

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF ILLINOIS  
EASTERN DIVISION

UNITED STATES OF AMERICA

v.

NAVINDER SINGH SARAO,

Defendant.

No. 15 CR 75

**JUDGE KENDALL**  
**MAGISTRATE JUDGE MARTIN**

Violations: Title 7, United States Code,  
Sections 6c(a)(5)(C) and 13(a)(2); Title 18,  
United States Code, Sections 1343 and  
1348(1) and (2).

*of*  
**FILED**

SEP - 2 2015

**THOMAS G. BRUTON**  
**CLERK, U.S. DISTRICT COURT**

**INDICTMENT**

**COUNT ONE**  
(Wire Fraud)

The SPECIAL SEPTEMBER 2014 GRAND JURY charges:

**The Defendant**

1. At times material to this Indictment, NAVINDER SINGH SARAO, the defendant, was a futures trader who operated from his residence, among other locations, in the United Kingdom and who traded primarily through his company, Nav Sarao Futures Limited. SARAO traded futures using commercially available trading software, including automated trading software. Such software allowed traders to communicate with markets as quickly as possible and to place, modify, and cancel multiple orders nearly simultaneously.

**The Chicago Mercantile Exchange**

2. The Chicago Mercantile Exchange ("CME") was a financial and commodity derivatives exchange based in Chicago, Illinois. Several types of financial instruments were traded on the CME, including futures contracts.

3. Futures contracts were standardized, legally binding agreements to buy or sell a specific product or financial instrument in the future. The buyer and seller of a futures contract agreed on a price today for a product or financial instrument to be delivered or settled in cash on a future date. The minimum price increment at which a futures contract could trade was called a “tick,” and the value of a tick for each contract was set by the futures exchange. Futures contracts traded on set, periodic expiration cycles (*i.e.*, monthly or quarterly). A “near-month” futures contract was one that would expire on the next expiration date for that type of futures contract.

4. Traders placed orders in the form of “bids” to buy or “offers” to sell a futures contract. An order was “filled” or “executed” when a buyer and seller bought and sold a particular contract.

5. The CME operated a global electronic trading platform called Globex, which utilized computer servers located in Chicago, Illinois and surrounding areas within the Northern District of Illinois. Globex allowed market participants to trade either at the exchange itself or from a home or office thousands of miles away.

6. Traders transacted on the CME through a futures commission merchant (“FCM”). An FCM—sometimes referred to as a commodity broker—was an individual or organization which, among other things, accepted orders to buy or sell futures contracts and accepted money from customers to support such orders.

#### **E-Mini S&P Futures Contracts**

7. The Standard & Poor’s 500 Index (the “S&P 500 Index”) was an index of 500 stocks designed to be a leading indicator of United States equities. The E-Mini S&P 500 (“E-

Mini”) was a stock market index futures contract based on the S&P 500 Index. E-Minis were traded on the CME through Globex. The E-Mini was one of the most popular and liquid equity index futures contracts in the world. As a futures contract, the E-Mini represented an agreement to buy or sell the future cash value of the underlying index at a specified date. The notional value of one contract was 50 times the value of the S&P 500 Index. Thus, if the current value of the S&P 500 Index was \$1,320, the value of a single futures contract was \$66,000 ( $\$1,320 \times 50$ ).

### **Layering Schemes**

8. “Layering” (a type of “spoofing”) is a form of manipulative, high-speed activity in the financial markets. In a layering scheme, a trader places multiple, bogus orders that the trader does not intend to have executed—for example, multiple orders to sell a financial product at different price points—and then quickly modifies or cancels those orders before they are executed. The purpose of these bogus orders is to trick other market participants and manipulate the product’s market price (in the foregoing example of bogus sell orders, by creating a false appearance of increased supply in the product and thereby depressing its market price). The trader seeks to mislead and deceive investors by communicating false pricing signals to the market, to create a false impression of how market participants value a financial product, and thus to prevent legitimate forces of supply and demand from operating properly. The trader does so by creating a false appearance of market depth, with intent to create artificial price movements. The trader could then exploit this layering activity by simultaneously executing other, real trades that the trader does intend to have executed, in an attempt to profit from the artificial price movements that the trader had created. Such layering and trading activity occurs over the course of seconds, in multiple cycles that the trader repeats throughout the trading day.

Given the speed and near simultaneity of market activity in a successful layering scheme, such schemes are aided by custom-programmed, automated trading software.

**Overview of SARAO's Manipulative Activity**

9. Beginning in or about January 2009, NAVINDER SINGH SARAO, the defendant, sought to enrich himself through manipulation of the market for E-Minis. By placing multiple large-volume orders on the CME at different price points, SARAO created the false appearance of substantial supply in order to fraudulently induce other market participants to react to his deceptive market information. SARAO thus artificially depressed E-Mini prices. With the aid of an automated trading program, SARAO was able to all but eliminate his risk of unintentionally executing these orders by modifying and ultimately canceling them before execution. Meanwhile, he exploited his manipulation to reap large trading profits by executing other, real orders.

**SARAO Sought and Obtained Assistance with Automated Trading Functions**

10. Beginning in approximately January 2009, NAVINDER SINGH SARAO, the defendant, sought and obtained assistance designing automated trading program functionality that would aid SARAO in implementing his scheme.

11. For example, on or about January 26, 2009, NAVINDER SINGH SARAO, the defendant, sent an email bearing the Subject "Good news at last" to a trading software programmer ("Programmer #1"), in which SARAO explained, "I have got the matrix running." As used in this email, "matrix" referred to an automated trading program functionality. SARAO's email continued, "[w]e now need to make it workable in terms of me moving the market like we discussed."

12. On or about February 1, 2009, NAVINDER SINGH SARAO, the defendant, sent a follow-up email to Programmer #1, in which SARAO stated that “the join bid/offer seems to work but it’s implementation needs changing.” Referring to this “join bid/offer” trading program functionality, SARAO explained, “If I am short I want to spoof it [*i.e.*, the market] down, so I will place join offer orders . . . at the 1st offer and 2nd offer and an order . . . into the 1st bid. These will not be seen.” SARAO further explained in the email that “[t]hese new . . . orders . . . must adhere to the other rules of back of the book, cancel on trade and minimum volume. I want to put these join offer orders in the system much like a normal order but they are only seen when the market bid is taken out, or when the market goes offered.”

13. At times material to this Indictment, traders in the E-Mini market were able to see a visible order book comprising the 10 best prices on each side of the market (the “order book”), although the universe of buy and sell orders in the E-Mini market could be much larger. As described in these emails between NAVINDER SINGH SARAO, the defendant, and Programmer #1, the “join bid/offer” function SARAO sought to implement worked as follows. When the best bid in the order book became the best offer, SARAO would “join” that new best offer and simultaneously place (*i.e.*, layer) additional sell orders at the next levels of the order book. As SARAO described it in his emails, the program he commissioned would ensure that his orders remained at the “back of the book” at each price point, to minimize the chance that they would be filled, and would also “cancel on trade”—*i.e.*, if any transactions occurred at the prices where SARAO had placed his layered orders. In subsequent emails with Programmer #1 as well as with a representative of a trading software company described below, SARAO also

referred to a “cancel if close” function, whereby SARAO’s order would be canceled if the market price got close to it.

14. On or about February 24, 2009, following additional email correspondence with Programmer #1 regarding the “join bid/offer” function described above, NAVINDER SINGH SARAO, the defendant, explained to Programmer #1 that the trading program functionality should be designed so that “it is very easy for me to enter orders of varying different amounts. That’s what I need. If I keep entering the same clip sizes, people will become aware of what I am doing, rendering my spoofing pointless.” On or about February 27, 2009, SARAO emailed Programmer #1 again, stating “I’ve tried phoning you and e-mailing you . . . I need to know whether you can do what I need, because at the moment I’m getting hit on my spoofs all the time and it’s costing me a lot of money.”

15. Thereafter, email correspondence between NAVINDER SINGH SARAO, the defendant, and Programmer #1 continued. On or about April 21, 2009, SARAO further explained in an email message to Programmer #1, “I think you may have to come to England because the functionality needs adjusting and I need the ‘cancel if close’ function.” On or about May 6, 2009, referring to versions of the program sent to him by Programmer #1, SARAO sent an email to Programmer #1, stating that “[t]his new version is still really slow. . . . I can’t use ANY version that is not super-quick, so if . . . you can fix the speed it will save a lot of time.”

16. On or about May 15, 2009, NAVINDER SINGH SARAO, the defendant, sent a follow-up email to Programmer #1, listing a series of “problems” with the latest version of the program provided by Programmer #1, including that “the cancel if close [function] doesn’t seem to work properly,” and “the cancel on trade function doesn’t have an integer I can input. It just

cancels when a little 1 lot trades.” Referring to their testing and troubleshooting efforts, SARAO added, “I really dont know how long I can wait since everyday I am getting hit on my spoofs and it is costing me too much money.”

17. On or about June 12, 2009, NAVINDER SINGH SARAO, the defendant, sent an email to a representative of his FCM in which he explained that he “need[ed] to get in touch with a [] technician [at the company that provided his trading software (“Trading Software Company #1”)] that will be able to programme for me extra features on [the software],” namely, “a cancel if close function, so that an order is cancelled if the market gets close.” Among the products included in Trading Software Company #1’s trading platform was an automated trading program (the “Automated Trading Program”), which Trading Software Company #1 advertised as a program that allowed non-programmers to engage in automated trading using spreadsheet commands and functions.

18. Later that same month, NAVINDER SINGH SARAO, the defendant, sent an email to a representative of Trading Software Company #1, dated on or about June 15, 2009, in which SARAO described the “cancel if close function” that he wanted Trading Software Company #1 to design (and to which SARAO had referred in prior email correspondence with Programmer #1, as described in paragraph 15, above). Specifically, SARAO wrote that he would “like to be able to alternate the closeness ie one price away or three prices away etc etc.” SARAO further sought “[a] facility to be able to enter multiple orders at different prices using one click” and a function that would cause his “order [to] be pulled if there are not x amount of orders beneath it.” Thereafter, on or about July 15, 2009, SARAO sent another email to the

representative of Trading Software Company #1 in which SARAO wrote that “the [Automated Trading Program] formula the guy set up . . . has already been a good help.”

19. Approximately four months later, on or about November 16, 2009, SARAO sent an email to a trading software programmer at Trading Software Company #1 (“Programmer #2”) about a “system on [the Automated Trading Program]” that Programmer #2 had “set up” and that SARAO had “found really useful,” that is, the formula mentioned above. As SARAO described the system, when he “turned on” his customized version of the Automated Trading Program, the program “would put offers a specific value and quantity away from the best offer,” namely, “offers 3, 4 5 and 6 prices away from the best offer.” SARAO requested the code that had been used to design this program, so that he “could play around with creating new versions of the same thing.”

20. On or about that same day, November 16, 2009, Programmer #2 responded to NAVINDER SINGH SARAO, the defendant, that “the formulas in the [Automated Trading Program] are visible to you,” and suggested speaking with SARAO the following day. Several days later, on or about November 20, 2009, Programmer #2 wrote SARAO that a “new colleague” at Trading Software Company #1 (“Programmer #3”) would be based in London full time and would be able to help SARAO with these applications. SARAO continued working with Programmer #3 from approximately January 2010 through approximately 2011. In approximately late 2011, SARAO began working with a fourth programmer, from yet another trading software company, to further develop the automated trading programs and functions he had been working to design and implement since early 2009.



21. Thus, beginning in approximately January 2009, NAVINDER SINGH SARAO, the defendant, sought and obtained assistance in designing functions on his automated trading software that would allow him to simultaneously place numerous orders at different price points and automatically cancel those orders as the market approached them and before they could be executed. Thereafter, SARAO implemented a strategy to manipulate the E-Mini market.

*SARAO's Implementation of His Deceptive and Manipulative Strategy*

22. Among other deceptive and manipulative activity, NAVINDER SINGH SARAO, the defendant, used a "dynamic layering" technique, placing, repeatedly modifying, and ultimately canceling multiple sell orders of approximately 200, 250, 300, 400, 500, 550, 600, and 900 lots (whereas the average market size order was approximately 7 lots). SARAO used this dynamic layering technique on numerous occasions between 2010 and 2014.

23. As described above, at times material to this Indictment, the visible order book in the E-Mini market comprised the 10 best prices on each side of the market. NAVINDER SINGH SARAO, the defendant, typically placed his orders in the middle of the order book on the sell side, such as at levels 4 through 8. SARAO simultaneously placed these large-volume orders at multiple price points on the sell side of the order book, several levels (or "ticks") above the best offer. SARAO (including by and through actions undertaken through his automated trading software) constantly modified these stacked sell orders to stay around 3 to 4 ticks above the best offer. As the market moved down, SARAO modified his orders by lowering his offers to keep them near the best offer, thus ensuring that the downward price pressure remained constant. When the market moved back up notwithstanding the downward pressure caused by SARAO's dynamic layering, SARAO modified his orders by raising his offers so that they

would remain several levels higher than the best offer. SARAQ effectively tethered his orders to the market price, constantly modifying them so that they moved up and down with the market, remaining several ticks above the best offer. By repeatedly modifying his orders in this way, SARAQ virtually ensured that they would not be filled. SARAQ nearly always canceled these orders without executing them.

24. While his dynamic layering technique exerted downward pressure on the market, NAVINDER SINGH SARAQ, the defendant, typically executed a series of trades to exploit his own manipulative activity by repeatedly selling futures contracts only to buy them back at a slightly lower price. Conversely, when the market moved back upward as a result of SARAQ's ceasing the dynamic layering technique, SARAQ typically did the opposite, that is, he repeatedly bought contracts only to sell them at a slightly higher price.

25. Although his dynamic layering technique was the most prominent manipulative technique NAVINDER SINGH SARAQ, the defendant, used, it was not the only one. SARAQ also repeatedly placed 188- and/or 289-lot orders on the sell side of the market, nearly all of which he canceled before the orders were executed. SARAQ used this 188-and-289-lot spoofing technique in certain instances to intensify the manipulative effects of his dynamic layering technique, by further contributing to the E-Mini order book imbalance (*i.e.*, the difference in the quantity of sell-side and buy-side orders) and corresponding price impact, which SARAQ then exploited through his actual trading activity.

26. What is more, NAVINDER SINGH SARAQ, the defendant, repeatedly "flashed" a large 2,000-lot order on one side of the market, executed an order on the other side of the market, and canceled the 2,000-lot order before it was executed. SARAQ's large, bogus orders

had a tendency to effect artificial movements in the E-Mini market price by creating a false appearance of substantial supply or demand (*i.e.*, flashing a 2,000-lot sell order would depress the market price, whereas flashing a 2,000-lot buy order would inflate it). SARAQ could then exploit this price movement by executing a real trade on the other side of the market from his bogus, 2,000-lot order. For example, on or about March 3, 2014, at approximately 11:38:27.538 a.m.,<sup>1</sup> SARAQ placed a 2,000-lot buy order at a price of approximately \$1,839.25. Within approximately 0.2 seconds, he placed a sell order of approximately 169 lots at a price of approximately \$1,839.50. Less than one second later, after filling approximately 20 lots of the sell order, he canceled the 2,000-lot buy order before it had any executions. At approximately 11:38:31.826 a.m., SARAQ flashed another 2,000-lot buy order again at the price of approximately \$1,839.25, and filled the remainder of his 169-lot sell order within one millisecond. At approximately 11:38:32.336 a.m., about one half-second after placing the second 2,000-lot buy order, SARAQ canceled it before it had any executions.

**SARAQ's Responses to Queries about His Trading Activity**

27. On several occasions in 2009 and 2010, exchanges in both the United States and Europe noticed that NAVINDER SINGH SARAQ, the defendant, had engaged in suspicious activity, namely, placing and then quickly canceling large-volume orders. In his responses to inquiries from the exchanges, SARAQ acknowledged that he in fact frequently canceled large volumes of orders but falsely asserted that he did so manually, without the assistance of an automated trading program.

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<sup>1</sup> All times mentioned in this Indictment are in Central Time.

28. Representatives of the CME observed that, between September 2008 and October 2009, NAVINDER SINGH SARAO, the defendant, had engaged in pre-opening activity—specifically, entering orders and then canceling them—that “appeared to have a significant impact on the Indicative Opening Price.” The CME contacted SARAO about this activity in or about March 2009 and notified him, via correspondence dated on or about May 6, 2010, that “all orders entered on Globex during the pre-opening are expected to be entered in good faith for the purpose of executing bona fide transactions.” The CME provided a copy of the latter correspondence to SARAO’s FCM, which suggested to SARAO in an email that he call the FCM’s compliance department if he had any questions. In a responsive email dated on or about May 25, 2010, SARAO wrote to his FCM that he had “just called” the CME “and told em to kiss my ass.”

29. In addition to trading E-Minis on the CME, NAVINDER SINGH SARAO, the defendant, traded futures on Eurex, a German derivatives exchange. On or about June 25, 2010, a representative of Eurex, based on SARAO’s activity on the exchange, requested that SARAO’s FCM ask SARAO questions about, among other things, his entry and deletion of orders and whether SARAO entered and deleted those orders automatically or manually. In response, SARAO wrote the following in an email, dated on or about July 7, 2010, addressed to Eurex but sent to his FCM representative: “[a]ll my orders are readily available to trade and are placed with the objective of doing so. I DO NOT use ANY computer program that minimizes or reduces the chan[c]e of my trades being filled, unlike every other big trader on the exchange, since that is what they are there for.” SARAO insisted that his “orders are 100% at risk, 100% of the time.” Having explained that he “trade[s] extremely fast” and would sometimes “go from wanting a

large position to going the other way IN AN INSTANT,” SARAO claimed that “[a]ll orders are entered/deleted manually by me and only me.”

30. On or about May 29, 2014, NAVINDER SINGH SARAO, the defendant, provided written responses to a questionnaire that had been submitted to him by the United Kingdom’s Financial Conduct Authority, at the request of the CFTC pursuant to the International Organization of Securities Commissions Multilateral Memorandum of Understanding. In those responses, SARAO claimed that he was “an old school point and click prop trader” who had “always been good with reflexes and doing things quick.” He acknowledged that he traded large volumes of E-Minis in large lot orders, but again asserted that his orders “were 100% at risk, 100% of the time.” SARAO falsely claimed that he had “traded using a basic [trading software provided by Trading Software Company #1] for numerous years,” failing to disclose that Trading Software Company #1 had designed, at his request, several custom, automated trading functions. SARAO admitted, however, that he had “decided to pay [another trading software company] to build a program . . . that would help disguise [his] orders more effectively,” claiming that other traders had sought to manipulate the market around his orders. Specifically, SARAO wrote that he had asked this other trading software company to design three trading functions. In addition to these functions, SARAO acknowledged that he also “sometimes place[d]” orders “slightly away from the market price [that] move up and down as the market moves with it” (an apparent reference to the dynamic layering technique), but offered a benign explanation for these orders, that is, that he sought to “catch any blips up/down in the market.” SARAO further claimed that he placed these orders “rarely” and only when he believed the market was “excessively weak or strong.”

**The Effect of SARAO's Manipulative Activity on the E-Mini Market**

31. At times material to this Indictment, including on days between approximately April 2010 and April 2014, the defendant NAVINDER SINGH SARAO's dynamic layering technique created a substantial imbalance in the E-Mini order book. Such increased imbalance in the order book (in this case, the excess of sell orders relative to the number of buy orders) tended to depress the market price of E-Minis by creating a false impression of increased supply of the futures contracts.

32. At times material to this Indictment, including on days between approximately April 2010 and April 2014, the defendant NAVINDER SINGH SARAO's use of the dynamic layering technique affected the market price of E-Minis, creating artificial prices. Specifically, the price of E-Minis was artificially depressed while SARAO's dynamic layering technique was active, and typically rebounded when SARAO ceased using the technique.

**SARAO's Manipulative Activity in 2010**

33. On or about April 27, May 4, May 5, and May 6, 2010, NAVINDER SINGH SARAO, the defendant, implemented the dynamic layering technique in the E-Mini market, placing multiple, simultaneous sell orders that he repeatedly modified so that they would remain several ticks above the best offer. For these days, none of the orders placed as part of SARAO's dynamic layering strategy was executed. SARAO's activity included the following:

a. On or about April 27, 2010, at approximately 10:22:39.863 a.m., SARAO placed the following five sell orders nearly simultaneously, starting two ticks above the best ask of \$1,200.00, at levels 3 to 7 of the sell-side of the order book: (1) approximately 500 lots at \$1,200.50; (2) approximately 600 lots at \$1,200.75; (3) approximately 600 lots at \$1,201.00;

(4) approximately 500 lots at \$1,201.25; and (5) approximately 500 lots at \$1,201.50. SARA O modified these orders many times; two of the orders were canceled and immediately replaced by identical orders which were then modified in their place. In total, SARA O modified the orders approximately 1,967 times (approximately 393 modifications per active order). The modifications occurred when the market price changed, so that SARA O's lowest offer typically remained approximately two or three ticks above the best ask. SARA O canceled all of these orders, without having executed any of them, at approximately 10:29:23.566 a.m. At that point, the prevailing market price of E-Minis was approximately \$1,192.00. SARA O repeated this conduct approximately 60 times on April 27, using the dynamic layering technique for a total of approximately 212.15 minutes. When the dynamic layering technique was active, it placed downward pressure on the market price of E-Minis. SARA O exploited the price movements during this period by executing approximately 8,651 buy trades (totaling 95,229 lots) and approximately 9,124 sell trades (totaling 95,229 lots) with a total notional value of approximately \$11.3 billion, and obtained approximately \$821,389 in net profits from his E-Mini trades.

b. SARA O engaged in substantially similar conduct on May 4 and May 5, 2010, simultaneously placing multiple orders at various price points and repeatedly modifying those orders before cancelling them without having executed any of them. In each of these instances, SARA O exploited the price movements during the period his dynamic layering technique was active by executing numerous buy and sell trades.

c. On or about May 6, 2010, SARA O used the dynamic layering technique extensively and with particular intensity.

**SARAO's Manipulative Activity Contributed to the Flash Crash**

34. On May 6, 2010, the Dow Jones Industrial Average (the "Dow") plunged by approximately 1,000 points in an event that came to be known as the "Flash Crash." By early in the afternoon, the Dow was down more than 300 points. In the five-minute span between approximately 1:42 and 1:47 p.m., the Dow fell an additional 600 points. Large sell-side pressure in the E-Mini market (and the resulting price drop for those futures contracts) had spilled into the equities markets and caused the rapid decline. Prices stopped falling when, shortly after 1:45 p.m., the CME paused trading in E-Minis for five seconds, allowing prices to stabilize. By approximately 2:00 p.m., most stocks had recovered, and the Flash Crash was over.

35. Early in the morning of May 6, 2010, the CME's order book for E-Minis reflected a divergence in the E-Mini market between buy-side depth and sell-side depth. By early afternoon, sell-side depth was more than twice as large as buy-side depth. As of 1:45 p.m., in reaction to the intense selling pressure, there were few buyers and little liquidity left in the market.

36. On or about that day, May 6, 2010, NAVINDER SINGH SARAO, the defendant, was active in the E-Mini market on the CME, and contributed to the order-book imbalance that the CFTC and the Securities and Exchange Commission have concluded, in a published report, was a cause, among other factors, of the Flash Crash. Among other activity, SARAO used the dynamic layering technique extensively. SARAO first used the technique that day at approximately 9:20:00.938 a.m., when he placed the following four sell orders nearly simultaneously, starting approximately three ticks above the best ask of \$1,163.25:

(1) approximately 500 lots at \$1,164.00; (2) approximately 600 lots at \$1,164.25;



(3) approximately 500 lots at \$1,164.50; and (4) approximately 500 lots at \$1,164.75. SARAO modified the orders repeatedly and then canceled all four of them, without having executed any of them, by approximately 9:26:53.566 a.m. The modifications occurred when the market price changed, so that SARAO's lowest offer typically remained three ticks above the best ask. While this dynamic layering cycle was active, the E-Mini price fell approximately 39 basis points, and SARAO bought approximately 1,606 contracts and sold approximately 1,032 contracts.

37. The defendant, NAVINDER SINGH SARAO's use of the dynamic layering technique was particularly intense in the hours leading up to the Flash Crash. SARAO used the technique continuously from approximately 11:17 a.m. until 1:40 p.m. SARAO began this cycle by placing the following five sell orders nearly simultaneously at approximately 11:17:38.782 a.m.: (1) approximately 600 lots at \$1,156.50; (2) approximately 600 lots at \$1,156.75; (3) approximately 600 lots at \$1,157.00; (4) approximately 600 lots at \$1,157.25; and (5) approximately 600 lots at \$1,157.50. At approximately 1:13 p.m., SARAO added a sixth sell order for approximately 600 lots, bringing the total to approximately 3,600 lots. The orders were replaced or modified more than 19,000 times before SARAO canceled them, without having executed any of them, at approximately 1:40:12.553 p.m.<sup>2</sup> At that point, the aggregate volume of SARAO's orders was nearly equivalent to the aggregate volume of the entire buy-side of the order book.

38. At the same time that NAVINDER SINGH SARAO, the defendant, ran this lengthy cycle of the dynamic layering technique, he aggressively used the 188-and-289-lot spoofing technique. Between approximately 12:33 p.m. and 1:45 p.m., SARAO placed

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<sup>2</sup> Over the course of the day, SARAO modified more than 20 million lots, whereas the rest of the market combined modified fewer than 19 million lots.

approximately 135 sell orders consisting of either 188 or 289 lots, for a total of approximately 32,046 contracts. SARAQ canceled approximately 132 of these orders before they could be executed.

39. The defendant, NAVINDER SINGH SARAQ's activity created persistent downward pressure on the price of E-Minis. Indeed, during the dynamic layering cycle that ran from approximately 11:17 a.m. to 1:40 p.m., SARAQ's offers comprised approximately 20 to 29% of the CME's entire E-Mini sell-side order book, significantly contributing to the order book imbalance. During that period of time alone, the E-Mini price fell by approximately 361 basis points. In total, SARAQ obtained approximately \$879,018 in net profits from trading E-Minis that day.

40. NAVINDER SINGH SARAQ, the defendant, preferred to trade during periods of high market volatility, as on the day of the Flash Crash. In an email message dated on or about October 21, 2012, SARAQ asserted that he had "made the majority of [his] net worth in . . . no more than 20 days trading," on days when the market was particularly volatile. On the trading days specifically described in this Indictment, SARAQ made approximately \$8.9 million trading E-Minis. Overall, between 2010 and 2014, SARAQ made approximately \$40 million trading E-Minis.

**SARAO's Manipulative Activity in 2011**

41. NAVINDER SINGH SARAO, the defendant, continued using the dynamic layering technique after the Flash Crash. Specifically, on numerous occasions in 2011, SARAO used the technique extensively and reaped millions of dollars in profits. This activity included the following:

a. On or about January 28, 2011, at approximately 11:54:40.763 a.m., SARAO placed the following six orders nearly simultaneously, starting two ticks above the best ask of \$1,278.25, at levels 3 to 8 of the sell-side of the order book: (1) approximately 500 lots at \$1,278.75; (2) approximately 500 lots at \$1,279.00; (3) approximately 400 lots at \$1,279.25; (4) approximately 400 lots at \$1,279.50; (5) approximately 500 lots at \$1,279.75; and (6) approximately 400 lots at \$1,280.00. In total, SARAO modified these orders approximately 3,341 times (an average of approximately 556.8 modifications per active order). The modifications occurred when the market price changed, so that SARAO's lowest offer typically remained two ticks above the best ask. SARAO canceled all six orders, without having executed any of them, at approximately 12:50:28.674 p.m. At that point, the prevailing market price of E-Minis was approximately \$1,274.50. SARAO repeated this conduct approximately 24 times on January 28, using the dynamic layering technique for a total of approximately 274.7 minutes. When the dynamic layering technique was active, it placed downward pressure on the market price of E-Minis. SARAO exploited the price movements during this period by executing approximately 10,114 buy trades (totaling 87,736 lots) and approximately 10,301 sell trades (totaling 87,736 lots) with a total notional value of approximately \$11.2 billion, and obtained approximately \$862,048 in net profits from his E-Mini trades.

b. SARAO engaged in substantially similar conduct on February 22, March 4, July 29, and August 4, 2011, simultaneously placing multiple orders at various price points and repeatedly modifying those orders before cancelling them without having executed any of them—except for one partially filled order on March 4, 2011. In each of these instances, SARAO exploited the price movements during the period his dynamic layering technique was active by executing numerous buy and sell trades.

**SARAO's Manipulative Activity in 2014**

42. On or about May 21, 2013, NAVINDER SINGH SARAO, the defendant, received an email from a representative of his FCM attaching a summary of guidance the CFTC had issued several days earlier regarding the anti-spoofing provision of the Commodity Exchange Act, which prohibits bidding or offering with the intent to cancel the bid or offer before execution. SARAO read the email and attached summary of the CFTC's guidance, as evidenced by his response to the FCM representative: "Lol, guarantee if I switch on my computer I'll see the same people breaking all those rules, day in, day out." SARAO had previously been notified, in or about October 2010, that this anti-spoofing provision had been enacted into law.

43. As recently as in or about March 2014, after receiving these notices, NAVINDER SINGH SARAO, the defendant, continued to implement the dynamic layering technique. On numerous occasions in early 2014, SARAO placed multiple, simultaneous sell orders (typically consisting of 300 lots each) that he repeatedly modified so that they would remain several ticks above the best offer—virtually ensuring that these orders would not be filled. SARAO used the Automated Trading Program to place over 99 percent of the dynamic layering orders.

44. For example, on or about March 10, 2014, at approximately 9:34:12.895 a.m., SARAO placed the following five sell orders nearly simultaneously, starting four ticks above the best ask of \$1,869.25, at levels 5 to 9 of the sell-side of the order book: (1) approximately 300 lots at \$1,870.25; (2) approximately 300 lots at \$1,870.50; (3) approximately 300 lots at \$1,870.75; (4) approximately 300 lots at \$1,871.00; and (5) approximately 300 lots at \$1,871.25. In total, SARAO modified these orders approximately 5,581 times (an average of approximately

1,116 modifications per active order). The modifications occurred when the market price changed, so that SARA O's lowest offer typically remained three ticks above the best ask. SARA O canceled all five orders, without having executed any of them, at approximately 11:00:15.351 a.m. At that point, the prevailing market price of E-Minis was approximately \$1,870.75. SARA O repeated this conduct approximately three times on March 10, using the dynamic layering technique for a total of approximately 90.7 minutes. When the dynamic layering technique was active, it placed downward pressure on the market price of E-Minis. SARA O exploited the price movements during this period by executing approximately 1,874 buy trades (totaling 9,589 lots) and approximately 1,806 sell trades (totaling 9,647 lots) with a total notional value of approximately \$1.8 million, and obtained approximately \$235,833 in net profits from his E-Mini trades that day.

**Statutory Allegation**

45. Between in or about January 2009 and in or about April 2014, in Chicago, in the Northern District of Illinois, Eastern Division, and elsewhere, NAVINDER SINGH SARAO, the defendant, willfully and knowingly, having devised and intending to devise a scheme and artifice to defraud, and for obtaining money and property by means of false and fraudulent pretenses, representations, and promises, did transmit and cause to be transmitted by means of wire communication in interstate and foreign commerce, writings, signs, signals, pictures, and sounds for the purpose of executing such scheme and artifice, to wit, SARAO transmitted and caused to be transmitted in interstate and foreign commerce e-mail messages and CME order messages to implement a dynamic layering technique and other strategies designed to deceive participants in the market for E-Mini S&P 500 futures contracts.

(In violation of Title 18, United States Code, Section 1343.)

**COUNTS TWO THROUGH ELEVEN**  
(Commodities Fraud)

The SPECIAL SEPTEMBER 2014 GRAND JURY further charges:

46. The allegations in Paragraphs 1 through 44 are hereby realleged as if set forth herein.

**Statutory Allegation**

47. On or about the following dates, specified for each of Counts Two through Eleven in the table that is part of this Paragraph, in Chicago, in the Northern District of Illinois, Eastern Division, and elsewhere, NAVINDER SINGH SARAO, the defendant, did knowingly execute, and attempt to execute, a scheme and artifice to defraud a person in connection with a

commodity for future delivery, and to obtain, by means of false and fraudulent pretenses, representations, and promises, money and property in connection with the purchase and sale of a commodity for future delivery, to wit, SARAQ implemented a dynamic layering technique and other strategies designed to deceive participants in the market for E-Mini S&P 500 futures contracts:

<b><u>Count</u></b>	<b><u>Approximate Date</u></b>
2	April 27, 2010
3	May 4, 2010
4	May 5, 2010
5	May 6, 2010
6	January 28, 2011
7	February 22, 2011
8	March 4, 2011
9	July 29, 2011
10	August 4, 2011
11	March 10, 2014

(In violation of Title 18, United States Code, Section 1348(1) and (2).)

**COUNTS TWELVE THROUGH TWENTY-ONE**

(Commodity Price Manipulation and Attempted Price Manipulation)

The SPECIAL SEPTEMBER 2014 GRAND JURY further charges:

48. The allegations in Paragraphs 1 through 44 are hereby realleged as if set forth herein.

**Statutory Allegation**

49. On or about the following dates, specified for each of Counts Twelve through Twenty-One in the table that is part of this Paragraph, in Chicago, in the Northern District of Illinois, Eastern Division, and elsewhere, NAVINDER SINGH SARAQ, the defendant, did



knowingly and intentionally manipulate and attempt to manipulate the price of a commodity in interstate commerce, to wit, SARAO implemented a dynamic layering technique and other strategies designed to manipulate the price of E-Mini S&P 500 futures contracts:

<u>Count</u>	<u>Approximate Date</u>
12	April 27, 2010
13	May 4, 2010
14	May 5, 2010
15	May 6, 2010
16	January 28, 2011
17	February 22, 2011
18	March 4, 2011
19	July 29, 2011
20	August 4, 2011
21	March 10, 2014

(In violation of Title 7, United States Code, Section 13(a)(2).)

**COUNT TWENTY-TWO**  
(Spoofing)

The SPECIAL SEPTEMBER 2014 GRAND JURY further charges:

50. The allegations in Paragraphs 1 through 44 are hereby realleged as if set forth herein.

51. On or about March 10, 2014, in Chicago, in the Northern District of Illinois, Eastern Division, and elsewhere, NAVINDER SINGH SARAO did knowingly engage in trading, practice, and conduct, on and subject to the rules of the Chicago Mercantile Exchange, that was, was of the character of, and was commonly known to the trade as, "spoofing," bidding or offering with the intent to cancel the bid or offer before execution, to wit, SARAO caused to be transmitted to the Chicago Mercantile Exchange E-Mini S&P 500 futures contract orders that he intended to cancel before execution.

(In violation of Title 7, United States Code, Sections 6c(a)(5)(C) and 13(a)(2).)

**CRIMINAL FORFEITURE ALLEGATION**

(Pursuant to Title 18, United States Code, Section 981(a)(1)(C), and Title 28, United States Code, Section 2461(c))

The SPECIAL SEPTEMBER 2014 GRAND JURY further charges:

52. The allegations in Counts One through Eleven of this Indictment are hereby realleged as if set forth herein for the purpose of alleging forfeiture to the United States pursuant to the provisions of Title 18, United States Code, Section 981(a)(1)(C) and Title 28, United States Code, Section 2461(c).

53. There is probable cause to believe that, upon conviction of the offenses set forth in Counts One through Eleven of this Indictment, in violation of Title 18, United States Code, Sections 1343 and 1348(1) and (2), NAVINDER SINGH SARAO, the defendant, shall forfeit to the United States of America pursuant to Title 18, United States Code, Section 981(a)(1)(C) and Title 28, United States Code, Section 2461(c), any and all property, real or personal, which constitutes or is derived from proceeds traceable to wire fraud, in violation of Title 18, United States Code, Section 1343, and commodities fraud, in violation of Title 18, United States Code, Section 1348(1) and (2), and any property traceable to such property. The property to be forfeited shall include, but is not limited to, a money judgment in favor of the United States of America in an amount equal to the proceeds that NAVINDER SINGH SARAO, the defendant, obtained from wire fraud, in violation of Title 18, United States Code, Section 1343, and commodities fraud, in violation of Title 18, United States Code, Section 1348(1) and (2).

54. If any of the property described above, as a result of any act or omission of NAVINDER SINGH SARAO, the defendant, cannot be located upon the exercise of due diligence; has been transferred or sold to, or deposited with, a third party; has been placed beyond the jurisdiction of the Court; has been substantially diminished in value; or has been commingled with other property which cannot be divided without difficulty, it is the intent of the United States, pursuant to Title 21, United States Code, Section 853(p), as incorporated by Title 18, United States Code, Section 982(b), to seek the forfeiture of any other property of SARAO up to the value of the above forfeitable property and to obtain a money judgment in an amount equal to the value of the property which constitutes or is derived from proceeds traceable to wire fraud, in violation of Title 18, United States Code, Section 1343, and commodities fraud, in violation of Title 18, United States Code, Section 1348(1) and (2).

A TRUE BILL:

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FOREPERSON

ANDREW WEISSMANN  
Chief  
Fraud Section, Criminal Division  
U.S. Department of Justice

By:

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Brent S. Wible/Michael T. O'Neill  
Assistant Chief/Trial Attorney  
Fraud Section, Criminal Division  
U.S. Department of Justice