Learning-Based Trading Strategies in the Face of Market Manipulation

Xintong Wang, Chris Hoang, Michael P. Wellman

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As ‘Spoof’ Trading Persists, Regulators Clamp Down
Bluffing Tactic That Dodd-Frank Banned in 2010 Can Distort Markets

UBS, Deutsche Bank and HSBC to pay millions in spoofing settlement, CFTC says

- Deutsche Bank will pay $30 million, UBS $15 million and HSBC $1.6 million to settle civil charges that some of their traders engaged in spoofing in the precious metals market.
- The CFTC charged six individuals, and the Department of Justice charged eight with crimes related to deceptive trading in a wide-ranging investigation.

Liz Mayer
Published 2:29 PM ET Mon, 29 Jan 2018 | Updated 8:32 AM ET Wed, 31 Jan 2018

CHICAGO—One June morning in 2012, a college trader called “The Russian” logged on to his commodity futures on a London exchange from his sky box.

Over six hours, Igor Oystach’s computer sent thousands of buy and sell orders, scoring the exchange to his clearing firm reviewed by The Daily Telegraph how many of those orders were triggered by orders after show. In what the exchange alleged was part of a broader strategy to manipulate prices, Oystach is charged with spoofing.

Traders call the illegal bluffing tactic “spoofing,” used to manipulate prices of anything from stock

Deutsche Bank

Luke MacGregor | Reuters

US seals first prosecution against stock market trader for ‘spoofing’

A jury convicts Michael Coscia on six charges of commodities fraud and six charges of spoofing, all of the charges he faced.

Prosecutors said Michael Coscia wanted to lure other traders to markets by creating an illusion of demand so that he could make money on smaller trades.

By Reuters

11:48 PM GMT 03 Nov 2015

A US jury has found high-frequency trader Michael Coscia guilty of...
Spoofing refers to the practice of submitting large spurious orders to buy or sell some security to mislead other traders’ beliefs.
Source: Financial Conduct Authority, Animated Example of Mr Coscia’s Trading
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An Agent-Based Model of Manipulation

Zero Intelligence
Heuristic Belief Learning
Multiple Background Traders

One Spoofer

[Wang & Wellman 2017]
An Agent-Based Model of Manipulation

- Manipulate prices toward a desired direction;
- Decrease the proportion of learning trader in equilibrium;
- Reduce total market surplus.

[Wang & Wellman 2017]
Two Variations of Learning-based Strategies

• HBL with price level blocking

Strategically construct a dataset to learn from, by neglecting limit orders at a certain price level.
Two Variations of Learning-based Strategies

- HBL with price level blocking
- HBL with price offsets

Strategically construct a dataset to learn from, by neglecting limit orders at a certain price level.

Adjust price by an offset to correct biases in the learning process caused by manipulation.
Thank you!