Spoofing

PF2

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Now you see it ... now you don't

Financial markets regulations in the U.S. seek to prohibit market activities or transactions that cause false or fictitious prices to be reported as if they truly reflected market levels.[i] Spoofing is one area of market activity that recently garnered the attention of regulatory and supervisory authorities. The highest-profile of the enforcement actions was taken earlier this year, with the CFTC fining Citigroup $25 million for spoofing in the U.S. Treasury Futures market.

What is Spoofing?

Spoofing is a prohibited trading practice in which a trader places orders — which we will call "spoofing orders" — that he does not intend to execute: instead, the purpose of the spoofing orders is to induce other market participants, usually programmatic traders (computer algorithms or "algos" or "bots") to change their quotes in response to the flood of spoofing orders placed.

If there had been any doubt about the illegality of the practice beforehand, the 2010 Dodd–Frank Wall Street Reform and Consumer Protection Act codified the illegality of spoofing by amending the Commodities Exchange Act (CEA): "A section 4c(a)(5)(C) violation occurs when the trader bids or offers with the intent to cancel a bid or offer before execution."

According to basic economic principles, changes in demand or supply can influence price, whether the demand or supply is real or fabricated.[ii] Instead of placing orders with the intent to trade, the spoofer places orders he intends to cancel before they can be executed, creating only artificial demand or supply.

The artificial demand or supply temporarily impacts market prices, and the spoofer takes advantage of the short-term impact to execute genuine orders — which we call "bona fide orders" — on the opposite side of his spoofing orders. For example, while submitting large spoofing buy orders, which raises demand (and therefore prices), a spoofer might submit small bona fide sell orders which he hopes to execute at the elevated prices.

Spoofing can take shape in several different forms, in addition to the basic mechanics described above, such as layering, vacuuming, flipping, spread squeezing, and the collapsing of layers.[iii]

Today, exchange-based financial markets are predominantly composed of computer algorithms, programmed to react expeditiously to new market information (e.g., other market participants' bids and offers) and to dynamically update their quotes (e.g. buy/sell directionality, price levels, and quantities). Bots can detect patterns of activity that might be imperceptible to humans and can react much faster than a human can to incoming data – in the realm of microseconds. For example, if algos detect the presence of a large seller, they might immediately lower their bids to mitigate the risk of being caught buying when a large seller is hitting bids at multiple levels.

The fact that algorithmic traders automatically adjust their quotes to incorporate changes in the order book makes them particularly susceptible to being deceived by spoofing orders.

Illustrative Example

One approach to spoofing is to push up the price of securities already held, by flooding the market with large spoofing buy orders, and then to sell the securities at the spoofing-induced, temporarily inflated price. This whole exercise might transpire in a matter of seconds and the spoofer may be able to repeat it with numerous other stocks or other instruments, such as futures contracts.[iv]

Suppose the spoofer-to-be already holds 5,000 shares at an average cost of $19.56 and that the market for the shares now rests at $19.56 - $19.57 (i.e., the highest bid is $19.56, with the lowest offer at $19.57).

Step 1: First, the spoofer would seek to raise the price by submitting large spoofing buy orders to create phantom demand. He could, for example, layer large buy orders of 50,000 shares at each of $19.56, $19.55, and $19.54. The newly-created demand is artificial: the spoofer aims to cancel these buy orders once they have caused other market players to raise their bids and offers. Distinct from his spoofing orders, he simultaneously submits relatively small bona fide orders to sell 2,500 shares at $19.57 and $19.58.

Bids		Offers	
Quantity	Price	Price	Quantity
1,100	$19.56	$19.57	1,100
1,400	$19.55	$19.58	600
500	$19.54	$19.59	200
400	$19.53	$19.60	400
200	$19.52	$19.61	1,300

Original Market

Bids		Offers	
Quantity	Price	Price	Quantity
51,100	$19.56	$19.57	3,600
51,400	$19.55	$19.58	3,100
50,500	$19.54	$19.59	200
400	$19.53	$19.60	400
200	$19.52	$19.61	1,300

Spoofer Adds Spoofing Buy Orders and Bona Fide Sell Orders

With the market responding to its *perception* of increased demand, bid-offer levels might rise to a new state of $19.58 - $19.59, lifting the $19.57 and $19.58 offers, including the spoofer's bona fide orders, in the process.

Bids		Offers	
Quantity	Price	Price	Quantity
3,200	$19.58	$19.59	200
2,000	$19.57	$19.60	400
51,100	$19.56	$19.61	1,300
51,400	$19.55	$19.62	500
50,500	$19.54	$19.63	500

Marketplace Adjusts Due to Perceived (Significant) Increase in Demand

Step 2: The spoofer's bona fide sell orders have been executed. He has sold his 5,000 shares at an average price of $19.575, and next cancels his spoofing bids.

Bids		Offers	
Quantity	Price	Price	Quantity
3,200	$19.58	$19.59	200
2,000	$19.57	$19.60	400
51,100	$19.56	$19.61	1,300
51,400	$19.55	$19.62	500
50,500	$19.54	$19.63	500

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Spoofer Cancels Spoofing Buy Orders

When the spoofing bids are removed from the order book, algos may well update their quotes downward, since the significant perceived demand no longer exists, and in that case the market would return to its pre-spoofing state.

Recent Cases

Coscia/Panther: The first criminal conviction for spoofing was announced in November 2015. Michael Coscia of Panther Energy Trading was found guilty of spoofing and commodities fraud.[v] In 2011, Coscia spoofed futures markets on the CME and ICE Futures Europe, trading commodities futures such as gold, soybean meal, soybean oil, and high-grade copper, as well as currency futures such as EUR and GBP. Coscia was sentenced to three years in prison.

Citigroup: Citi is the largest entity to be penalized for spoofing thus far. The CFTC found "more than 2,500 orders placed with the intent to cancel before execution (i.e., spoofing orders)."[vi] The traders' spoofing bids and offers were large: lots of 1,000 or more. At a face amount of $100,000 per contract, the spoofing orders had a notional value of $100 million or more. According to the CFTC, the Citi spoofers placed smaller bona fide orders on the opposite side of its large spoofing orders, which were cancelled before they could be executed. Sometimes, instead of placing the small orders on the opposite side of the *same* futures contract, the spoofers placed the small orders on the opposite side of either the *cash market* or a *correlated futures contract* — possibly to avoid detection. (When large orders in the futures market move prices in one market, highly correlated markets often follow suit.)

DBS Vickers: In Singapore, in the country's first spoofing case, a District Judge sentenced a former DBS Vickers trader to 16 weeks in jail.[vii] The trader, Dennis Tey Thean Yang, pleaded guilty to moving prices using fraudulent orders. Yang's scheme involved purchasing "contracts for difference" (CFDs), which offer investors exposure to underlying securities without buying or selling the securities.[viii] After establishing his position in a CFD, Yang would then submit large spoofing orders in the underlying security in an attempt to profit from any correlated moves in the CFD price, before quickly cancelling the spoofing orders.

Sarao: On May 6, 2010, the day of the notorious "Flash Crash" in U.S. equities, stocks plummeted, with some bids falling to one cent, as many would-be buyers (particularly high-frequency trading firms) temporarily pulled out of a chaotic market. Indices tumbled: the Dow Jones Industrial Average fell 600 points (or 5%) in 5 minutes, only to recover most of that drop within 20 minutes. The relative impact of each of the responsible factors may never be known with certainty, but the CFTC has concluded that British spoofer Navinder Sarao's sell

orders of E-Mini S&P 500 futures contributed significantly. Sarao pleaded guilty, in November 2016, to the DOJ's fraud and spoofing charges. Despite the E-Mini market being one of the deepest and most liquid in the world, Sarao's spoofing orders on the day of the Flash Crash "represented well over 20 percent of all E-mini sell orders visible to the market."[ix]

Igor Oystacher / 3Red Trading: In 2015 the CFTC alleged that Igor Oystacher and his firm, 3Red Trading LLC, spoofed various futures markets on 1,316 occasions over 51 days, between December 2011 and January 2014. Oystacher's lawyers claimed he did not place orders with the pre-conceived intent to cancel them, but that he would regularly change his mind and cancel trades after placing bona fide orders. The defendants' counsel reportedly argued that "[Oystacher's] exceptional reasoning skills and reaction time – as well as his prowess at speed-chess and customized computer equipment like a mouse with souped-up right-click and left-click buttons – are the reason he's faster than most humans at executing trades."[x] Oystacher settled with the CFTC in October 2016, and was ordered to pay a $2.5 million fine in December 2016.[xi]

Coordinating via Multiple Accounts

Spoofers sometimes use several firms, or set up multiple accounts, to stymie the likelihood of being detected – one, for example, to submit spoofing orders and another to execute bona fide orders that benefit from the inflated or depressed pricing levels.

In January 2015, the SEC[xii] and DOJ[xiii] charged Aleksandr Milrud with coordinating a team of traders to create spoofing orders in some accounts and bona fide orders in other accounts. Milrud pleaded guilty in September 2015. More recently, in December 2016, the SEC[xiv] and DOJ[xv] alleged that Joseph Taub and Elazar Shmalo, two retail investors acting in concert, engaged in similar misconduct, setting up separate accounts (across multiple brokerages) dedicated to creating and cancelling spoofing orders. They allegedly targeted thinly-traded stocks, whose prices were more susceptible to being moved by spoofing orders.

In 2014, the CFTC alleged that Eric Moncada and two related firms, BES Capital LLC and Serdika LLC, coordinated matched sales and non-competitive wheat futures transactions between the two firms. Matched sales, also commonly referred to as *wash trades*, are transactions in which one party buys while another sells, only for the two parties to subsequently reverse course, with the first party selling and the second party buying.

The immediate impact here was neither a net gain nor a net loss to the interested parties, since a loss suffered by BES Capital LLC would be offset by a gain for Serdika LLC, and vice versa; however, the wash trades impact market prices and the purpose of the trades was allegedly to influence market prices and create artificial buying and selling at the manipulators' desired levels. The three defendants settled for a total of $33.8 million.

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[i] This is the general concept. For specific regulations, visit the regulations specific to the securities or asset types and activities at issue.
[ii] Unless it is easily detected to be fabricated, phantom supply or demand may be perceived to be real.
[iii] http://neurensic.com/spoofing-similarity-model/
[iv] The profit potential would likely be significantly greater in the futures markets, with the minimum trade size being in orders of magnitude larger than a round lot (100 shares) in the equity markets.
[v] https://www.justice.gov/usao-ndil/pr/high-frequency-trader-convicted-disrupting-commodity-futures-market-first-federal
[vi]http://www.cftc.gov/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcitigroupglobalorder011917.pdf
[vii] https://www.bloomberg.com/news/articles/2017-03-22/ex-dbs-trader-jailed-16-weeks-in-singapore-s-first-spoofing-case
[viii] These are somewhat analogous to single-stock futures, but are only cash settled
[ix] https://www.justice.gov/opa/pr/futures-trader-pleads-guilty-illegally-manipulating-futures-market-connection-2010-flash
[x] https://www.bloomberg.com/news/articles/2016-04-21/spoofing-cases-from-oystacher-s-past-prove-intent-cftc-says
[xi]http://www.cftc.gov/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfoystacherorder122016.pdf
[xii] https://www.sec.gov/news/pressrelease/2015-4.html
[xiii] https://www.justice.gov/usao-nj/pr/canadian-man-charged-first-federal-securities-fraud-prosecution-involving-layering
[xiv] https://www.sec.gov/news/pressrelease/2016-261.html
[xv] https://www.justice.gov/usao-nj/pr/two-securities-traders-charged-scheme-netted-26-million-illicit-profits