



Microstructure-based manipulation: Strategic behavior and performance of spoofing traders[☆]

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Abstract

We examine how investors strategically spoof the stock market by placing orders with little chance of being executed, but which mislead other traders into thinking there is an imbalance in the order book. Using the complete intraday order and trade data of the Korea Exchange (KRX) in a custom data set identifying individual accounts, we find that investors strategically placed spoofing orders which, given the KRX's order-disclosure rule at the time, created the impression of a substantial order book imbalance, with the intent to manipulate subsequent prices. This manipulation, which made use of specific features of the market microstructure, differs from previously studied forms of manipulation based on information or transactions. Roughly half of the spoofing orders were placed in conjunction with day trading. Stocks targeted for manipulation had higher return volatility, lower market capitalization, lower price level, and lower managerial transparency. We also find that spoofing traders achieved substantial extra profits. The frequency of spoofing orders decreased drastically after the KRX altered its order-disclosure rule.

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1. Introduction

There is a large theoretical literature regarding stock market manipulation. However, empirical evidence of manipulation remains scarce, and the evidence is essentially limited to regulatory enforcement (and thus subject to sample selection bias), and the use of spam email in connection with pump-and-dump strategies.

In this paper, we provide empirical evidence of stock market manipulation by examining a custom data set that allows us to determine whether the same party placed a buy (sell) and a subsequent sell (buy) order. Moreover, we demonstrate that a specific market design, which was originally intended to provide additional information to traders, in practice facilitated manipulation. We refer to strategies that exploit specific features of the market microstructure to manipulate the market as “*microstructure-based manipulation*,” this paper provides the first evidence of microstructure-based manipulation.

Consider a microstructure in which the total quantity on each side of the order book is disclosed, but the price of each order is not disclosed. We define a “*spoofing order*” as an order submitted to a stock exchange, without the intention of execution, in order to mislead other investors by injecting misleading information regarding the demand or supply of a stock. A spoofing trader later submits his real order, taking advantage of the price change resulting from his earlier spoofing order.

Here is a specific example of a spoofing trading strategy. Suppose an investor intends to sell shares of a firm. He first submits a large limit-buy order with a bid well below the current market price, making the buy side of the order book seem large, in hopes of raising the price of the stock. Once the stock price increases, the spoofing trader submits a market-sell order for the same stock, and subsequently cancels the original buy order. The efficacy of such a spoofing trading strategy depends on the specific form of pre-trade transparency inherent in this microstructure: other investors can see that a large order has been placed, but cannot determine at what price it was placed.

The Korea Exchange (KRX) is a pure electronic order-driven market. Until the end of 2001, the KRX disclosed the total quantity on each side of the order book without fully disclosing the prices at which the orders were placed.¹ The KRX originally introduced this order-disclosure rule into its microstructure with the intent of providing investors with more information regarding the demand and supply of a stock. However, this additional information created an opportunity for microstructure-based manipulation, since spoofing orders altered the information posted on the order book, and other investors were unable to differentiate these spoofing orders from orders that were actually to be executed.

Placing a spoofing order has roughly the same effect as a pump-and-dump strategy, which is illegal. The legality of spoofing orders, as defined here, lies in a legal gray area. The Korean Securities Exchange Act (article 188-4(2)) prohibits “spoofing orders,” defined therein as “orders intended to deceive [other traders into believing] that trade is flourishing in order to influence the market price.”² However, the exact scope of the prohibited behavior is unclear. Wash trading, in which a single trader sells securities to himself in

¹In January 2002, to prevent further manipulation, the KRX stopped disclosing the total number of shares on each side of the order book. In addition to the total quantity, the KRX also disclosed the 5 best buy/sell prices and the quantities at those prices; in January 2002, this was increased from 5 to 10. For the description of this event and its effects on market quality, see Eom, Ok, and Park (2007) and Eom (2011).

²When the Korean Securities Exchange Act was consolidated into the Financial Investment Services and Capital Markets Act in February 2009, article 188-4(2) became article 176-2(1).

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