problems. Accordingly, Congress also is an important participant in this arena.

<sup>67</sup> CFTC FY2015 BUDGET PLAN, *supra* note 46, at 1.

the oversight of the [CFTC].”<sup>68</sup> Congress created the CFTC in 1974,<sup>69</sup> and gave the new agency “exclusive, pervasive authority over commodity trading and professionals.”<sup>70</sup> While an explicit purpose of the CEA is to prevent futures market manipulation schemes, “[a]n implicit purpose of the [CEA] is to achieve a regulatory scheme that is consistent with the public interest and that promotes just and equitable principles of trade.”<sup>71</sup> Key objectives of the federal government’s regulatory framework for the futures and derivatives markets have long been to prevent market manipulation,<sup>72</sup> abusive trading practices,<sup>73</sup> and fraud.<sup>74</sup> Indeed, concerns about the misconduct of commodity trading professionals appear to have been one of the factors that motivated Congress to create the CFTC in 1974 and subject

---

<sup>68</sup> CEA § 3(b), 7 U.S.C. § 5(b) (2012).

<sup>69</sup> Congress did so with the appropriately named Commodity Futures Trading Commission Act of 1974. *See* Commodity Futures Trading Commission Act of 1974, Pub. L. No. 93-463, 88 Stat. 1389 (1974). The purpose of the statute is clear from the following statement: “In 1974, we created the CFTC to serve as our technical expert for understanding commodity markets, and to ensure market integrity and fairness. We all desire to protect the public from illegal and unethical trading practices . . .” 135 CONG. REC. 20,350 (1989) (statement of Rep. Virginia Smith).

<sup>70</sup> Jeffrey S. Rosen, *Regulation of Commodity Pool Operators Under the Commodity Exchange Act*, 40 WASH. & LEE L. REV. 937, 939–40 (1983).

<sup>71</sup> Exemption from Registration as a Commodity Trading Advisor, 65 Fed. Reg. 12,938, 12,939 (Mar. 10, 2000) (to be codified at 17 C.F.R. pt. 4).

<sup>72</sup> *See* Scopino, *Do ATSS Dream?*, *supra* note 19, at 236–42 (describing how, throughout the history of federal regulation of futures and derivatives trading, one of the primary objectives has been to prevent market manipulation).

<sup>73</sup> Many abusive trading practices, such as wash trading (self-dealing), have been illegal under the CEA since 1936. *See* 80 CONG. REC. 7858 (1936) (remarks of Sen. Murray); 80 CONG. REC. 6162 (1936) (statement of Sen. Pope).

<sup>74</sup> *See* 13 MARKHAM, *supra* note 56, § 17A:1.10 (discussing the background and history of the first federal commodity futures antifraud provision in 1936); 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[2][B], at 635–36.

commodity pool operators and commodity trading advisors to compulsory registration and regulation.<sup>75</sup>

The CEA seeks to reduce systemic risk and prevent fraud, abusive trading practices, and market manipulation in the derivatives markets. Under decisional law, the definition of fraud encompasses more than just outright lies, also including material omissions—such as failing to mention one’s losing investment track record—and unbalanced communications that exaggerate the likelihood of experiencing profits.<sup>76</sup> Abusive trading practices include

---

<sup>75</sup> Dr. Clayton Yeutter, Assistant Secretary of Agriculture, stated as follows:

One of the ways in which unsophisticated traders have lost substantial amounts of money is through commodity advisors and commodity pool operators. This bill will provide for the registration of all such persons, establish procedures under which they will be permitted to operate and specifically eliminate certain undesirable practices which have enticed unsuspecting traders into the markets with, far too often, substantial loss of funds.

H.R. REP. NO. 93-975 at 79 (1974) (statement of Dr. Clayton Yeutter, Assistant Secretary of Agriculture).

<sup>76</sup> See, e.g., *CFTC v. R.J. Fitzgerald & Co.*, 310 F.3d 1321, 1329 (11th Cir. 2002):

Read for its *overall message*, and how that message would be interpreted by an objectively reasonable television viewer, the Commercial overemphasizes profit potential and downplays risk of loss, presenting an unbalanced image of the two . . . . Against these highly alluring statements is only boilerplate risk disclosure language. We agree with CFTC’s position that these statements directly contravene the legal principles established in prior commodities fraud cases.

*CFTC v. Commonwealth Fin. Grp., Inc.*, 874 F. Supp. 1345, 1353 n.10 (S.D. Fla. 1994) (“Plaintiffs suggest that it amounts to a misrepresentation when salespeople emphasize the profits enjoyed by Commonwealth customers without mentioning any of the losses. The Court agrees.”); *CFTC v. Risk Capital Trading Grp., Inc.*, 452 F. Supp. 2d 1229, 1245–46 (N.D. Ga. 2006) (finding that failure to disclose investing track record in which the overwhelming majority of customers had lost their investments was a material factual omission).

wash trading (self-dealing, or taking both sides of prearranged, noncompetitive trades),<sup>77</sup> banging the close (buying or selling large volumes of commodity contracts in the closing moments of a trading day with the intent of moving the price of the contract or contracts),<sup>78</sup> and spoofing (“bidding or offering with the intent to cancel the bid or offer before execution”).<sup>79</sup> Commodity futures market manipulation, also known as “price manipulation,” refers to “the elimination of effective price competition in a market for cash commodities or futures contracts (or both) through the domination of either supply or demand” in a manner that causes prices to be artificially high or low.<sup>80</sup> Of particular importance for the purposes of this Article is that HFT firms have been accused of engaging in abusive trading practices and price manipulation schemes.<sup>81</sup>

---

<sup>77</sup> CEA § 4c(a)(1)–(2), 7 U.S.C. § 6c(a)(1)–(2) (2012). These transactions are also called “wash sales” and “are considered harmful because they create illusory price movements in the market.” *Wilson v. CFTC*, 322 F.3d 555, 559 (8th Cir. 2003).

<sup>78</sup> CEA § 4c(a)(5)(B), 7 U.S.C. § 6c(a)(5)(B) (2012). See David Sheppard & Jonathan Stempel, *High-Frequency Trader Optiver Pays \$14 Million in Oil Manipulation Case*, REUTERS (Apr. 20, 2012), <http://www.reuters.com/article/2012/04/20/us-optiver-settlement-idUSBRE83J01220120420>, archived at <http://perma.cc/VX7M-2RUJ> (describing the practice of “banging the close”).

<sup>79</sup> CEA § 4c(a)(5)(C), 7 U.S.C. § 6c(a)(5)(C) (2012).

<sup>80</sup> 3 JOHNSON & HAZEN, *supra* note 47, § 5.02[3], at 1240 (“Price manipulation is kindred to the exercise of monopoly power to dictate prices that would be unachievable in a truly competitive environment.”).

<sup>81</sup> See, e.g., *CFTC v. Wilson*, 27 F. Supp. 3d 517, 535 (S.D.N.Y. 2014) (denying a motion to dismiss where a high-speed trading firm was accused of banging the close in violation of CEA § 6(c) and § 9(a)(2)); *CFTC v. Moncada*, 31 F. Supp. 3d 614, 618 (S.D.N.Y. 2014) (granting in part and denying in part the CFTC’s motion for summary judgment but largely endorsing the CFTC’s view of the case, which involved allegations that high-speed spoofing misled other market participants).



### A. Registration: The Kingpin in the Statutory Machinery

Subject to limited exceptions, the CEA requires all persons that do business as professionals in the futures or derivatives markets to register with the CFTC.<sup>82</sup> The CFTC has delegated administration of the registration process to the industry's self-regulatory organization ("SRO"), the National Futures Association ("NFA").<sup>83</sup> Besides subjecting the persons in question to oversight from the CFTC and NFA,<sup>84</sup> the mandatory registration of intermediaries serves to identify persons active in the futures and derivatives markets.<sup>85</sup> Registration thereby provides a mechanism for screening the backgrounds of such persons for fitness to

---

<sup>82</sup> *Who Has to Register*, NAT'L FUTURES ASS'N, <https://www.nfa.futures.org/nfa-registration/index.html>, archived at <http://perma.cc/6HC4-VVSB>.

<sup>83</sup> *See About NFA*, NAT'L FUTURES ASS'N, <http://www.nfa.futures.org/NFA-about-nfa/index.html>, archived at <http://perma.cc/WP3Z-N9JC> ("National Futures Association (NFA) is the self-regulatory organization for the U.S. derivatives industry, including on-exchange traded futures, retail off-exchange foreign currency (forex) and OTC derivatives (swaps)."). *See, e.g.*, Performance of Registration Functions by National Futures Association with Respect to Swap Dealers and Major Swap Participants, 77 Fed. Reg. 2708, 2709 (Jan. 19, 2012) (providing a CFTC order "authorizing NFA . . . to perform the full range of registration functions under the CEA and the [CFTC's] regulations with regard to [swap dealers and major swap participants]" and listing all previous such grants of authority to NFA concerning other intermediaries); Registration of Swap Dealers and Major Swap Participants, 77 Fed. Reg. 2613, 2619 (Jan. 19, 2012) (to be codified at 17 C.F.R. pts. 1, 3, 23, 170) ("[T]he [CFTC] intends to delegate its full registration authority under the CEA and its regulations to NFA with respect to applicants for registration, and registrants, as [a swap dealer or major swap participant].").

<sup>84</sup> 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[1] at 626 ("The principal means by which the [CFTC] gains regulatory jurisdiction over trading professionals is through compulsory registration under the [CEA.]").

<sup>85</sup> *Who Has to Register*, NAT'L FUTURES ASS'N, <http://www.nfa.futures.org/nfa-registration/index.html>, archived at <http://perma.cc/5B4W-TV9U>.

conduct business in the markets.<sup>86</sup> Moreover, registration ensures that such persons have met the necessary technical proficiency standards<sup>87</sup> and received ethics training,<sup>88</sup> as required by the Regulations.<sup>89</sup> The importance of registration to the enforcement structure is evidenced in the fact that the registration requirements in the CEA and CFTC Regulations are strict liability provisions. If someone unintentionally fails to register, he or she would be liable in a civil

---

<sup>86</sup> See CFTC Interpretative Letter No. 98-76, 1998 WL 812621 (Nov. 18, 1998), <http://www.cftc.gov/ucm/groups/public/@lrlettergeneral/documents/letter/98-76.pdf>, archived at <http://perma.cc/TE8W-QMPS> (stating that the registration requirements “screen unfit persons from dealings with customers and thus represents an important customer safeguard”); CFTC Staff Letter No. 03-19, 2003 WL 21026328 (Apr. 29, 2003) (stating that “[t]he registration requirements of the [CEA] are an important element of customer protection and a method of screening unfit persons from dealing with customers” and citing SUBCOMM. ON SPECIAL SMALL BUS. PROBLEMS OF THE H. PERMANENT SELECT COMM. ON SMALL BUS., H.R. REP. NO. 963, at 36–37 (1974) (discussing Congressional intent that “registration requirements and fitness checks should be imposed on commodity solicitors, advisors, and all other individuals who are involved directly or indirectly in influencing or advising the investment of customers’ funds”)).

<sup>87</sup> “Congress empowered the [CFTC] in 1974 to develop its own testing systems for registrants . . . . Section 4p(a) of the [CEA] empowers the [CFTC] to adopt rules or regulations establishing standards for persons required to be registered with the [CFTC] with respect to training, experience, or other qualifications ‘to insure the fitness’ of such persons.” 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[22], at 660–61. In regards to proficiency standards, “APs of a registrant are generally required as a condition of such registration to successfully complete an examination known as ‘Series 3’ that is administered by the National Association of Securities Dealers, Inc.” *Id.* at 661.

<sup>88</sup> Registration of Floor Traders; Mandatory Ethics Training for Registrants; Suspension of Registrants Charged with Felonies, 58 Fed. Reg. 19,575, 19,584–85 & nn.42–43 (Apr. 15, 1993) (to be codified at 17 C.F.R. pts. 1, 3, 10, 145); 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[23], at 661–65; 17 C.F.R. pt. 3, app. B, *supra* note 54.

<sup>89</sup> 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[23], at 661.

enforcement action for violating the CEA and CFTC Regulations for operating as an unregistered intermediary.<sup>90</sup>

The number of categories of regulated futures market intermediaries has gradually expanded since the 1930s. Generally, the CEA's compulsory registration requirements cover trading professionals who have contact with customers as opposed to persons who trade with their own funds (i.e., proprietary traders).<sup>91</sup> Given that technological advances are enabling computers and software programs to assume the roles human salespeople previously played,<sup>92</sup> at some point in the future, the persons soliciting orders for futures trades or soliciting customers to invest in commodity hedge funds may be digital intermediaries rather than real people.

In practically every instance of perceived regulatory gaps or blind spots, Congress placed additional categories of intermediaries under CFTC oversight.<sup>93</sup> For example, in 1982 Congress created the “introducing broker” registrant category after being told that FCMs would disavow responsibility for the misconduct of small, independent brokers who had relationships with the FCMs but who were not officially employees or agents of those FCMs (and

---

<sup>90</sup> See *CFTC v. British Am. Commodity Options Corp.*, 560 F.2d 135, 142 (2d Cir. 1977), *cert. denied*, 438 U.S. 905 (1978); *CFTC v. Wilson*, 19 F. Supp. 3d 352, 361 (D. Mass. 2014). See also Scopino, *Do ATSs Dream?*, *supra* note 19. The *Wilson* decision also noted that, in the securities markets, “[c]ourts have consistently held that the SEC registration requirement is a ‘strict liability’ provision.” *Wilson*, 19 F. Supp. 3d at 361.

<sup>91</sup> See, e.g., CEA §§ 4d, 4e, 4f, 4k, 4m, 4n, 4s, 7 U.S.C. §§ 6d, 6e, 6f, 6k, 6m, 6n, 6s (2012).

<sup>92</sup> See, e.g., Randall, *supra* note 36.

<sup>93</sup> The CEA grants the CFTC broad rulemaking authority. See CEA § 8a(5), 7 U.S.C. § 12a(5) (2012). Yet the CFTC has never created a new category of intermediary registrant without a specific congressional directive to do so. This is evident from the fact that for every category for which there is compulsory registration, there is also a specific provision in the CEA mandating that result. See CEA §§ 4d, 4e, 4f, 4k, 4m, 4n, 4s, 7 U.S.C. §§ 6d, 6e, 6f, 6k, 6m, 6n, 6s (2012). Overall, the CFTC does have the authority, however, to promulgate rules that amend or qualify the definitions of existing intermediary categories. See, e.g., CEA § 1a(12)(D), 7 U.S.C. § 1a(12)(D) (2012).

therefore not, under the current definition, APs).<sup>94</sup> Likewise, in 2008, Congress granted the CFTC expansive authority over off-exchange retail foreign currency trading (and retail foreign-exchange dealers) in response to years of pervasive fraud in this area.<sup>95</sup>

The U.S. Court of Appeals for the Second Circuit has observed that “[r]egistration is the kingpin in [the CEA’s] statutory machinery, giving the [CFTC] the information about participants in commodity trading which it so vitally requires to carry out its other statutory functions of monitoring and enforcing the [CEA].”<sup>96</sup> Accordingly, courts consider “the operation of unregistered commodity businesses to be of the most serious nature.”<sup>97</sup> The registration requirement has been read to grant the CFTC authority and jurisdiction over all persons who register as intermediaries (even though the registrant might not actually have been obligated to do so under the CEA)<sup>98</sup> and additionally, all persons who are required to register under the CEA (even if they fail—or refuse—to do so).<sup>99</sup> The CEA prohibits persons from acting as regulated intermediaries

---

<sup>94</sup> See Don L. Horwitz & David J. Gilberg, *Introducing Brokers Under the Commodity Exchange Act: A New Category of Commodity Professionals*, 40 WASH. & LEE L. REV. 907, 908 (1983).

<sup>95</sup> See Regulation of Off-Exchange Retail Foreign Exchange Transactions and Intermediaries, 75 Fed. Reg. 55,410 (Sept. 10, 2010) (to be codified at 17 C.F.R. pts. 1, 3, 4, 5, 10, 140, 145, 147, 160, 166); Regulation of Off-Exchange Retail Foreign Exchange Transactions and Intermediaries, 75 Fed. Reg. 3282 (proposed Jan. 20, 2010) (to be codified at 17 C.F.R. pts. 1, 3, 4, 5, 10, 140, 145, 147, 160, 166).

<sup>96</sup> *British Am. Commodity Options Corp.*, 560 F.2d at 139–40.

<sup>97</sup> *CFTC v. Heritage Capital Advisory Servs., Ltd.*, [1982-1984 Transfer Binder] Comm. Fut. L. Rep. (CCH) ¶ 21,627, at 26,386 (Nov. 8, 1982). See, e.g., *British Am. Commodity Options Corp.*, 560 F.2d at 142 (“Congress . . . has made the policy decision that the conduct of business by unregistered [commodity trading] advisors is not in the public interest.”).

<sup>98</sup> 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[1] & n.15, at 628.

<sup>99</sup> *Id.* at § 3.02[1], at 626.

until they have registered with the CFTC.<sup>100</sup> As such, nondisclosure of one's status as an illegal, unregistered intermediary constitutes a material misrepresentation.<sup>101</sup>

The registration requirements also play an important role in governing the gatekeepers to these markets. Generally speaking, to place trades in the futures and derivatives markets, a person must either have access to those markets through a CFTC registrant or be one.<sup>102</sup> Under the CEA, most trading in futures contracts must take place on CFTC-regulated exchanges, which are called designated contract markets ("DCMs").<sup>103</sup> With few exceptions, only a member of a DCM can actually place trades on that DCM, which means that, as a practical matter, most persons place trades on DCMs through futures brokers (i.e., FCMs) that are members of DCMs.<sup>104</sup> The exchange-trading requirement dates back to the beginning of federal regulation of futures trading with the Grain Futures Act of 1922.<sup>105</sup> The belief was that moving all trading onto federally regulated futures exchanges would help prevent market manipulation schemes

---

<sup>100</sup> See, e.g., CEA § 4m(1), 7 U.S.C. § 6m(1) (2012); 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[14], at 650.

<sup>101</sup> See *Stern v. G.H. Miller & Co.*, [1992-1994 Transfer Binder] Comm. Fut. L. Rep. (CCH) ¶ 24,947 (Oct. 31, 1990); *but see* 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[1], at 628 (noting that "a failure to register does not, standing alone, create an implied private right of private action").

<sup>102</sup> An exception to this exists in regards to a few large, multinational firms that are members of futures exchanges and clearinghouses but that trade derivatives only for themselves. As a result, these firms are not intermediaries themselves and do not need to go through intermediaries to trade derivatives. For example, to become a member of one of the exchanges owned by CME Group, and thereby have trading privileges on that exchange, one needs to meet all of the membership requirements, which do not necessarily require that the prospective member register with the CFTC. See *Becoming a Member*, CME GROUP, <http://www.cmegroup.com/company/membership/becoming-a-member.html>, archived at <http://perma.cc/TCN7-BNHG>.

<sup>103</sup> Scopino, *Do ATSS Dream?*, *supra* note 19, at 238.

<sup>104</sup> 1 JOHNSON & HAZEN, *supra* note 47, § 1.06[1], at 195.

<sup>105</sup> 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[1], at 626.

and other improper practices because the DCMs, in their role as SROs, would police their own markets for wrongdoing.<sup>106</sup> Section 5 of the CEA describes the regulatory obligations of exchanges—in the form of twenty-three “Core Principles”—both initially upon receiving a designation as a contract market and on an ongoing basis thereafter.<sup>107</sup> For example, Core Principle 4 for DCMs states that exchanges must “have the capacity and responsibility to prevent manipulation [and] price distortion . . . through market surveillance, compliance, and enforcement practices and procedures.”<sup>108</sup> Further, DCMs themselves adopt rules requiring their members to comply with the Core Principles and CFTC Regulations.<sup>109</sup>

## B. Background Fitness Screening: The Statutory Disqualification Framework

As mentioned previously, “[o]ne of the central objectives of registration is to insure, to the extent reasonably possible, the fitness of each individual who is granted registration by

---

<sup>106</sup> See 1 JOHNSON & HAZEN, *supra* note 47, § 1.04[3], at 167 (stating that, for an applicant seeking to receive CFTC approval to be a DCM “[t]he most important focus . . . is on the ability of an applicant for contract market designation to show that it has adequately provided for the prevention of conduct that would interfere with the ability of the market to reflect true economic conditions.”).

<sup>107</sup> CEA § 5(d)(1)(A)(i), 7 U.S.C. § 7(d)(1)(A)(i) (2012).

<sup>108</sup> CEA § 5(d)(4), 7 U.S.C. § 7(d)(4) (2012).

<sup>109</sup> See, e.g., Chicago Board of Trade Rulebook, R.R. 534, 539A, CME Group, <http://www.cmegroup.com/rulebook/CBOT/1/5/5.pdf>, archived at <http://perma.cc/62EZ-TP2C>. CME Group is a Chicago-based corporation that owns several major DCMs, including the Chicago Mercantile Exchange (“CME”), New York Mercantile Exchange (“NYMEX”), and Chicago Board of Trade (“CBOT”). CME Group’s electronic trading system for its DCMs is CME Globex. *CME Group Overview*, CME GROUP, <http://www.cmegroup.com/company/files/cme-group-overview.pdf>, archived at <http://perma.cc/2ZTN-AHD2> (“Today, more than 80 percent of the trades at CME Group are electronic.”).

the [CFTC].”<sup>110</sup> As such, the CEA outlines the grounds upon which someone is deemed unfit for registration, and CFTC regulations implement the procedural framework through which such determinations are made. Failure to meet the statutory fitness requirements generally results in denial of a person’s registration, which effectively bars the person from acting as a commodity futures professional.<sup>111</sup>

CEA Sections 8a(2) through (4)<sup>112</sup> are crucial to the customer-protection function of the registration requirements in the CEA and CFTC Regulations. These sections establish a system of statutory disqualifications pursuant to which the CFTC may find a prospective or actual registrant unfit for registration based on facts concerning that person’s background.<sup>113</sup> The statutory disqualification system vests the CFTC with the discretion to refuse to register, to register conditionally, or to deny, condition, suspend, restrict, or revoke the registration of any person subject to one or more bases for disqualification as set forth in Sections 8a(2) and (3).<sup>114</sup> The eight grounds for disqualification listed under Section 8a(2) are more serious than the fourteen additional bases listed under Section

---

<sup>110</sup> Revision of Registration Regulations; Final Rules; Designation of New Part, 45 Fed. Reg. 80,485, 80,489 (CFTC Dec. 5, 1980) (to be codified at 17 C.F.R. pts. 1, 3).

<sup>111</sup> See 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[2][A], at 630.

<sup>112</sup> CEA § 8a(2)–(4), 7 U.S.C. §§ 12a(2)–(4) (2012). CEA § 8a(1), 7 U.S.C. §§ 12a(1), authorizes the CFTC to register specific kinds of derivative market intermediaries (e.g., FCMs, APs of FCMs, IBs, APs of IBs, etc.) “upon application in accordance with rules and regulations and in the form and manner to be prescribed by the” CFTC. CEA § 8a(1), 7 U.S.C. § 12a(1) (2012). Section 8a(1) permits the CFTC to set “reasonable fees and charges for registrations and renewals thereof” and to require applicants “and such persons associated with the applicant[s] as the [CFTC] may specify” to be fingerprinted and to submit the fingerprints to the Attorney General “for identification and appropriate processing.” *Id.*

<sup>113</sup> Appendix A to Part 3—Interpretative Statement with Respect to Sections 8a(2)(C) and (E) and Sections 8a(3)(J) and (M) of the Commodity Exchange Act, 17 C.F.R. pt. 3 app. A (2014).

<sup>114</sup> *Id.*

8a(3).<sup>115</sup> Section 8a(4) authorizes the CFTC to suspend, revoke, or place restrictions on the registration of any person registered with the CFTC if cause exists under Section 8a(3) that would have enabled the CFTC to refuse to register (or register conditionally) that person in the first instance.<sup>116</sup>

The CFTC may, among other things, deny or suspend the registration of any person “upon notice, but without a hearing[.]” and revoke the registration of any person “with such a hearing as may be appropriate” if the person is subject to disqualification based on one or more of the grounds listed in paragraphs (A) through (H) of CEA Section 8a(2).<sup>117</sup> Section 8a(2)(A) allows a person to be disqualified from CFTC registration if “a prior registration of such person in any capacity has been suspended . . . or has been revoked.”<sup>118</sup> Section 8a(2)(C) permits the CFTC to refuse to register or otherwise alter the registration status of any person if, among other things, “such person is permanently or temporarily enjoined by order, judgment, or decree of any court of competent jurisdiction” either from acting as a regulated intermediary under the CEA or securities laws or from “engaging in or continuing any activity” involving embezzlement, theft, extortion, fraud and the like.<sup>119</sup> Section 8a(2)(D) permits statutory disqualification where a person has, within the past 10 years, been convicted of a felony involving facts connected with any of the following: (i) transactions or advice about futures contracts, other derivatives, or securities; (ii) activities related to the

---

<sup>115</sup> *In re* Walter, [1987-1990 Transfer Binder] Comm. Fut. L. Rep. (CCH) ¶ 24,215 at 35,013 (Apr. 14, 1988) (citing *In re* Horn, [1986-1987 Transfer Binder] Comm. Fut. L. Rep. (CCH) ¶ 23,732, at 33,889 n.9 (July 21, 1987)).

<sup>116</sup> See CEA § 8a(4), 7 U.S.C. § 12a(4) (2012).

<sup>117</sup> See CEA §§ 8a(2)(A)–(H), 7 U.S.C. §§ 12a(2)(A)–(H) (2012).

<sup>118</sup> CEA § 8a(2)(A), 7 U.S.C. § 12a(2)(A) (2012).

<sup>119</sup> See CEA § 8a(2)(C), 7 U.S.C. § 12a(2)(C) (2012). See also *Hirschberg v. CFTC*, 414 F.3d 679, 683 (7th Cir. 2005) (“Fraud can be grounds for statutory disqualification when it is the subject of an injunction or of a civil court or administrative ruling in a case to which a government agency is a party.”).



business of being a CFTC-registrant; or (iii) embezzlement, theft, extortion, fraud, misappropriation of funds, securities, or property and the like.<sup>120</sup>

Section 8a(3) authorizes the CFTC to deny a person's registration if, after notice and opportunity for a hearing, the person is determined to be subject to one or more of the grounds for disqualification described in paragraphs (A) through (N).<sup>121</sup> For example, Section 8a(3)(A) provides for disqualification where the CFTC or a court has found the person to have violated (or the person consented to findings of a violation of) the CEA or any of the regulations promulgated thereunder.<sup>122</sup> Section 8a(3)(C) permits disqualification if a person fails to supervise another over whom he or she has a supervisory duty to detect and prevent violations of the CEA or securities laws, and the person who was supposed to be supervised violated the CEA or securities laws.<sup>123</sup> Section 8a(3)(E) provides grounds to disqualify a person who has pleaded guilty or has been convicted of a misdemeanor involving transactions or advice concerning futures contracts, other derivatives, or securities, or involving activities related to conducting business as a CFTC registrant.<sup>124</sup> Section 8a(3)(F) permits disqualification of persons who have been barred by U.S. agencies from contracting with the United States.<sup>125</sup> Section 8a(3)(H) provides grounds to disqualify any person who "has pleaded nolo contendere to criminal charges of felonious conduct, or has been convicted in a State court, in a United States

---

<sup>120</sup> See CEA § 8a(2)(D), 7 U.S.C. § 12a(2)(D) (2012). CEA § 8a(3)(D), 7 U.S.C. § 12a(3)(D) (2012), subjects a person to disqualification for pleading guilty to, or being convicted of, a felony other than a felony of the type specified in CEA § 8a(2)(D), 7 U.S.C. § 12a(2)(D) (2012), or of the type specified in CEA § 8a(2)(D), 7 U.S.C. § 12a(2)(D) (2012), but more than ten years preceding the application for registration. *Id.*

<sup>121</sup> See CEA § 8a(3)(A)–(N), 7 U.S.C. § 12a(3)(A)–(M) (2012).

<sup>122</sup> CEA § 8a(3)(A), 7 U.S.C. § 12a(3)(A) (2012).

<sup>123</sup> CEA § 8a(3)(C), 7 U.S.C. § 12a(3)(C) (2012).

<sup>124</sup> CEA § 8a(3)(E), 7 U.S.C. § 12a(3)(E) (2012).

<sup>125</sup> CEA § 8a(3)(F), 7 U.S.C. § 12a(3)(F) (2012).

military court, or in a foreign court of conduct which would constitute a felony under Federal law if the offense had been committed under Federal jurisdiction.”<sup>126</sup>

CEA Section 8a(10) allows the CFTC to authorize any person to perform any portion of the registration functions under the CEA.<sup>127</sup> Section 17(o)(1) of the CEA authorizes the CFTC to require a registered futures association to perform the CFTC’s registration function with respect to registered futures association members and associated persons of members.<sup>128</sup> The NFA is (and has always been) the only registered futures association.<sup>129</sup> The CFTC delegated to the NFA the administration of the registration of intermediaries,<sup>130</sup> including statutory disqualification determinations,<sup>131</sup> although the CFTC has the authority to review the NFA’s performance of registration functions, such as the approval or denial of registration applications by the NFA.<sup>132</sup> Additionally, the NFA promulgates rules governing its members—that is, futures market intermediaries—and performs audits and examinations of its members to ensure compliance with those rules.<sup>133</sup> Relevant NFA rules include,

---

<sup>126</sup> CEA § 8a(3)(H), 7 U.S.C. § 12a(3)(H) (2012).

<sup>127</sup> CEA § 8a(10), 7 U.S.C. § 12a(10) (2012).

<sup>128</sup> CEA § 17(o)(1), 7 U.S.C. § 21(o)(1) (2012).

<sup>129</sup> CFTC Staff Letter No. 13-82, 2013 WL 6834965, at 2 n.7 (Dec. 23, 2013) (“[NFA] is currently the only registered futures association.”); CFTC FY2015 BUDGET PLAN, *supra* note 46, at 83 (app. 4).

<sup>130</sup> *See, e.g.*, Performance of Registration Functions by National Futures Association, 49 Fed. Reg. 39,593 (Oct. 9, 1984); Performance of Registration Functions by National Futures Association; Delegation of Authority, 51 Fed. Reg. 34,490 (Sept. 29, 1986); Registration Actions by National Futures Association with Respect to Floor Brokers, Floor Traders and Applicants for Registration in Either Category, 62 Fed. Reg. 36,050 (July 3, 1997).

<sup>131</sup> Performance of Registration Functions by National Futures Association, 50 Fed. Reg. 34,885 (Aug. 28, 1985).

<sup>132</sup> 17 C.F.R. pt. 3, app. A., *supra* note 113.

<sup>133</sup> *See* Kurtis J. Ward, *The Futures Industry: From Commodities to the Over-The-Counter Derivatives Markets—Origin, Purpose, Development, Controversy, and Regulation of the Most Volatile Financial Contracts in the World*, 12 PIABA B.J. 8, 13 (2005).

but are not limited to, prohibitions against fraud and high-pressure sales tactics.<sup>134</sup>

### C. A Flexible Approach to Mandatory Ethics Training for Registrants

The CFTC has long held that it is essential that “the highest ethical standards prevail” in the industries and markets it regulates.<sup>135</sup> The Futures Trading Practices Act of 1992<sup>136</sup> amended the CEA to require ethics training for new registrants and periodic training for existing registrants.<sup>137</sup> Regulation 3.34 originally implemented the ethics training mandate,<sup>138</sup> but the CFTC repealed the regulation in 2000 in favor of a statement of principles concerning the mandatory ethics training for registrants.<sup>139</sup> The statement of principles, located in Appendix B to Part 3 of the CFTC’s Regulations, is meant to provide guidance for registrants regarding ethics training. One such principle is that “[t]he awareness and maintenance of professional ethical standards are essential elements of a registrant’s fitness.”<sup>140</sup> The CEA requires

---

<sup>134</sup> See *NFA Compliance Rule 2-29, Communications with the Public and Promotional Material*, NAT’L FUTURES ASS’N, <http://www.nfa.futures.org/nfaManual/NFAManual.aspx?RuleID=RULE%202-29&Section=4>, archived at <http://perma.cc/6J9E-8B2D>. See also Scopino, *Regulating Fairness*, *supra* note 15, at 51–56 (describing the NFA’s regulatory framework and analyzing several NFA Compliance Rules and related interpretative notices).

<sup>135</sup> See Standards of Conduct for Commodity Trading Professionals, 42 Fed. Reg. 44,742 (proposed Sept. 6, 1977) (to be codified at 17 C.F.R. pts. 1, 166).

<sup>136</sup> Pub. L. No. 102-546, 106 Stat. 3590 (1992) (codified as amended in scattered sections of 7 U.S.C.).

<sup>137</sup> Registration of Floor Traders, 58 Fed. Reg. at 19,575.

<sup>138</sup> 2 JOHNSON & HAZEN, *supra* note 47, § 3.02, 3.02[23], n.229, at 662 (citing Registration of Floor Traders, 58 Fed. Reg. at 19,575, and 58 Fed. Reg. 6748 (proposed Feb. 2, 1993)).

<sup>139</sup> *Id.* at § 3.02[23], n.231, at 662 (citing Rules Relating to Intermediaries of Commodity Interest Transactions, 65 Fed. Reg. 77,993 (Dec. 13, 2000)).

<sup>140</sup> 17 C.F.R. pt. 3, app. B, *supra* note 54.

registrants to receive training on a periodic basis because “it is the intent of Congress that [CFTC] registrants remain current with regard to the ethical ramifications of new technology, commercial practices, regulations, or other changes.”<sup>141</sup> Moreover, Appendix B states that, “the goal [of registrants] should be a continuous awareness of changing industry standards” because “[a] corporate culture to maintain high ethical standards should be established on a continuing basis.”<sup>142</sup> While some ethical issues will be common to all categories of registrants, ethics training “should be focused to some extent on a person’s registration category.”<sup>143</sup> Key topics to be covered in training include the importance of acting honestly, fairly, and with due care in the best interests of customers and methods to implement effective supervisory systems and internal controls.<sup>144</sup>

#### D. Supervisory Responsibilities for Registrants

Compulsory registration of futures market intermediaries also serves a customer-protection function because CFTC regulations require registrants (except for APs without supervisory authority) to supervise diligently their officers, employees, and agents. Specifically, CFTC Regulation 166.3 states the following:

Each [CFTC] registrant, except an associated person who has no supervisory duties, must diligently supervise the handling by its partners, officers, employees and agents (or persons occupying a similar status or performing a similar function) of all commodity interest accounts carried, operated, advised or introduced by the registrant and all other activities of its partners, officers, employees and

---

<sup>141</sup> *Id.*

<sup>142</sup> *Id.* “With regard to the frequency and duration of ethics training, it is permissible for a firm to require training on whatever periodic basis and duration the registrant (and relevant self-regulatory organizations) deems appropriate.” *Id.*

<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

agents (or persons occupying a similar status or performing a similar function) relating to its business as a [CFTC] registrant.<sup>145</sup>

The objective of the CFTC's supervisory requirement is to protect customers from fraudulent or manipulative activities by CFTC registrants.<sup>146</sup> In adopting Regulation 166.3 in 1978, the CFTC explicitly rejected the concept of a rule with a list of specific supervisory requirements, as had been included in the proposed rule,<sup>147</sup> and instead promulgated a rule with a broad, open-ended supervisory duty.<sup>148</sup> In practice, the open-ended nature of Regulation 166.3 has provided the CFTC with flexibility to bring enforcement actions for supervisory failures that are not limited to specific, enumerated statutory provisions or regulatory requirements.<sup>149</sup>

---

<sup>145</sup> 17 C.F.R. § 166.3 (2014).

<sup>146</sup> *Sanchez v. Crown*, No. 02-R050, *Comm. Fut. L. Rep. (CCH)* ¶ 30,183, 2006 WL 156743, at \*8 (CFTC Jan. 18, 2006) (stating that “[t]he objective of Regulation 166.3 is to protect customers from fraudulent or manipulative activities of [CFTC] registrants”) (citations omitted); *In re Sogemin Metals, Inc.*, No. 00-04, *Comm. Fut. L. Rep. (CCH)* ¶ 28,008, 2000 WL 136059, at \*5 (CFTC Feb. 7, 2000) (involving a respondent who lacked adequate controls in place to deter or detect a kickback scheme; respondent had no affirmative compliance program or compliance manual, and compliance responsibilities were handled by compliance officers in London). *See* *Adoption of Customer Protection Rules*, 43 *Fed. Reg.* 31,886, 31,889 (July 24, 1978) (to be codified at 17 C.F.R. pt. 166) (stating, in the *Federal Register* adopting release for Regulation 166.3, that “[t]he basic purpose of the rule is to protect customers by ensuring that their dealings with the employees of [CFTC] registrants will be reviewed by other officials in the firm”).

<sup>147</sup> *See* *Adoption of Customer Protection Rules*, 43 *Fed. Reg.* at 31,886, 31,889 (referring to the specific supervisory proposals in *Protection of Commodity Customers*, 42 *Fed. Reg.* 44,742 (proposed Sept. 6, 1977)).

<sup>148</sup> *Id.* at 31,889 (stating that Regulation 166.3 “establishes a general supervision requirement for all CFTC registrants except associated persons who have no supervisory duties”).

<sup>149</sup> *See, e.g., In re FCStone LLC*, No. 13-24, 2013 WL 2368539, at \*1–2, \*5–6 (CFTC May 29, 2013) (finding a violation of Regulation 166.3 in connection with an FCM's insufficient policies and procedures associated with credit and concentration risks and noting the FCM's failure to

### III. CATEGORIES OF REGULATED FUTURES MARKET INTERMEDIARIES

This Part describes the legal definitions of several different categories of regulated intermediaries. The CFTC typically reads these definitions broadly to prevent evasion of the CEA and the accompanying regulations.<sup>150</sup> An understanding of these definitions, along with the history of how each category came to be regulated in the first instance, is essential to determining the optimal scope of registration and regulation for digital intermediaries in the Second Machine Age.

#### A. Commodity Trading Advisors—Giving Advice and Directing Client Accounts

Generally speaking, the CEA and CFTC regulations define the term “commodity trading advisor” (“CTA”)<sup>151</sup> as any person who, for (direct or indirect) compensation of profit, engages in the business of advising others about the

---

diligently supervise firm employees who were responsible for managing the risks associated with customer accounts, resulting in the FCM having to absorb a \$127 million loss incurred by two customers who had been trading natural gas futures, options, and swaps).

<sup>150</sup> See, e.g., CFTC Staff Letter No. 12-14, 2012 WL 4863670 (Oct. 11, 2012), <http://www.cftc.gov/ucm/groups/public/@lrlettergeneral/documents/letter/12-14.pdf>, archived at <http://perma.cc/B39D-TZU3> (interpreting the definition of “commodity pool operator” as being broader than the test outlined in a seminal court decision); CFTC Staff Letter No. 00-105, 2000 WL 1728306 (Nov. 15, 2000), <http://www.cftc.gov/ucm/groups/public/@lrlettergeneral/documents/letter/00-105.pdf>, archived at <http://perma.cc/8PPY-BNKG> (interpreting the definition of “introducing broker” to include persons who solicit prospective customers to trade in CFTC-regulated derivatives, despite statutory and regulatory language stating that introducing brokers are persons who solicit orders for trades in CFTC-regulated derivatives).

<sup>151</sup> For some reason, Congress spelled “advisor” with an “o” in the CEA, but with an “e” in the Investment Advisers Act of 1940. 13 MARKHAM, *supra* note 56, § 17A:1. Other than this discrepancy, the CEA’s definition for commodity trading advisor “pretty much tracks that for the investment advisers” under the 1940 Act. *Id.*

value or advisability of trading in futures contracts, swaps, commodity options, or other derivatives.<sup>152</sup> Some commodity trading advisors receive authority to direct trades in client accounts,<sup>153</sup> which means that these advisors have the ability to make investment decisions on behalf of the client without specific authorization.<sup>154</sup> As of 2013, there were 2,636 registered commodity trading advisors.<sup>155</sup> A fair number of hedge funds place trades in futures and swaps, thereby falling within the ambit of the CEA's definition for the term "commodity trading advisor."<sup>156</sup> While "[c]ourts interpret the definition of a [commodity trading advisor] liberally[.]"<sup>157</sup> the

---

<sup>152</sup> CEA § 1a(12)(A), 7 U.S.C. § 1a(12)(A) (2012); CFTC Regulation § 1.3(bb)(1), 17 C.F.R. § 1.3(bb)(1) (2014). See CFTC Advisory Letter No. 13-79, 2013 WL 6834962 (Dec. 23, 2013), <http://www.cftc.gov/ucm/groups/public/@lrlettergeneral/documents/letter/13-79.pdf>, archived at <http://perma.cc/8JJM-QRPV>. See also Mark H. Mitchell, *The Regulation of Commodity Trading Advisors*, 27 EMORY L.J. 957, 958–9 (1978).

<sup>153</sup> "Client" is defined, for purposes of commodity trading advisors, as "any person . . . [t]o whom a commodity trading advisor provides advice, for compensation or profit, either directly or through publications, writings, or electronic media, as to the value of, or the advisability of trading in, [any futures contract or CFTC-regulated derivative]." CFTC Regulation § 1.3(bb)(2), 17 C.F.R. § 1.3(bb)(2) (2014).

<sup>154</sup> *Commodity Trading Advisors*, NAT'L FUTURES ASS'N, <http://www.nfa.futures.org/nfa-compliance/nfa-commodity-trading-advisors/index.html>, archived at <http://perma.cc/DYH8-N8SD> (stating that "[p]roviding advice indirectly includes exercising trading authority over a customer's account as well as giving advice through written publications or other media"). See 13 MARKHAM, *supra* note 56, § 17A:1.

<sup>155</sup> CFTC FY2015 BUDGET PLAN, *supra* note 46, at 85 (app. 4).

<sup>156</sup> 13 MARKHAM, *supra* note 56, § 17A:3 ("Many hedge funds trade registered commodity contracts, initially leading those funds to register with the CFTC as CPOs and CTAs.").

<sup>157</sup> CFTC v. Equity Fin. Grp., LLC, Civil No. 04-1512 (RBK), 2007 WL 1038754, at \*3, 2007 U.S. Dist. LEXIS 23632, at \*8 (D.N.J. Mar. 30, 2007) (citations omitted). See CFTC v. British Am. Commodity Options Corp., 560 F.2d 135, 141 (2d Cir. 1977) (holding that a firm that "offer[ed] opinions and advice and issu[ed] analyses and reports concerning the value of commodities" to clients was a CTA under the CEA), *cert. denied*, 438 U.S. 905 (1978); Gaudette v. Panos, 644 F. Supp. 826, 839 (D. Mass. 1986) (holding that defendants who "represented their advisory skills to be exemplary, suggested that plaintiffs open a commodity account and then

law and regulations mitigate this broad judicial approach somewhat by excluding specific categories of people and entities, such as banks, trust companies, news reporters, columnists, floor brokers, FCMs, and contract markets (i.e., futures exchanges), as well as the publishers and producers of data of “general and regular dissemination.”<sup>158</sup> Additionally, a person need not register as a commodity trading advisor if he or she does not have discretionary authority over client accounts or provide trading advice that is based on, or tailored to, the specific facts and circumstances of individual clients.<sup>159</sup>

The definition of “commodity trading advisor” includes persons who use the Internet and email to solicit prospective paying clients and to recommend to paying clients when to enter and exit trades in futures contracts, as well as persons who receive authorization to place trades in clients’ accounts based on such recommendations.<sup>160</sup> The “commodity trading advisor” definition also covers persons who sell computer software programs that provide their users with specific advice about trading futures contracts.<sup>161</sup> Indeed, the CFTC

---

recommended certain futures contracts for investment” were CTAs), *modified*, on reconsideration, on other grounds, 650 F. Supp. 912 (D. Mass. 1987), *rev’d* on other grounds, 852 F.2d 30 (1st Cir. 1988).

<sup>158</sup> See CEA § 1a(12)(B), 7 U.S.C. § 1a(12)(B) (2012); CFTC Regulation 1.3(bb)(1), 17 C.F.R. § 1.3(bb)(1) (2014). It is important to note that these excluded persons can only provide commodity trading advice in a manner that is solely incidental to their non-CTA business or profession to receive the benefit of this exclusion. CEA § 1a(12)(C), 7 U.S.C. § 1a(12)(C) (2012)

<sup>159</sup> See 17 C.F.R. § 4.14(a)(9) (2014). See also Exemption from Registration as a Commodity Trading Advisor, 65 Fed. Reg. at 12,939; 17 C.F.R. § 4.10(f) (2014).

<sup>160</sup> See CFTC v. Hall, 49 F.Supp.3d 444 (M.D.N.C. 2014).

<sup>161</sup> See CFTC v. Vartuli, 228 F.3d 94, 103–104 (2d Cir. 2000). Additionally, CFTC staff has stated that the definition of “commodity trading advisor” covers the sellers of software programs, including, for example, the seller of software that allowed users to “perform analyses with respect to the U.S. Dollar Index” that served as the basis for futures contracts at one exchange. See CFTC Interpretative Letter No. 93-18, 1993 WL 589771 (Feb. 23, 1993); CFTC Interpretative Letter No. 93-27 1993 WL 589819 (Apr. 2, 1993). See also CFTC Interpretative Letter No. 93-69,



has stated that whether a person has to register as a CTA “is based on the nature of the advice that is provided, *regardless of how it is communicated to the client[,]*” because “[i]n today’s technologically advanced society a professional can exercise judgment on behalf of another without ever having ‘personal’ [or direct] contact.”<sup>162</sup> This approach is appropriate because the risk of fraud exists regardless of the technology used to provide advice or direct customer trading. For example, in *CFTC v. Vartuli*, the sellers of a software program that gave users futures trading advice fraudulently misled others by claiming that the software would “make[] money automatically” when, in reality, users of the program universally suffered substantial losses.<sup>163</sup> To keep futures trading professionals honest, CEA Section 4o(1)(B) imposes fraud liability under a negligence standard,<sup>164</sup> without requiring scienter, to commodity trading advisors, commodity pool operators, and their APs.<sup>165</sup>

---

1993 WL 595743 (July 13, 1993) (concluding that the seller of a mechanical trading system for trading futures was a CTA); CFTC Interpretative Letter No. 95-101, 1995 WL 755648 (Nov. 21, 1995) (concluding the same).

<sup>162</sup> Exemption from Registration as a Commodity Trading Advisor, 65 Fed. Reg. at 12,940 (alterations in original) (citation and quotation marks omitted).

<sup>163</sup> *Vartuli*, 228 F.3d at 99–100.

<sup>164</sup> BLACK’S LAW DICTIONARY 930 (5th ed. 1979) (“Negligence is the failure to use such care as a reasonably prudent and careful person would use under similar circumstances . . . .”); W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 32, at 175 (5th ed. 1984) (concluding that “negligence is a failure to do what the reasonable person would do” under like circumstances).

<sup>165</sup> CEA § 4o(1)(B), 7 U.S.C. § 6o(1)(B) (2012). See *Commodity Trend Serv., Inc. v. CFTC*, 233 F.3d 981, 993 (7th Cir. 2000) (stating that 7 U.S.C. § 6o(1)(B) “does not require a showing of scienter”); *Messer v. E.F. Hutton & Co.*, 847 F.2d 673, 677 (11th Cir. 1988) (stating that CEA § 4o(1)(B) “does not require proof of scienter” (emphasis omitted)).

## B. Commodity Pool Operators—Leaders of Collective Investment Vehicles

A commodity pool operator is any person engaged in a business similar to a commodity pool, investment trust, syndicate, or comparable form of enterprise, and who, in connection with that business, solicits, accepts, or receives from others funds, securities, or property, either directly or indirectly, for the purpose of trading in commodity interests.<sup>166</sup> As of 2013, there were 1,811 registered commodity pool operators.<sup>167</sup> Because many hedge funds trade in commodity interests, the industry includes “many of the largest hedge funds.”<sup>168</sup> As one commentator has observed, “[t]he entity registered with the CFTC and regulated pursuant to the [CEA] is the commodity pool operator, and not the commodity pool.”<sup>169</sup> Notwithstanding that fact, a commodity pool has to be somewhere in the picture for there to be a commodity pool operator, so it is important to understand whether a particular collective investment vehicle is a commodity pool. Generally, a commodity pool is a group investment enterprise, i.e., an “investment trust, syndicate, or similar form of enterprise,” that is operated for the purpose of trading in commodity interests, including futures contracts, swaps, or commodity options.<sup>170</sup> Historically, trading commodity interests—that is, CFTC-regulated derivatives— “do[] not need to be the sole

---

<sup>166</sup> See CEA § 1a(11), 7 U.S.C. § 1a(11) (2012); CFTC Regulation 1.3(cc), 17 C.F.R. § 1.3(cc) (2014); Rosen, *supra* note 70, at 944–50; *Commodity Pool Operator (CPO)*, NAT’L FUTURES ASS’N, <http://www.nfa.futures.org/nfa-registration/cpo/index.html>, archived at <http://perma.cc/QD49-FPUM>. See also 13 MARKHAM, *supra* note 56, §§ 17A:3 & 17A:3.10; Jenny Liu, *Reframing Commodity Pools in the Wake of Dodd-Frank and the Volcker Rule*, 99 CORNELL L. REV. 201, 210 (2013).

<sup>167</sup> CFTC FY2015 BUDGET PLAN, *supra* note 46, at 85 (app. 4).

<sup>168</sup> 13 MARKHAM, *supra* note 56, 17A:3.

<sup>169</sup> See Rosen, *supra* note 70, at 944.

<sup>170</sup> CEA § 1a(10), 7 U.S.C. § 1a(10) (2012); CFTC Regulation 4.10(d)(1), 17 C.F.R. § 4.10(d)(1) (2014).

or even dominant purpose of a fund for it to be a commodity pool”<sup>171</sup> and, indeed, the law and regulations do not contain any *de minimis* exclusion from the commodity pool definition.<sup>172</sup> An investment trust or syndicate typically involves funds that are pooled (i.e., combined) from more than one person (participant)<sup>173</sup> and managed (traded) collectively, (as opposed to having the money of each person managed or traded separately) with profits or losses distributed on a pro rata basis.<sup>174</sup> A commodity pool has been described as “the commodity futures industry’s analogue to an investment company[.]” and compared to a mutual fund.<sup>175</sup> Although this might seem somewhat counter-intuitive, a commodity pool can have only one investor, especially if the pool is marketed as a collective investment vehicle.<sup>176</sup>

---

<sup>171</sup> Liu, *supra* note 166, at 206.

<sup>172</sup> See CEA § 1a(10), 7 U.S.C. § 1a(10) (2012); CFTC Regulation 4.10(d)(1), 17 C.F.R. § 4.10(d)(1) (2014).

<sup>173</sup> Investors in commodity pools are referred to “pool participants” or “participants.” CFTC Regulation 4.10(c), 17 C.F.R. § 4.10(c) (2014) (defining “participant” as “any person that has any direct financial interest in a pool (e.g., a limited partner)”). See, e.g., *Commodity Pool Operators*, NAT’L FUTURES ASS’N, <http://www.nfa.futures.org/NFA-compliance/NFA-commodity-pool-operators/index.html>, archived at <http://perma.cc/5W4T-9YTR>.

<sup>174</sup> 13 MARKHAM, *supra* note 56, § 17A:1; 1 JOHNSON & HAZEN, *supra* note 47, § 1.11[2], at 251–54.

<sup>175</sup> 13 MARKHAM, *supra* note 56, § 17A:1 n.2 (citing, among other sources, Roberta Romano, *A Thumbnail Sketch of Derivative Securities and Their Regulation*, 55 MD. L. REV. 1, 27 (1996) and Frank A. Camp, *The 1981 Revisions to the CFTC’s Commodity Pool Operator Regulations*, 7 J. CORP. L. 627, 630 (1982)). Of course, as the discussion above illustrates, any mutual fund that invested some of its money in commodity interests, such as interest rate futures or swaps, would be considered a commodity pool.

<sup>176</sup> Rosen, *supra* note 70, at 947 n.40 (“No minimum number of investors is necessary to constitute a commodity pool. In *Jablonski v. Andre Boesch, Inc.*, the court denied a motion to dismiss and held that an account with the plaintiff as the only participant was still a commodity pool because the account had been offered and sold as a commodity pool.”).

Before the Dodd-Frank Act, the CEA did not have a definition of the term “commodity pool.”<sup>177</sup> The Dodd-Frank Act did not alter the landscape in this area, however, because the statutory definition adopted in 2010 largely mirrored the longstanding definition in the CFTC Regulations.<sup>178</sup> In *Lopez v. Dean Witter Reynolds, Inc.*,<sup>179</sup> the Ninth Circuit outlined factors commonly invoked in determining whether an entity is a commodity pool.

Those courts which have raised the issue require the following factors to be present in a commodity pool: (1) an investment organization in which the funds of various investors are solicited and combined into a single account for the purpose of investing in commodity futures contracts; (2) common funds used to execute transactions on behalf of the *entire* account; (3) participants share pro rata in accrued profits or losses from the commodity futures trading; and (4) the transactions are traded by a commodity pool operator in the name of the pool rather than in the name of any individual investor.<sup>180</sup>

CFTC staff, however, has argued that the *Lopez* factors are not the exclusive test for what constitutes a commodity pool, and has stated that analysis of whether an entity is a commodity pool “requires ‘an evaluation of all the facts relevant to the entity’s operation.’”<sup>181</sup> Further, “the failure of a fund to satisfy one or more of the factors does not mean that the fund is not a pool.”<sup>182</sup> Similarly, CFTC staff has stated that the phrase, “operated for the purpose of trading commodity interests,” does not mean “principal purpose” because the Dodd-Frank Act’s statutory definition of

---

<sup>177</sup> CFTC Staff Letter No. 12-14, *supra* note 150, at 2.

<sup>178</sup> *Id.*

<sup>179</sup> *Lopez v. Dean Witter Reynolds, Inc.*, 805 F.2d 880 (9th Cir. 1986).

<sup>180</sup> *Id.* at 884.

<sup>181</sup> CFTC Staff Letter No. 12-14, *supra* note 150, at 3 (quoting the final rule preamble for the regulatory definition of “commodity pool” at 46 Fed. Reg. 26,004, 26,006 (May 8, 1981)).

<sup>182</sup> *Id.* at 4.

“commodity pool” is identical to the regulatory definition of the term, and, while considering the adoption of the regulatory definition, the CFTC explicitly rejected a “principal purpose” test for pools.<sup>183</sup> Interestingly, a person does not have to make the investment decisions for a commodity pool to be a commodity pool operator, and an investment vehicle need not directly trade in futures, swaps, or other derivatives to be a commodity pool because “[t]he receipt of pooled funds and organization of the pool are the hallmarks of the commodity pool operator, and not control over the investment decisions.”<sup>184</sup>

### C. Futures Commission Merchants—Gateways to the Futures Markets

Futures brokers—given the official name, “futures commission merchants,” in the CEA and therefore commonly referred to as “FCMs”—are the doors through which most persons enter into the world of the U.S. futures markets. The CEA and CFTC Regulations define an FCM as “an individual, association, partnership, corporation, or trust” that is engaged in soliciting or in accepting orders for the purchase or sale of futures contracts, options on futures contracts, commodity options, or swaps and that “accepts any money, securities, or property (or extends credit in lieu thereof) to margin, guarantee, or secure any trades or

---

<sup>183</sup> *Id.* at 3, n.18.

<sup>184</sup> Rosen, *supra* note 70, at, 952. *See also* CFTC v. Equity Fin. Grp., LLC, 572 F.3d 150 (3d Cir. 2009); CFTC v. Perkins, 385 F. App’x 251, 254 (3d Cir. 2010):

Allowing an investment manager to circumvent regulation merely by transferring funds from one account to another does not comport with Congress’s aim of protecting investors . . . . Our holding in *Equity* [, 572 F.3d at 158.] makes clear that the proximity to trading is not an important factor. If the pool is established with the purpose of trading in commodity futures, then the pool is a commodity pool for CEA purposes.

contracts that result or may result therefrom.”<sup>185</sup> FCMs are the equivalent of brokerage houses in the securities world,<sup>186</sup> and, accordingly, most persons access U.S. futures markets through FCMs, albeit through affiliated associated persons and introducing brokers (both of which will be discussed later) acting as their sales force.<sup>187</sup> More specifically, a person wishing to place trades on U.S. futures exchanges typically will open an account with an FCM and give trading orders, directly or indirectly, to that FCM.<sup>188</sup> As mentioned earlier, FCMs generally are members of DCMs and derivatives clearing organizations (“DCOs”),<sup>189</sup> which is how FCMs have the ability to place trades directly on DCMs and to clear those trades on DCOs.<sup>190</sup> The principal regulations applicable to FCMs serve to protect clients from FCM fraud or default by requiring FCMs to segregate their own funds from the funds of their customers, to maintain minimum

---

<sup>185</sup> CEA § 1a(28)(A)(i), 7 U.S.C. § 1a(28)(A)(i) (2012). See CFTC Regulation 1.3(p), 17 C.F.R. § 1.3(p) (2014). The FCM intermediary category also includes any person that is registered with the CFTC as an FCM. CEA § 1a(28)(A)(ii), 7 U.S.C. § 1a(28)(A)(ii) (2012).

<sup>186</sup> 1 JOHNSON & HAZEN, *supra* note 47, § 1.06[1], at 195.

<sup>187</sup> *Id.* Introducing brokers and associated persons are discussed in subsequent parts of this Article.

<sup>188</sup> *Id.*

<sup>189</sup> A DCO is an entity that, with respect to a futures or derivative contract:

- (1) enables each party to the contract to substitute, through novation or otherwise, the credit of the derivatives clearing organization for the credit of the parties;
- (2) arranges or provides, on a multilateral basis, for the settlement or netting of obligations resulting from such contracts; or
- (3) otherwise provides clearing services or arrangements that mutualize or transfer among participants in the derivatives clearing organization the credit risk arising from such contracts.

*Derivatives Clearing Organization*, CFTC GLOSSARY, <http://www.cftc.gov/ConsumerProtection/EducationCenter/CFTCGlossary/index.htm#D>, archived at [perma.cc/6T3L-V4P2](http://perma.cc/6T3L-V4P2). See CEA § 1a(15), 7 U.S.C. § 1a(15) (2012).

<sup>190</sup> 1 JOHNSON & HAZEN, *supra* note 47, § 1.06[1], at 195.

levels of capital, and to comply with certain reporting requirements.<sup>191</sup> As of 2013, there were 105 registered FCMs.<sup>192</sup>

#### D. Associated Persons and Principals—Salespeople and Supervisors

The two kinds of persons discussed in this Part are typically officers, owners, employees, or agents of registrants. Generally, APs are salespeople for intermediaries or the supervisors of salespeople,<sup>193</sup> and principals are persons who, due to their office, position, or amount of stock ownership of a business entity, exhibit a measure of control over a registrant.<sup>194</sup> APs must be natural persons.<sup>195</sup> As of 2013, there were 56,190 registered APs.<sup>196</sup> The CFTC requires “all persons, regardless of position title, who supervise associated persons [to] register [as APs]” as well as everyone in the “line of supervisory authority,” regardless of how senior their position, including the president of the firm.”<sup>197</sup>

Persons are principals if they fall within any of the enumerated positions or circumstances enumerated in

---

<sup>191</sup> *Id.* at § 1.06[4]–[6], at 202–09.

<sup>192</sup> CFTC FY2015 BUDGET PLAN, *supra* note 46, at 85 (app. 4).

<sup>193</sup> *Associated Person*, NAT’L FUTURES ASS’N, <http://www.nfa.futures.org/nfa-registration/ap/index.html>, *archived at* <http://perma.cc/X436-ETD8>.

<sup>194</sup> *Principal*, NAT’L FUTURES ASS’N, <http://www.nfa.futures.org/nfa-registration/principal/index.html>, *archived at* <http://perma.cc/49V3-J5JX>.

<sup>195</sup> *See* 17 C.F.R. § 1.3(aa) (2014) (defining each category of “associate person”). But an AP can be a natural person that supervises a business entity. *See id.*

<sup>196</sup> CFTC FY2015 BUDGET PLAN, *supra* note 46, at 85 (app. 4).

<sup>197</sup> *Regulatory Reminder: Associated Persons Registration Requirements*, NAT’L FUTURES ASS’N, <http://www.nfa.futures.org/NFA-registration/registration-advisories/advisory-09-24-07.HTML>, *archived at* <http://perma.cc/C8HL-Z2J2> (quoting Interpretative Statement Regarding the Scope of the Term “Supervision” in the Associated Person Registration Requirement, 45 Fed. Reg. 54,032, 54,032 (CFTC Aug. 14, 1980)).

Regulation 3.1(a).<sup>198</sup> Generally, principals are persons who, because of their position or circumstances, can either control or exert influence over registrants. For example, a person is a principal if they are a natural person who is any of the following: (1) a sole proprietor of a sole proprietorship; (2) a general partner of a partnership; (3) a director, president, chief executive officer, chief operating officer, chief financial officer or a person in charge of a business unit, division, or function subject to CFTC regulation of a corporation, limited liability company, or limited liability partnership; (4) a manager, managing member or a member vested with the management authority for a limited liability company or limited liability partnership; or (5) a chief compliance officer.<sup>199</sup> Principals are not technically registrants, but they face some of the same requirements as APs.<sup>200</sup> The regulation of principals enables the CFTC to screen intermediaries that are business entities for fitness by scrutinizing the pasts of the people who control those intermediaries, namely, their principals.<sup>201</sup>

The regulation of APs fulfills an important customer-protection function because the vast majority of customers who decide to invest in futures contracts and related derivatives do so based on their interactions with APs of FCMs and other registrants.<sup>202</sup> Overall, the registration requirements for APs were the result of a congressional

---

<sup>198</sup> 17 C.F.R. § 3.1(a) (2014). See *Principal*, NAT'L FUTURES ASS'N, *supra* note 194.

<sup>199</sup> 17 C.F.R. § 3.1(a); *Principal*, NAT'L FUTURES ASS'N, *supra* note 194.

<sup>200</sup> See *Principal*, NAT'L FUTURES ASS'N, *supra* note 194 (stating that “[p]rincipal is technically not a registration class and principals do not apply for registration,” but noting that registrants must submit fingerprints, a completed Form 8-R, and a nonrefundable \$85 application fee for each principal).

<sup>201</sup> See CEA § 8a(2)(H), 7 U.S.C. § 12a(2)(H) (2012).

<sup>202</sup> 1 JOHNSON & HAZEN, *supra* note 47, § 1.08[1], at 216 (“Sales are made by sales personnel rather than by a firm’s management; and a commodity customer’s only direct contact with a futures commission merchant often is through his dealings with a salesperson employed by the company.”).



desire for the CFTC to screen unfit individuals from interacting with customers.<sup>203</sup>

### E. Introducing Brokers—Small, Independent Salespeople for Other Intermediaries

An introducing broker (or “IB”) is a person that is compensated for soliciting or accepting orders for the purchase or sale of, *inter alia*, futures and swaps, but who does not accept funds from customers to secure the trades ordered.<sup>204</sup> Introducing brokers can be conceptualized as APs of FCMs—that is, salespeople of FCMs—who are independent contractors and not actual employees or agents of FCMs.<sup>205</sup> Congress created the introducing broker category in 1982 “to ‘protect the public’ from the ‘sales abuses’ of [independent] agents for which FCMs ‘frequently disavowed

---

<sup>203</sup> See Registration of Associated Persons, Commodity Trading Advisors, and Commodity Pool Operators, 40 Fed. Reg. 20,614, 20,614 (CFTC May 12, 1975) (to be codified at 17 C.F.R. pt. 1). See also Revision of Registration Regulations, *supra* note 110, at 80,490.

<sup>204</sup> CEA § 1a(31)(A), 7 U.S.C. § 1a(31)(A) (2012); CFTC Regulation § 1.3(mm), 17 C.F.R. § 1.3(mm) (2014). See also 1 JOHNSON & HAZEN, *supra* note 47, § 1.08, at 216.

<sup>205</sup> “Although introducing brokers perform functions parallel to APs of FCMs, they are generally unaffiliated entities.” 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[16][B], at 656. See 1 JOHNSON & HAZEN, *supra* note 47, § 1.08, at 217 (“In 1983, Congress added a new category of sales personnel not generally under the direct employ of a FCM—the *introducing broker (IB)*.”). The introducing broker category does not include all persons who have business relationships with FCMs. For example, “[e]ntities that have relationships with FCMs but do not receive compensation based on customer transactions may not have to be registered [as introducing brokers].” 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[16][B], at 656. See also *id.* at § 3.02[16][B], n.194, at 656. Additionally, “[n]ewsletters and suppliers of data services that are linked to FCMs do not necessarily have to register as introducing brokers.” *Id.* at §3.02[16][B], at 656–67. The CFTC Regulations also allow for an IB to be guaranteed by a specific FCM, and in such circumstances the guaranteed IB can only conduct business in conjunction with that FCM and is an agent of the FCM. See 17 C.F.R. § 3.44 (2014).

any responsibility.”<sup>206</sup> As of 2013, there were 1,328 registered introducing brokers.<sup>207</sup>

Although introducing brokers are commonly thought of as independent persons that serve as intermediaries between futures customers and FCMs,<sup>208</sup> the statutory and regulatory definitions do not restrict introducing brokers to persons only involved in soliciting and accepting customer orders for trades in futures (as opposed to, say, swaps), or to persons that only intermediate with FCMs (as opposed to swap dealers or retail foreign exchange dealers).<sup>209</sup> Indeed, “introducing broker” is one of the broadest intermediary category definitions. In order to be considered an introducing broker, a person must merely engage in the act of soliciting or accepting<sup>210</sup> orders for trades of CFTC-regulated derivatives, except in a non-clerical capacity.<sup>211</sup>

While CFTC staff has emphasized that “[t]he registration requirements, as they pertain to persons involved in customer solicitation, ‘have been construed flexibly to require the registration of persons who participate even indirectly in such solicitations[,]’<sup>212</sup> there are limits on the scope of the

---

<sup>206</sup> CFTC Staff Letter 04-34, 2004 WL 3203859 (Sept. 16, 2004) (quoting H.R. REP. NO. 97-565, pt. 1, at 49 (1982)).

<sup>207</sup> CFTC FY2015 BUDGET PLAN, *supra* note 46, at 85 (app. 4).

<sup>208</sup> See Horwitz & Gilberg, *supra* note 94, at 908–11.

<sup>209</sup> See CEA § 1a(31)(A), 7 U.S.C. § 1a(31)(A) (2012); 17 C.F.R. § 1.3(mm) (2014).

<sup>210</sup> But for the limitation “other than in a clerical capacity” in Regulation 1.3(mm)(1)(i), 17 C.F.R. § 1.3(mm)(1)(i) (2014), the use of the verb, “accept,” in the definition of the term “introducing broker,” or “IB,” would otherwise significantly broaden the scope of those required to register as IBs. Indeed, it is hard to imagine circumstances where simply accepting orders for futures and swap trades would involve acting in more than a clerical capacity.

<sup>211</sup> A person also must be soliciting or accepting orders for derivative trades for direct or indirect compensation or profit, see 17 C.F.R. § 1.3(mm)(1), but that typically is not a major hurdle, as it is unlikely that someone would solicit customers for derivative trades without getting paid for doing so.

<sup>212</sup> CFTC Staff Letter No. 00-105, 2000 WL 1728306 (Nov. 15, 2000) (citing 48 Fed. Reg. 35,248, 35,250 (Aug. 3, 1983)), <http://www.cftc.gov/>

introducing broker registration category. Notably, CFTC staff has granted no-action relief for software vendors who sell software programs that enable users to connect with FCMs or introducing brokers, but who do not advise or encourage users to place trades. For example, in 2004, CFTC staff confirmed that they would not recommend that the CFTC bring an enforcement action against a software vendor for failing to register as an introducing broker in connection with its marketing of a software program that enabled users to access the order-entry system of the FCM or introducing broker of the user's choice.<sup>213</sup> That same year, CFTC staff stated that a person who sold a software program that enabled institutional investors to electronically connect to FCMs and place orders for futures contract trades did not have to register as an introducing broker where, for example, the institutional investors selected the FCMs and decided on their own, without prompting or suggestions, when to place orders and how many orders to place.<sup>214</sup>

#### F. Floor Brokers, Floor Traders, and Broker

---

ucm/groups/public/@lrlettergeneral/documents/letter/00-105.pdf, *archived at* <http://perma.cc/9A8S-3LXA>.

<sup>213</sup> CFTC Staff Letter No. 04-34, *supra* note 206. The relief was conditioned on the software vendor's representation that the data feeds with market information would be provided by unaffiliated third parties who did not compensate, or receive compensation from, the software vendor. *Id.*

<sup>214</sup> CFTC Interpretative Letter No. 04-15, 2004 WL 1065537 (Mar. 22, 2004), <http://www.cftc.gov/ucm/groups/public/@lrlettergeneral/documents/letter/04-15.pdf>, *archived at* <http://perma.cc/8NE6-AVJR>.

"X," however, is not accepting customer orders, since it has no involvement with the placing of the customers' orders and does not recommend a particular trade or an FCM, even if asked to do so by the customer. "X" is simply providing technology that connects the customer to its FCM's order entry system. The customer is submitting its order to the FCM and not to "X." The Division concurs with your assessment that "X" is not an [introducing broker] and, therefore, is not required to register as such.

*Id.*

## Associations—Governing Persons on the Floors of Trading Venues

The next three categories—floor brokers, floor traders, and broker associations—are discussed collectively because they are all defined by activities that take place in a pit, floor, or other trading venue of a DCM or swap execution facility (“SEF”).<sup>215</sup> Indeed, to fall within the scope of one of these categories, the person (or persons) in question must have trading privileges on a DCM or SEF.<sup>216</sup> Despite their similarities, they differ with respect to their regulatory history and activities. For example, the major distinction between a floor broker and a floor trader is that a floor broker engages in trades for third parties,<sup>217</sup> while a floor trader engages in transactions on his own behalf.<sup>218</sup>

Floor traders are somewhat unique among the categories of regulated “intermediaries” in that, unlike commodity pool operators and commodity trading advisors, they do not have customers. This is probably why they avoided regulation for

---

<sup>215</sup> Swap Execution Facility, CFTC GLOSSARY, <http://www.cftc.gov/ConsumerProtection/EducationCenter/CFTCGlossary/index.htm#S>, archived at <http://perma.cc/YC3G-ZVBW> (“A trading system or platform created by the Dodd-Frank Act in which multiple participants have the ability to execute or trade swaps by accepting bids and offers made by multiple participants in the facility or system, through any means of interstate commerce.”).

<sup>216</sup> See CEA § 1a(22), 7 U.S.C. § 1a(22) (2012) (defining “floor broker”); 17 C.F.R. § 1.3(n) (2014) (defining “floor broker”); 7 U.S.C. § 1a(23) (2012) (defining “floor trader”); 17 C.F.R. § 1.3(x) (2014) (defining “floor trader”); 17 C.F.R. § 156.1 (2014) (defining “broker association”).

<sup>217</sup> CEA § 1a(22), 7 U.S.C. § 1a(22) (2012) (defining “floor broker”); 17 C.F.R. § 1.3(n) (2014) (defining “floor broker”). See 17 C.F.R. § 3.11 (2014) (describing the registration of floor brokers and floor traders).

<sup>218</sup> CEA § 1a(23), 7 U.S.C. § 1a(23) (2012) (defining “floor trader”); 17 C.F.R. § 1.3(x) (2014) (defining “floor trader”). See Registration of Floor Traders; Mandatory Ethics Training for Registrants; Suspension of Registrants Charged with Felonies, 58 Fed. Reg. 6748, 6749 (proposed Feb. 2, 1993) (to be codified at 17 C.F.R. pts. 1, 3, 10, 145). Floor brokers also can trade for their own accounts, but are more commonly known for being able to accept orders from customers.

so long (and why floor traders are not actually intermediaries).<sup>219</sup> Broker associations, on the other hand, are atypical registrants in that they are collective intermediaries that, uniquely, do not have to register with NFA. Instead, they must register with their respective DCMs.<sup>220</sup> Specifically, Regulation 156.1 defines “broker association” to include:

two or more contract market members with floor trading privileges, of whom at least one is acting as a floor broker, who: (1) engage in floor brokerage activity on behalf of the same employer, (2) have an employer and employee relationship which relates to floor brokerage activity, (3) share profits and losses associated with their brokerage or trading activity, or (4) regularly share a deck of orders.<sup>221</sup>

Originally, only natural persons could be floor brokers and floor traders. However, with the erosion of trading floors, the CFTC altered its regulations to permit non-natural person floor brokers and floor traders, although this is a relatively recent development.<sup>222</sup> “Historically, floor brokers have generally been self-employed individuals who act as agents for [FCMs] or other members in the execution of futures transactions” on the floors of futures exchanges.<sup>223</sup>

---

<sup>219</sup> See 135 CONG. REC. 20,333 (Sept. 13, 1989) (statement of Rep. de la Garza, quoting letter of CFTC Chair Wendy Gramm) (“Historically, floor traders have not been required to register under the [CEA] because they do not handle customer trades or money and because exchange rules have established criteria governing their access to the floor.”). See 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[14], at 650.

<sup>220</sup> 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[15], at 652.

<sup>221</sup> 17 C.F.R. § 156.1 (2014).

<sup>222</sup> See Registration of Intermediaries, 77 Fed. Reg. 51,898, 51,900 n.14 (Aug. 28, 2012) (stating that CFTC Form 7-R is the appropriate form for applications for registration by non-natural person floor brokers).

<sup>223</sup> 1 JOHNSON & HAZEN, *supra* note 47, § 1.09[1], at 227.

Because many CFTC-regulated markets conduct, in effect, a daily auction with open outcry among the floor brokers and members, the execution of orders—especially in active

As discussed previously, given that trading in derivatives has increasingly moved (and is continuing to move) toward electronic, computerized trading venues, the floor broker and floor trader intermediary categories—originally conceived as natural persons on the actual floors of derivative exchanges—are at risk of becoming obsolete.

CFTC Regulations prohibit certain floor practices that are considered deceptive or otherwise improper. For example, CFTC Regulations strongly prohibit any collusive, prearranged, or otherwise noncompetitive execution of futures transactions.<sup>224</sup> Likewise, CFTC Regulations prohibit “front running,” which occurs when a broker with a customer order for a large trade in a futures contract (or other derivative) first buys or sells some of the same futures contract for the broker’s own account before filling the customer’s order.<sup>225</sup>

CFTC oversight of floor traders and broker associations was the result of a desire by Congress to clamp down on white-collar crime. In August of 1989, federal prosecutors in Chicago announced criminal indictments of 46 floor brokers and floor traders who operated in the pits of the Chicago

---

markets—requires keen alertness, speed, and physical endurance by floor brokers . . . . The tempo, noise, and frequent congestion on the trading floor also call for unusual physical endurance.

*Id.* at § 1.09[1], at 228. Additionally, “although some floor brokers have a clientele of their own, these individuals typically have far less direct contact with the public than the FCMs, introducing brokers, or their associated persons.” *Id.*

<sup>224</sup> 17 C.F.R. § 1.38 (prohibiting prearranged, noncompetitive transactions). See 1 JOHNSON & HAZEN, *supra* note 47, § 1.09[4], at 321 (“A central feature of the operation of CFTC-regulated markets, and an integral part of their regulation under the [CEA], is the *competitive* execution of futures transactions.”); Scopino, *Do ATSS Dream?*, *supra* note 19, at 263–68 (describing the prohibitions on noncompetitive, prearranged transactions and some of the CFTC enforcement actions brought pursuant to those prohibitions).

<sup>225</sup> See 17 C.F.R. §§ 155.2–155.4 (2014); Scopino, *High-Speed “Pinging” and “Front Running,” supra* note 22, at 633–34 (describing CFTC prohibitions on front running).

Board of Trade and the Chicago Mercantile Exchange.<sup>226</sup> The indictments, which were the result of an undercover FBI sting operation, charged floor brokers and floor traders with front running and engaging in a variety of collusive, prearranged trading practices, often in groups or with individual floor traders assisting floor brokers to shortchange the floor brokers' customers.<sup>227</sup>

The indictments prompted Congress to include a floor trader registration requirement in the Futures Trading Practices Act of 1992.<sup>228</sup> CFTC Chair Wendy Gramm stated in a letter to the Chairman of the House Agriculture Committee that the “[r]egistration of floor traders as provided by [the Futures Trading Practices Act] would also assist law enforcement” because “if floor traders collude with brokers in violation of the [CEA] or of [CFTC] regulations, they should be subject to the same regulatory sanctions [as regulated intermediaries].”<sup>229</sup> The central goal of registration is to assure that these individuals face the same background fitness checks as other CFTC registrants and to allow the

---

<sup>226</sup> See Christopher Drew & Sallie Gaines, *No Long-Term Damage, Merc Exec Says*, CHI. TRIB., Aug. 4, 1989, at A1; Sallie Gaines, *More Trading Rules Expected*, CHI. TRIB., Aug. 5, 1989, at A8; Steve Johnson, *Trading on Dishonesty*, CHI. TRIB., Aug. 13, 1989, at F1.

<sup>227</sup> See Steve Johnson, *Trading on Dishonesty*, CHI. TRIB., Aug. 13, 1989, at F1.

<sup>228</sup> See, e.g., 135 CONG. REC. 20,349 (Sept. 13, 1989) (statement of Rep. Virginia Smith) (“I believe that requiring all floor traders to register with the Commodity Futures Trading Commission, and strengthening the Commission’s ability to oversee trading activities is one of the most positive aspects of this legislation.”).

<sup>229</sup> *Id.* at 20,333 (statement of Rep. de la Garza, quoting letter of CFTC Chair Wendy Gramm). Indeed, Congress required the registration of floor traders and broker associations because the 1989 FBI undercover operation and related indictments revealed that floor traders, as well as groups of floor traders and floor brokers, would collude and otherwise help their colleagues engage in improper activities. See 2 JOHNSON & HAZEN, *supra* note 47, § 3.02[14], at 650.

CFTC to suspend or revoke the person's registration in appropriate cases.<sup>230</sup>

#### IV. RECOMMENDED STATUTORY AND REGULATORY CHANGES

Based on the descriptions of the intermediary categories, CFTC-regulated intermediaries engage in the following kinds of activities: (1) placing trades in futures and derivatives (either based on one's own investment judgment or at the direction of a customer or someone else);<sup>231</sup> (2) providing advice about trading futures and derivatives;<sup>232</sup> (3) soliciting (i) customers to participate in commodity pools,<sup>233</sup> (ii) orders for trades in derivatives,<sup>234</sup> and (iii) clients' discretionary accounts;<sup>235</sup> (4) accepting orders for trades and customer funds to secure trades;<sup>236</sup> and (5) handling all of the administrative tasks related to, and otherwise managing, a

---

<sup>230</sup> Registration of Floor Traders, 58 Fed. Reg. at 19,576 (citing H.R. REP. NO. 978 (1992)). See also 135 CONG. REC. 20,333 (Sept. 13, 1989) (statement of Rep. de la Garza, quoting letter of CFTC Chair Wendy Gramm) ("By requiring floor trader [sic] to register, the bill would subject them to statutory disqualification and fitness requirements like other registrants.").

<sup>231</sup> See CEA § 1a(22), 7 U.S.C. § 1a(22) (2012) (defining "floor broker"); *id.* at § 1a(23) (defining "floor trader"); *id.* at § 1a(28) (defining "futures commission merchant").

<sup>232</sup> See CEA § 1a(12), 7 U.S.C. § 1a(12) (2012) (defining "commodity trading advisor"); 17 C.F.R. § 1.3(aa)(4) (2014) (defining "associated person" with respect to a commodity trading advisor).

<sup>233</sup> See CEA § 1a(11), 7 U.S.C. § 1a(11) (2012) (defining "commodity pool operator"); 17 C.F.R. § 1.3(aa)(3) (2014) (defining "associated person" with respect to a commodity pool operator).

<sup>234</sup> See CEA § 1a(28), 7 U.S.C. § 1a(28) (2012) (defining "futures commission merchant"); CEA § 1a(31), 7 U.S.C. § 1a(31) (2012) (defining "introducing broker"); 17 C.F.R. § 1.3(aa) (2014) (defining "associated person").

<sup>235</sup> See 17 C.F.R. § 1.3(aa)(4) (2014) (defining "associated person" with respect to a commodity trading advisor).

<sup>236</sup> See CEA § 1a(31), 7 U.S.C. § 1a(31) (2012) (defining "introducing broker").



commodity pool.<sup>237</sup> Computers and software programs can, or soon will be able to, independently do all of the foregoing activities. As such, the legal and regulatory system must be prepared for the prospect of digital intermediaries operating in the futures markets.

As mentioned previously, the questions in the CFTC's Concept Release point to several possible ways to accommodate increased automation in the futures markets, including requiring firms that use ATSS to register as floor traders or another category of regulated intermediary; requiring software firms that develop algorithms for ATSS to register (presumably as a new category); and requiring ATSS or algorithms to be identified.<sup>238</sup> First, Part IV of this Article will analyze these possible approaches under the traditional theoretical framework that Congress has implicitly employed when deciding whether to subject a new category of market participant to compulsory CFTC registration. Second, Part IV will look beyond definitional issues related to intermediary categories and consider approaches suggested from legal and philosophical research on autonomous artificial agents.

#### A. Recommended Expansion of Compulsory Registration Under the Traditional Approach

As discussed, the primary objectives of the CEA are to reduce systemic risk and to prevent fraud, market manipulation, and abusive trading practices.<sup>239</sup> Congress typically subjects a new category of market participant to compulsory registration if circumstances reveal that a specific group of currently unregulated market participants have acted in ways that increase systemic risk, defraud

---

<sup>237</sup> See CEA § 1a(11), 7 U.S.C. § 1a(11) (2012) (defining “commodity pool operator”).

<sup>238</sup> See Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,558–61.

<sup>239</sup> See *supra* notes 44–46 and accompanying text in Part I.

customers, or manipulate (or disrupt) the markets.<sup>240</sup> Compulsory registration helps accomplish these objectives by identifying all of the relevant market participants and subjecting them to background fitness checks, as well as by mandating ethics training and proficiency testing for some individuals associated with registrants.<sup>241</sup> Further, compulsory registration also brings with it additional regulatory obligations, as the CFTC has promulgated rules to govern the practices of registrants.<sup>242</sup>

Floor traders and broker associations provide a good example of how the registration requirement has expanded over time to cover more groups. Floor traders long avoided regulation because they do not serve customers but rather place trades for themselves.<sup>243</sup> In short, the conventional wisdom was that there was little or no risk that floor traders could, or would, contribute to improper conduct in the markets, which made regulating floor traders seem unnecessary. Likewise, the CEA had never required futures trading professionals who acted cooperatively or as a group to register. But in 1989, highly-publicized criminal indictments of floor brokers and floor traders that had resulted from an undercover law enforcement investigation on the trading floors of Chicago futures exchanges revealed that, although floor traders did not have customers of their own, some floor traders would assist floor brokers in ripping

---

<sup>240</sup> See, e.g., CFTC Staff Letter 04-34, *supra* note 206 (stating that Congress created the introducing broker category in response to wrongdoing by small, independent brokers who do not meet the requirements to be classified as agents of FCMs and thereby fell within a regulatory gap (citing H.R. REP. NO. 97-565, pt. 1, at 49 (1982))). See also Horwitz & Gilberg, *supra* note 94, at 908.

<sup>241</sup> See *supra* notes 84–89 and accompanying text & Part II.A.

<sup>242</sup> See, e.g., 17 C.F.R. pt. 4 (2014) (Commodity Pool Operators and Commodity Trading Advisors).

<sup>243</sup> See *supra* Part III.F. See also *supra* notes 217–218 and accompanying text (highlighting that the difference between a floor broker and a floor trader is that a floor broker engages in trades for third parties, while a floor trader engages in transactions on his own behalf).

off the floor brokers' customers.<sup>244</sup> In other instances, groups of floor traders and floor brokers would work together to participate in illegal schemes, such as engaging in prearranged, noncompetitive trades to, *inter alia*, evade tax obligations.<sup>245</sup> With the 1989 indictments of floor personnel, Congress realized that groups of floor brokers and traders could collude to perpetuate fraud and deceptive trading practices.<sup>246</sup> In response, Congress mandated registration for floor traders and broker associations in 1992.<sup>247</sup>

The traditional approach Congress employs in deciding whether to add new categories of market participants to compulsory CFTC registration also is an appropriate response to the three questions mentioned earlier in this Article that were raised in the Concept Release.<sup>248</sup> Each of the questions—(1) whether to require firms that use ATSS to register as floor traders (or some other category of intermediary), (2) whether to require “software firms” that provide “algorithms” for ATSS to register, and (3) whether to implement “measures to improve the identification of ATSS or their underlying algorithms”<sup>249</sup>—addresses an existing regulatory gap that should be closed, ideally by expanding the scope of compulsory registration.

First, firms that use ATSS (including firms that use ATSS to employ HFT strategies) might not have to register with the CFTC if they are proprietary trading firms (as many HFT firms are).<sup>250</sup> Unregistered HFT firms could manipulate

---

<sup>244</sup> See *supra* Part III.F. See also *supra* notes 226–227 and accompanying text (discussing the August 1989 criminal indictments of 46 floor brokers and floor traders operating on the Chicago Board of Trade and the Chicago Mercantile Exchange).

<sup>245</sup> *Id.*

<sup>246</sup> See *supra* Part III.F. See also *supra* notes 228–229 and accompanying text (discussing Congress' enactment of the Future Trading Practices Act of 1992).

<sup>247</sup> *Id.*

<sup>248</sup> See *supra* notes 62–64 and accompanying text.

<sup>249</sup> *Id.*

<sup>250</sup> Propriety trading occurs “[w]hen a firm trades for direct gain instead of commission dollars. Essentially, the firm has decided to profit

markets,<sup>251</sup> engage in abusive trading practices,<sup>252</sup> or increase systemic risk, however, if their trading algorithms were to malfunction.<sup>253</sup> Even if current instances of abusive trading practices by HFT firms involve situations in which humans direct ATSS to act illegally, it is conceivable that (now or at some point in the future) ATSS or digital intermediaries could become capable of engaging in unlawful

---

from the market rather than from commissions from processing trades.” Proprietary Trading, INVESTOPEDIA, <http://www.investopedia.com/terms/p/proprietarytrading.asp>, archived at <http://perma.cc/2L3Y-JJ5V>. Some HFT firms do not have customers; instead, they are proprietary traders. See Tara Bhupathi, Note, *Technology’s Latest Market Manipulator? High Frequency Trading: The Strategies, Tools, Risks, and Responses*, 11 N.C. J.L. & TECH. 377, 386–87 (2010).

<sup>251</sup> See, e.g., Press Release 6239-12, CFTC, Federal Court Orders \$14 Million in Fines and Disgorgement Stemming from CFTC Charges against Optiver and Others for Manipulation of NYMEX Crude Oil, Heating Oil, and Gasoline Futures Contracts and Making False Statements (Apr. 19, 2012), <http://www.cftc.gov/PressRoom/PressReleases/pr6239-12>, archived at <http://perma.cc/3D39-Y3V2> (“The CFTC will not tolerate traders who try to gain an unlawful advantage by using sophisticated means to drive oil and gas futures prices in their favor,” said David Meister, the Director of the CFTC’s Division of Enforcement. “Manipulative schemes like ‘banging the close’ harm market integrity . . .”).

<sup>252</sup> See Press Release 6441-12, CFTC, CFTC Files Complaint in Federal Court Against Eric Moncada, BES Capital LLC, and Serdika LLC Alleging Attempted Manipulation of Wheat Futures Contract Prices, Fictitious Sales, and Non-Competitive Transactions (Dec. 4, 2012), <http://www.cftc.gov/PressRoom/PressReleases/pr6441-12>, archived at <http://perma.cc/7DUM-2HVR>.

<sup>253</sup> See Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,548–49:

Recent malfunctions in ATS and trading platform systems, in both derivatives and securities markets, illustrate the technological and operational vulnerabilities inherent to automated trading environments. ATSS, for example, are vulnerable to algorithm design flaws, market conditions outside of normal operating parameters, the failure of built-in risk controls, operational failures in the communication networks on which ATSS depend for market data and connectivity with trading platforms, and inadequate human supervision.

trading practices such as wash trading or spoofing without human instigation. Therefore, under the traditional approach, because unregistered firms that use ATSSs could increase systemic risk or engage in improper trading practices, Congress should require persons that use ATSSs to register, or at least seriously consider doing so.<sup>254</sup>

One proposed solution is to require currently unregistered firms that use ATSSs to register as floor traders. The floor trader category only applies to persons who have trading privileges on an exchange (or swap execution facility),<sup>255</sup> which would appear to correspond with HFT firms that have direct market access to a futures exchange because they are exchange members.<sup>256</sup> Some HFT firms, however, obtain direct market access through “sponsorship” by their broker. Sponsorship enables them to have direct market access by trading under the exchange member identity of their

---

<sup>254</sup> Compulsory registration for firms that use ATSSs appears to be advisable under the traditional theoretical framework, but there are numerous issues related to implementing such a requirement that should be evaluated and considered based on market data and consultation with industry representatives. The Concept Release raised numerous questions that warrant further measured analysis. See Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,560–61.

<sup>255</sup> See 17 C.F.R. § 3.11(a)(2) (2014).

<sup>256</sup> See Renee Caruthers, *The Big Data Edge for Hedge Funds*, TRADERS MAG., Feb. 2014, at 34 (interview with HFT expert Irene Aldridge in which she explains that many HFT firms have an affiliated brokerage that they control that provides them with direct market access); Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,546:

For purposes of this Concept Release, [direct market access] is defined as a connection method that enables a market participant to transmit orders to a trading platform without reentry or prior review by systems belonging to the market participant’s clearing firm. DMA can be provided directly by an exchange or through the infrastructure of a third-party provider.

broker.<sup>257</sup> The floor trader category would appear to be a suitable stand-in for exchange-member firms that use ATSS. Conversely, if Congress determines that unregistered firms that use ATSS without direct market access also threaten to engage in abusive trading practices, manipulate markets, or increase systemic risk, then Congress might be better off crafting a new registration category to specifically suit the circumstances, rather than shoehorn a broad swath of firms into the floor trader category.<sup>258</sup>

The Concept Release also raised the question of whether the CFTC should require registration of all those who use ATSS, or only those ATS users who also employ HFT strategies.<sup>259</sup> This prompted the further question of what “firm characteristics, trading practices, or technologies . . . could be used to trigger a registration requirement” for firms operating ATSS.<sup>260</sup> At present, there is no minimum trading threshold for floor trader registration.<sup>261</sup> Indeed, most intermediary categories do not have threshold activity levels and are simply binary propositions. Exceptions, however, include the swap dealer and major swap participant definitions, which require substantial notional amounts of swaps trading to satisfy.<sup>262</sup> Likewise, CEA Section 4m(1) has

---

<sup>257</sup> Bjorn Hagstromer & Lars Norden, *The Diversity of High-Frequency Traders*, 16 J. FIN. MKTS. 741, 744–45 (2013) (explaining the mechanics of direct market access as offered by brokers).

<sup>258</sup> The Securities and Exchange Commission also is apparently considering requiring proprietary trading firms that use ATS in the securities markets to register, although the proposals that would govern such firms are “still in the most embryonic [stage] of regulatory development.” Mark D. Knoll, *The Long Compliance Race*, TRADERS MAG., Sept. 2014, at 12 (stating that “the SEC is considering subjecting unregistered active proprietary traders to regulation as ‘dealers’ under the Exchange Act”).

<sup>259</sup> Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,567.

<sup>260</sup> *Id.*

<sup>261</sup> See CEA § 1a(23), 7 U.S.C. § 1a(23) (2012); 17 C.F.R. § 1.3(x) (2014).

<sup>262</sup> See 17 C.F.R. § 1.3(ggg)(4) (2014) (swap dealer); *id.* at § 1.3(hhh) (major swap participant).

a *de minimis* threshold for commodity trading advisor registration; the statute states that a person does not have to register as a commodity trading advisor if, during the course of the preceding twelve months, the commodity trading advisor has not furnished commodity trading advice to more than fifteen persons and has not held herself out generally to the public as a commodity trading advisor.<sup>263</sup> In most cases, when adding a new registrant category, Congress has simply required everyone within that category to register, but the CFTC could study the matter to determine if the circumstances warrant establishing minimum thresholds of trading or other activity levels to trigger the registration requirement for persons who use ATSS. In doing so, the CFTC could seek input from market participants and industry SROs as to what would be the appropriate thresholds to use. Finally, it should be noted that persons who use automated computer systems or software programs in their business of operating as regulated intermediaries will continue to be regulated.

The Concept Release also asked if software firms that provided algorithms should be required to register.<sup>264</sup> Natural persons or firms that sell software programs capable of either automatically placing trades in derivatives for their users or dispensing advice about derivatives trading to their users are commodity trading advisors under the existing view of the law.<sup>265</sup> Accordingly, a software firm that is compensated by others to provide algorithms that enable persons to determine when to enter and exit futures trades is probably a commodity trading advisor.<sup>266</sup> The answer is not certain, however, because it is unclear whether providing *algorithms* for ATSS is the equivalent to providing advice

---

<sup>263</sup> CEA § 4m(1), 7 U.S.C. § 6m(1) (2012).

<sup>264</sup> Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,567.

<sup>265</sup> CFTC v. Vartuli, 228 F.3d 94, 103–04 (2d Cir. 2000).

<sup>266</sup> *Id.*

about trading futures and derivatives.<sup>267</sup> That appears to be the case, given that ATSS use algorithms to determine when to enter and exit trades in futures and derivatives. Yet a firm could make the argument that, unlike the circumstances in which a person sells an ATS or a software program that is independently and immediately able to advise others about trading futures, providing algorithms is akin to providing only one small part of a larger program or entity that, once put together, advises others. On the other hand, one could argue that regulating persons who sell algorithms for ATSS would help prevent systemic risk, fraud, and market manipulation. By subjecting such persons to compulsory registration, regulation would screen dishonest individuals through background fitness investigations. Somewhat related, securities market regulators appear to be moving toward registration requirements for associated persons who are ATS designers and programmers.<sup>268</sup>

---

<sup>267</sup> The CFTC requested information from market participants about the relationship between ATSS and the algorithms that they employ. See Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,560:

The [CFTC] understands that an ATS may consist of numerous algorithms, each of which contributes to a trading decision. If an algorithm-based identification system is proposed, which of the potentially multiple algorithms that constitute an ATS should carry the ID? In addition, what degree of change to an algorithm should necessitate the use of a new ID, and how often does this change typically occur?

<sup>268</sup> As mentioned, in September of 2014, FINRA's board began "seeking comment on a proposal to establish a registration requirement for associated persons who are: (1) primarily responsible for the design, development or for directing the significant modification of an algorithmic strategy; or (2) responsible for supervising such functions." See *FINRA Gets Board Approval of Series of Equity Trading and Fixed Income Rulemaking Items*, PROFESSIONAL SERVICES CLOSE-UP (Sept. 30, 2014); *Regulators Eye Algorithms*, MARKETS MEDIA, *supra* note 64. This is consistent with other recent efforts by securities industry officials to increase scrutiny of ATSS and HFT strategies. See Knoll, *supra* note 258, at 12 (stating that Securities and Exchange Commission Chair Mary Jo



Persons are unlikely to face a registration requirement, however, if they sell software programs that automatically and independently solicit customers rather than place trades in derivatives or give advice about derivatives trading. None of the intermediary category definitions is triggered by selling someone a machine or software program that is capable of soliciting customers for futures or derivatives trading. Instead, the definitions focus on persons who actually solicit customer funds, orders for trades, or participation in commodity pools.<sup>269</sup> Put simply, because several intermediary categories target persons who solicit for trades, funds, or the like,<sup>270</sup> a person who sells a software program designed to automatically send emails or messages to *others* to solicit orders for futures trades probably would not have to register. However, a person who *uses* such a program probably would be required to register in some capacity with the CFTC.<sup>271</sup>

Under its traditional approach, Congress should expand the compulsory registration requirements to cover persons who sell software programs capable of soliciting orders for futures trades if the activities of the sellers threaten to increase systemic risk or if the sellers have the potential to engage in fraudulent, manipulative, or abusive conduct. At this point, there does not appear to be any evidence of fraud, market manipulation, or an increase in systemic risk attributable directly to the sellers of software programs that enable users to automatically solicit prospective and actual customers for orders for derivatives trades. This issue is complicated somewhat by the fact that the CEA and CFTC

---

White instructed staff “to promote rules that force firms to pay a high price for poorly designed or supervised algorithms”).

<sup>269</sup> See 17 C.F.R. § 1.3(aa) (2014).

<sup>270</sup> See, e.g., 17 C.F.R. §§ 1.3(aa) (defining APs of other intermediaries), 1.3(bb) (defining commodity trading advisors), 1.3(cc) (defining commodity pool operators) (2014).

<sup>271</sup> In which exact capacity a person who used a software program to solicit orders for trades would have to register would depend on whether the person also accepted funds to place the customers’ trades (in which case the person would be an FCM) and other factors.

Regulations already regulate the *users* of such programs, thereby protecting customers and other market participants.<sup>272</sup> If Congress or the CFTC later uncovers, for example, significant evidence of increased systemic risk or fraudulent conduct traceable solely to the creators and sellers of automated solicitation software, but not to the users of such software, then such information would support the regulation of software makers and sellers.

The Concept Release also asked if the CFTC should implement measures to identify ATs and algorithms<sup>273</sup> as a way to limit the malfunction of ATs and decrease systemic risk.<sup>274</sup> Enhancing measures to identify ATs and algorithms appears to be an appropriate response,<sup>275</sup> especially given the fact that ATs and algorithms are not “persons” for purposes of the law and therefore could not be subject to traditional registration requirements or other mechanisms to police their behavior.<sup>276</sup> An identification program is consistent with the willingness of Congress to employ relatively novel

---

<sup>272</sup> And users of such software programs presumably know that they are regulated, and therefore would seek to ensure that the programs complied with all relevant regulations. Users of computers or software programs that perform the functions of intermediaries are regulated by virtue of the fact that the definitions of intermediaries cover anyone who engages in the designated activities, whether manually or with the aid of technology. *See, e.g.*, Exemption from Registration as a Commodity Trading Advisor, 65 Fed. Reg. at 23,939.

<sup>273</sup> Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,559 (“The [CFTC] is considering measures to improve the identification of ATs or their underlying algorithms in messages generated by ATs. The [CFTC] believes that identification of ATs or underlying algorithms could help both firms and trading platforms to more quickly identify malfunctioning systems that could disrupt markets.”).

<sup>274</sup> *See id.* at 56,543, 56,548–49 (discussing “recent disruptive events in automated trading environments”).

<sup>275</sup> For a discussion of the May 6, 2010 “Flash Crash” and other highly publicized malfunctions of algorithmic trading, *see id.* at 56,547–50.

<sup>276</sup> The fact that ATs and algorithms are not persons has other regulatory implications. For example, the CFTC could not bring a civil enforcement suit against an algorithm.

approaches to regulating persons who pose risks to other market participants. Namely, in 1992, Congress required broker associations to register with DCMs (i.e., futures exchanges) when criminal indictments and news reports revealed that groups of floor brokers and floor traders were collusively engaging in improper activities.

Given recent examples of ATS malfunctions that imperiled market participants,<sup>277</sup> an ATS and algorithm identification program is a worthwhile endeavor. Identification is one of the main functions of the CEA's compulsory registration system.<sup>278</sup> Accordingly, the identification program could be the initial step in what would evolve into a pseudo-registration requirement for ATSs and algorithms, with other specific regulatory mandates (e.g., algorithm testing standards, supervisory requirements, etc.) to be added with time. Under such a program, the CFTC could develop regulations for ATSs and algorithms that mirrored the regulations of intermediaries, with a disqualification system for unfit ATSs, proficiency standards for ATSs, and ethics training (or programming) requirements for ATSs. The specifics of implementing an

---

<sup>277</sup> See Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,548–49 (discussing examples of highly publicized ATS malfunctions).

<sup>278</sup> See, e.g., CFTC v. Wilson, 27 F. Supp. 3d 517, 522, 526 (S.D.N.Y. June 26, 2014) (denying a motion to dismiss where a high-speed trading firm was accused of banging the close in violation of CEA Section 6(c) and Section 9(a)(2)); Press Release 6766-13, CFTC, CFTC Charges Donald R. Wilson and His Company, DRW Investments, LLC, with Price Manipulation (Nov. 6, 2013), available at <http://www.cftc.gov/PressRoom/PressReleases/pr6766-13>, archived at <http://perma.cc/V5QW-RQWX> (stating that the CFTC has filed a civil enforcement action, for violations of 7 U.S.C. Sections 6(c), 9(a)(2), and 13(b), against Wilson and DRW Investments for allegedly “banging the close” in order to manipulate settlement prices); Press Release 6239-12, CFTC, Federal Court Orders \$14 Million in Fines and Disgorgement Stemming from CFTC Charges against Optiver and Others for Manipulation of NYMEX Crude Oil, Heating Oil, and Gasoline Futures Contracts and Making False Statements (Apr. 19, 2012), <http://www.cftc.gov/PressRoom/PressReleases/pr6239-12>, archived at <http://perma.cc/2UZG-PYA4>.

identification program for ATSS and algorithms, however, should be worked out cooperatively with the exchanges and market participants to ensure that there is a uniform, industry-wide method to distinguish ATSS from algorithms.<sup>279</sup>

The idea of an identification program for ATSS and algorithms, while relatively undefined by the CFTC at this stage, is an example of what the future might have in store for the regulation of financial market intermediaries. The mention of such a program in the Concept Release is the CFTC's first (implicit) recognition of the fact that natural persons are not going to be the primary actors in the futures and derivatives markets, and that regulators will need to look behind the natural persons just as one might look under the hood of a car to examine the engine. Specifically, artificial autonomous agents—here, ATSS and algorithms—are not legal persons but are responsible for directing and controlling trading by participants in the derivatives markets.

Establishing an identification system for ATSS and algorithms makes sense under the traditional framework that Congress has used when deciding whether to expand regulatory requirements to cover new intermediaries. As discussed above, trading activities by ATSS and algorithms could, in the event of a malfunction, increase systemic risk.<sup>280</sup> Likewise, ATSS and algorithms are capable of manipulating the markets for derivatives contracts and engaging in wash trades and other disruptive trading practices.<sup>281</sup> Therefore, increased oversight of ATSS and

---

<sup>279</sup> See Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,559–60. Others have recognized the problem of identifying autonomous artificial agents. See, e.g., CHOPRA & WHITE, *supra* note 65, at 181–82.

<sup>280</sup> See *supra* notes 29–31 and accompanying text.

<sup>281</sup> As discussed previously, although existing cases involving manipulative and disruptive trading practices by ATSS employing HFT strategies were believed to have consisted of human-directed schemes, it is entirely possible for ATSS to behave in ways not intended or expected by their programmers. See Neyfakh, *supra* note 35:

algorithms is warranted to enable the CFTC to reduce systemic risk and decrease the likelihood of disruptive trading practices.

### B. Looking Behind the Registrants to the Autonomous Artificial Agents

Consideration of the suggested ATS and algorithm identification program hints at a larger, more important issue hiding behind the questions asked in the Concept Release. Namely, how can Congress and the CFTC ensure that the futures and derivatives markets maintain high ethical standards and a respect for the law among market participants even as more of the market becomes automated and therefore removed from immediate and specific human direction? The reference to an identification program for ATSs and algorithms indirectly shows that traditional approaches to the regulation of intermediaries will not necessarily work in situations where the decision makers for registrants are not legal persons and therefore cannot register themselves, or, in the event of wrongdoing, cannot be punished under current legal doctrines. Ensuring that automated derivatives markets are characterized by fair dealings and ethical conduct necessitates looking beyond traditional registration categories to reach the autonomous artificial agents operating behind the legal persons (i.e., the firms and natural persons). It is the autonomous artificial agents (and not the legal persons) that are actually directing trading and investment decisions in many cases. The focus, therefore, should be on making sure that all automated computers and software programs operating in the markets—registrants or not, legal persons or not—

---

With most robot-like machines that exist today, any serious problems can be easily traced back to a human somewhere, whether because the machine was used carelessly or because it was intentionally programmed to do harm. But experts in artificial intelligence and the emerging field of robot ethics say that is likely to change.

understand and follow the ethical guidelines and business conduct standards mandated for the industry, as detailed by the relevant laws, regulations, and rules.

Some scholars of law and philosophy have studied approaches to inputting ethical and moral principles into autonomous artificial agents, as well as methods to best allocate liability for autonomous artificial agent wrongdoing. Their observations and analysis may provide helpful insights for the regulation of digital intermediaries in the futures markets.<sup>282</sup>

Wendell Wallach, chair of the Technology and Ethics Study Group at Yale University's Interdisciplinary Center for Bioethics, advocates for open societal discussion about the best methods for ensuring that autonomous artificial agents are created with morality. This necessitates an examination of "the very nature of moral and ethical decision-making[,] be it from a "top-down approach to morality, wherein the machine is governed by a series of laws or rules . . . [or] a bottom-up system, in which morality is gradually programmed into a machine to mimic human learning."<sup>283</sup> Wallach and his co-author,<sup>284</sup> Colin Allen, a professor of history and philosophy of science and Director of the Cognitive Science Program at Indiana University, Bloomington, argue "that it is necessary for developers of these increasingly autonomous systems (robots and software bots) to make them capable of factoring ethical and moral

---

<sup>282</sup> The issues of legal personhood and morality for autonomous artificial agents are topics that were beyond the scope of the CFTC's Concept Release on Risk Controls and System Safeguards for Automated Trading Environments.

<sup>283</sup> Jim Shelton, *Open the Pod-Bay Door, Hal*, NEW HAVEN REG. (Jan. 11, 2009, 12:01 AM), <http://www.nhregister.com/general-news/20090111/open-the-pod-bay-door-hal>, archived at <http://perma.cc/2XU6-DHRP>.

<sup>284</sup> See WENDELL WALLACH & COLIN ALLEN, *MORAL MACHINES: TEACHING ROBOTS RIGHT FROM WRONG* (2009) [hereinafter WALLACH & ALLEN, *MORAL MACHINES*].

considerations into their decision making.”<sup>285</sup> They point to “credit card approval systems” and “automated stock trading systems” as “examples of autonomous systems that already affect daily life in ethically significant ways, but [that] are ‘ethically blind’ because they lack moral decision-making capacities.”<sup>286</sup> Allen and Wallach state that a particular autonomous artificial agent’s capacity for morality can be viewed on a sliding scale corresponding to the degree of its autonomy: the more sophisticated and autonomous the artificial agent, the closer it is to reaching full moral agency.<sup>287</sup> The two concede that current technology is probably not yet advanced enough to allow for “full-blown moral agency” but believe that current approaches to artificial intelligence could support “functional morality.”<sup>288</sup>

Allen and Wallach discuss three general approaches to implanting moral and ethical knowledge inside robots. They include the top-down (rules based) and bottom-up (gradual accumulation of knowledge by applying methods of learning and development to have moral capacities grow over time with general intelligence) approaches, as well as the “virtue-based conception of morality.”<sup>289</sup> The virtue-based conception represents a middle ground because “virtues constitute a hybrid between top-down and bottom-up approaches, in that the virtues themselves can be explicitly described (at least to some reasonable approximation), but their acquisition as

---

<sup>285</sup> Colin Allen & Wendell Wallach, *Moral Machines: Contradiction in Terms or Abdication of Human Responsibility?*, in *ROBOT ETHICS: THE ETHICAL AND SOCIAL IMPLICATIONS OF ROBOTICS* 55, 56 (Patrick Lin et al. eds., 2012) [hereinafter Allen & Wallach, *ROBOT ETHICS*].

<sup>286</sup> *Id.* at 56–57.

<sup>287</sup> *Id.* at 57.

<sup>288</sup> *Id.* at 58. Functional morality refers to “intelligent systems capable of assessing some of the morally significant aspects of their own actions” by, for example, being programmed to recognize if specific situations raise moral issues and then respond to those moral issues according to rules encoded in their programming. WALLACH & ALLEN, *MORAL MACHINES* 26–27.

<sup>289</sup> WALLACH & ALLEN, *MORAL MACHINES* 120; Allen & Wallach, *ROBOT ETHICS* 59.

moral character traits seems essentially to be a bottom-up process.”<sup>290</sup> As Allen and Wallach state, while “there are miles to go before the full moral agency of [robots] can be realistically conceived,” it is appropriate for the time being to focus “on the steps between here and there.”<sup>291</sup> The duo make a strong case for the belief that “sensitivity to some moral considerations can be engineered into [robots]”<sup>292</sup> and that it is important to start working on such efforts now so that advances in creating morality in artificial agents can keep pace with advances in the general intelligence and other capabilities of artificial agents.

A top-down rules-based approach to inputting morality into derivatives market digital intermediaries would involve directly programming the prohibitions contained in specific statutory and regulatory provisions into the digital intermediary.<sup>293</sup> For example, a digital intermediary would be programmed to know that wash trading—which involves trading with oneself (or someone under your control)<sup>294</sup>—is illegal and therefore not permitted.<sup>295</sup>

A bottom-up, gradual approach to giving digital intermediaries morality likely would involve exposing the digital intermediary to specific rules and prohibitions over time, in succession, to mimic how children learn.<sup>296</sup> More

---

<sup>290</sup> Allen & Wallach, *ROBOT ETHICS* 59.

<sup>291</sup> *Id.* at 62.

<sup>292</sup> *Id.* at 65.

<sup>293</sup> WALLACH & ALLEN, *MORAL MACHINES*, at 79–80, 83–97. “In the most general sense, the top-down approach to artificial morality is about having a set of rules that can be turned into an algorithm.” *Id.* at 84.

<sup>294</sup> See Charles R.P. Pouncy, *The Scierter Requirement and Wash Trading in Commodity Futures: The Knowledge Lost in Knowing*, 16 *CARDOZO L. REV.* 1625, 1635–36 (1995).

<sup>295</sup> WALLACH & ALLEN, *MORAL MACHINES* at 79–80 (stating that a top-down approach “is any approach that takes a specified ethical theory and analyzes its computational requirements to guide the design of algorithms and subsystems capable of implementing that theory.”).

<sup>296</sup> WALLACH & ALLEN, *MORAL MACHINES* at 80 (“In bottom-up approaches to machine morality, the emphasis is placed on creating an environment where an agent explores courses of action and learns and is



specifically, “[u]nlike top-down ethical theories, which define what is and is not moral, in bottom-up approaches any ethical principles must be discovered or constructed.”<sup>297</sup> For example, a bottom-up approach could employ “the logic of game theory” by placing artificial agents in virtual environments together and running them through challenging situations that help teach the artificial agents ethics and morality.<sup>298</sup>

Lastly, a virtue-based approach would combine elements of both the top-down and bottom-up approaches by, for example, explicitly programming a digital intermediary to understand that futures trades must be executed competitively on exchanges.<sup>299</sup> From that general principle, a digital intermediary could infer other prohibitions, such as the fact that the competitive execution mandate would prohibit non-competitive, prearranged trades. From there, a digital intermediary could later reason that trading futures contracts at pre-determined prices with oneself or with one’s agent is a form of non-competitive, prearranged trading and therefore is prohibited.

It is difficult to determine which of the three approaches discussed by Allen and Wallach is best suited for digital intermediaries in the futures markets.<sup>300</sup> There can be no doubt, however, that the actions of digital intermediaries will inevitably raise ethical and moral issues, such as whether particular investment decisions are suitable for particular types of customers (e.g., investing the majority of a retired senior citizen’s life savings in risky natural gas

---

rewarded for behavior that is morally praiseworthy.”). *See also id.* at 99–115.

<sup>297</sup> *Id.* at 80.

<sup>298</sup> *Id.* at 101–05. Generally, bottom-up approaches involve having artificial agents develop morality in stages, in the same way that children do as they grow. *See id.* at 108–09.

<sup>299</sup> *See id.* at 117–24.

<sup>300</sup> Indeed, Wallach and Allen admit that each approach has its drawbacks. *See WALLACH & ALLEN, MORAL MACHINES* at 97, 114, 123. As such, a hybrid approach that combined elements of all three might work best. *Id.* at 124.

futures) or whether particular email solicitations for trading in derivatives independently written by digital intermediaries (e.g., much like software programs that write news articles)<sup>301</sup> overly downplay the risk of loss while making glowing statements about the prospect of profits.

Accordingly, the CFTC should engage the NFA, the futures exchanges, and other market participants in a discussion about how to chart a path into the future in which automated markets remain fair and trustworthy markets. The goal is to develop industry-wide best practices for placing ethical and legal standards—that is, functional morality—into the electronic minds of automated systems that operate in the derivatives markets. For example, industry members could help establish best practices for automated solicitations by software programs, with an eye toward ensuring that solicitations written and sent by digital intermediaries are not misleading. In addition, computer programmers in the industry, notwithstanding their normal inclination to keep their programming knowledge secret, could work together on sharing some of the most effective and efficient approaches to placing proper moral and ethical considerations inside digital intermediaries and other artificial agents, with the goal of ensuring that automated actors in derivatives markets do not abuse the trust of customers.<sup>302</sup> Such joint efforts would serve to uphold the reputation of the derivatives markets to the benefit of all market participants.

Whereas Allen and Wallach have examined general approaches that could be used in programming autonomous artificial agents with morals and ethics, other scholars have focused on analyzing possible methods for allocating liability for wrongdoing by autonomous artificial agents. Some of these scholars have concluded that the best solution is to

---

<sup>301</sup> Henry, *supra* note 6.

<sup>302</sup> Wallach and Allen show that developing systems to ensure that autonomous artificial agents always act ethically is not going to be a simple or easy. The duo devotes much of their book to such issues. *See generally* WALLACH & ALLEN, *MORAL MACHINES* 73–169.

grant autonomous artificial agents at least some level of personhood and then hold them accountable for their own misdeeds, or hold their users and owners accountable under agency or other legal theories.<sup>303</sup>

For example, Samir Chopra, a philosophy professor at Brooklyn College of the City University of New York, and Laurence F. White, an attorney, argue that artificial agents such as software robots should be accorded the status of dependent legal persons,<sup>304</sup> which is the personhood status accorded corporations, mentally incapacitated individuals, and minors.<sup>305</sup> Chopra notes, “computer programs . . . . . make deals and create legally binding contracts without human intervention[,]” and contends, “[s]uch programs . . . should be given special consideration under the law” on the grounds that they are “too independent to be classified as simple tools, like guns, but not independent enough to be counted as full legal persons.”<sup>306</sup> Using a dependent legal personhood approach to artificial agents, the law could “exert some influence over the humans who design and operate them, while acknowledging the fact that [artificial agents] are capable of doing things no one could have reasonably expected.”<sup>307</sup>

---

<sup>303</sup> CHOPRA & WHITE, *supra* note 65, at 189; Neyfakh, *supra* note 35.

<sup>304</sup> CHOPRA & WHITE, *supra* note 65, at 189.

<sup>305</sup> *Id.* at 159–160. “A dependent legal person can only act through the agency of another legal person in exercising some or all of its legal rights.” *Id.* at 159. Chopra and White would accord artificial agents full legal personhood once they obtained a high level of autonomy and intellectual capabilities. *Id.* at 189.

<sup>306</sup> Neyfakh, *supra* note 35.

<sup>307</sup> *Id.*

In practical terms, determining the legal status of robots amounts to a careful balancing act: Manufacturers and owners need to feel responsible enough to take safety precautions with the increasingly smart machines they’re building, but not so hamstrung with fear that they back away from innovations we want, like drones that help find missing kids or fight fires.

*Id.*

But one of the more challenging issues related to conceptualizing personhood for artificial agents such as ATSS and digital intermediaries centers on whether artificial agents are susceptible to punishment.<sup>308</sup> In other words, would the threat of fines or other legal sanctions deter ATSS and digital intermediaries from violating the CEA and CFTC regulations?<sup>309</sup> Furthermore, would ATSS and digital intermediaries understand that they are morally blameworthy if they engage in certain prohibited disruptive trading practices?<sup>310</sup> Chopra and White argue that artificial agents could be susceptible to punishment, pointing, for example, to situations in which artificial agents exercise control over money and could be fined or required to pay damages as is the case with corporations.<sup>311</sup> Chopra and White also believe that obedience to legal obligations could be “engineered” into artificial agents so that they would respond to the threat of punishment by modifying their behavior.<sup>312</sup> Additionally, Chopra and White suggest two ways to give the “legal responsibility [of artificial agents] some economic meaning.”<sup>313</sup> One suggestion is to establish a “register” that would insure artificial agents and compensate when those agents harm others.<sup>314</sup> The second suggestion is to rely on tort doctrines such as negligent supervision to place liability for any harm caused by artificial agents squarely on the users and owners of the artificial agents.<sup>315</sup>

---

<sup>308</sup> CHOPRA & WHITE, *supra* note 65, at 148–50.

<sup>309</sup> *Id.* at 149.

<sup>310</sup> *Id.* at 148.

<sup>311</sup> *Id.* at 167–69 (describing the various ways in which artificial agents could be punished and how that would relate to the functions of punishment). *See also* Neyfakh, *supra* note 35 (describing one scientist’s argument that a chess-playing robot would understand the punishment of being de-activated as resulting in a future without any chess games for the robot).

<sup>312</sup> CHOPRA & WHITE, *supra* note 65, at 168.

<sup>313</sup> *Id.* at 150.

<sup>314</sup> *Id.* at 149–50.

<sup>315</sup> *Id.*

Fortunately, one does not have to answer the question of whether ATSS and digital intermediaries should be accorded dependent legal personhood to determine the most effective way to address wrongdoing. At least in the foreseeable future, it appears unlikely that ATSS and digital intermediaries will be susceptible to punishment, despite arguments to the contrary. First, ATSS and digital intermediaries are unlikely to have their own funds and assets with which to pay fines and sanctions.<sup>316</sup> Second, ATSS and digital intermediaries built with existing technology do not appear to be sufficiently autonomous and self-aware to fear the threat of punishment and understand the moral consequences of violating the law.<sup>317</sup> As a result, any attempt to require futures market digital intermediaries to act within the bounds of ethics and the law will likely involve holding existing types of legal persons—i.e., business entities and individuals—responsible for the actions of their digital intermediaries.<sup>318</sup>

Congress and the CFTC ought to consider adopting a negligence standard using concepts imported from tort law.<sup>319</sup> A negligence standard is needed to deter the human overseers of digital intermediaries because, under claims that require proof of intent or scienter, humans responsible

---

<sup>316</sup> I am not aware of anyone setting up any kind of “register” to insure artificial agents. I also am not aware of any serious movement in Congress to grant artificial agents personhood so they could own property in their own names.

<sup>317</sup> Of course, that could change with time.

<sup>318</sup> This approach is consistent with the analysis of Chopra and White. As mentioned, they seem to accept that, for the time being, initiatives aimed at assigning liability for the illegal actions of autonomous artificial agents probably will focus on holding the owners and users of artificial agents liable under tort law doctrines. *See* CHOPRA & WHITE, *supra* note 65, at 149–50.

<sup>319</sup> KEETON ET AL., *supra* note 164, § 32, at 175 (concluding that “negligence is a failure to do what the reasonable person would do” under like circumstances). Chopra and White provide an excellent, thorough analysis of potential ways that one could use tort law doctrines to impose liability for the acts of artificial agents. *See* CHOPRA & WHITE, *supra* note 65, at 119–52.

for supervising ATSS or digital intermediaries could escape liability by simply denying any intention for the ATSS or digital intermediaries to do anything illegal or improper.<sup>320</sup> Indeed, such denials would probably be truthful in circumstances involving self-learning or self-modifying software programs.<sup>321</sup> For a negligence standard to be effective, however, the CFTC—perhaps in conjunction with the NFA and market participants—would have to promulgate specific best practices for designing, monitoring, and operating ATSS and digital intermediaries.<sup>322</sup> Those guidelines would then set the appropriate standard of care. Another benefit of negligence-based liability is that it is not overly harsh. Negligence standards require only that one act reasonably. Therefore, a person would not be liable for the improper acts of an artificial agent that could not have been predicted or prevented by someone who was following the industry’s best practices.

Because tort-style liability for legal persons whose automated computers and software programs violate the law or CFTC regulations offers the best protection from systemic risk and disruptive action, Congress should amend the CEA to provide for such causes of action. As it stands, the CEA does not contain a civil enforcement or a private cause of

---

<sup>320</sup> See Scopino, *Do ATSS Dream?*, *supra* note 19, at 250–54.

<sup>321</sup> Jorge Martins Rosa, *Slaves, Vending Machines, and Bots*, *EXTRAPOLATION* 235, 237 (2013) (reviewing CHOPRA & WHITE, *supra* note 65) (stating that, in the case of a self-modifying program, “it will appear harder to trace the origin of the defect back to the programmer or manufacturer”); Neyfakh, *supra* note 35 (“Such a machine will not just be following orders, but doing something it came up with on its own, such that its actions are at a great remove from whoever originally programmed it.”).

<sup>322</sup> For example, industry best practices could describe how long algorithms should be tested before being used to actually trade in financial markets. See Concept Release on Risk Controls and System Safeguards for Automated Trading Environments, 78 Fed. Reg. at 56,549. Other best practices could involve standards for the use of kill switches, as well as “ATS monitoring and supervision standards, [and] pre-established crisis management protocols.” *Id.*

action for tort liability against such persons.<sup>323</sup> In the meantime, the CFTC probably could, with its rulemaking authority, follow the lead of FINRA's proposals<sup>324</sup> and expand the definitions of AP and principal to better regulate the humans responsible for digital intermediaries. Currently, all definitions of APs include a provision that makes someone an AP if he or she supervises *persons* who engage in a specific kind of activity.<sup>325</sup> Specifically, the CFTC should change the definition so that someone is an AP if he or she supervises *persons or any computer, software program, or electronic system* that engages in a specific kind of activity. This would transform natural persons who oversee or monitor automated software programs that solicit customers into APs.

The definition of principal should also be expanded to include software programmers who create, design, or modify ATSS, algorithms, or related automated systems for a registrant. Generally, principals include enumerated persons who, due to their post or status, exhibit an amount of control or influence over registrants. A natural person who created the software program that a commodity trading advisor relies upon in deciding when to place trades in the futures trading accounts of clients arguably has considerable influence over the actions of that commodity trading advisor and would seem to warrant oversight as a principal.<sup>326</sup>

---

<sup>323</sup> The closest analog to such a cause of action would be the supervisory requirement in Regulation 166.3, 17 C.F.R. § 166.3 (2014), which requires all registrants to supervise their employees in connection with their businesses as CFTC registrants. Regulation 166.3 probably implicitly includes a requirement to supervise employees tasked with operating ATSS and the like. But Regulation 166.3 is an indirect way to address this problem and has limitations. Namely, Regulation 166.3 only applies to *registrants* and only the CFTC can enforce Regulation 166.3—i.e., there is no private right of action under it. See Scopino, *Do ATSS Dream?*, *supra* note 19, at 273–93.

<sup>324</sup> See *Regulators Eye Algorithms*, MARKETS MEDIA, *supra* note 64.

<sup>325</sup> See 17 C.F.R. § 1.3(aa)(2) (2014).

<sup>326</sup> For the current definition of principal, see 17 C.F.R. § 3.1(a) (2014).

These two incremental steps would expand the scope of regulation for natural persons who create or operate automated systems within registrants, and are consistent with Chopra and White's suggestion that wrongdoing by artificial agents can be given "economic meaning" by attaching liability to the users and owners of artificial agents.<sup>327</sup> This incremental regulatory expansion is also warranted under the traditional approach employed by Congress, as discussed in the first paragraph of Part III. As the use of ATSs has become more widespread, there is a real likelihood that inadequate supervision or error-ridden programming of ATSs could result in trading algorithm malfunctions that increase systemic risk or generate manipulative or disruptive trading practices. As in the past, the solution is to incrementally expand the scope of compulsory registration to cover the persons—here, supervisors and programmers of ATSs—whose activities could potentially put the futures markets at risk.

## V. CONCLUSION

The Second Machine Age promises to have a significant impact on how the markets for futures and derivatives operate. Indeed, digital intermediaries—automated computers and software programs that act independently of human direction to perform the roles of existing categories of regulated intermediaries—are sure to increase their presence in the financial markets for futures and derivatives. The "kingpin of the statutory machinery" in the CEA is the registration requirement for persons acting as futures market intermediaries. This requirement protects customers from wrongdoing by screening the backgrounds of natural persons who act as professionals in the derivatives markets and subjecting those who work for registrants to proficiency testing and regular ethics training. However, the law does not consider computers or software programs to be persons, so the computers and software programs as individual

---

<sup>327</sup> CHOPRA & WHITE, *supra* note 65, at 149–50.



entities cannot be forced to register, take proficiency tests, or undergo ethics training. Therefore, to ensure that the CEA and CFTC Regulations continue to effectively and efficiently serve their overriding objectives of reducing systemic risk and protecting customers from fraud, abusive trading practices, and market manipulation, Congress and the CFTC should update the existing intermediary categories to ensure proper supervision and oversight of digital intermediaries. Beyond that, Congress and the CFTC ought to consider broader steps necessary to ensure that strong ethical principles and adherence to the law continue to predominate in the futures and derivatives markets. Potential solutions can be found in the work of scholars who are studying ways to put ethics and morals into the minds of artificial agents, and in the work of others who seek to determine how best to allocate liability for the acts of autonomous artificial agents.