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Strategic noise traders and liquidity pressure with a physically deliverable futures contract

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Abstract

Do physically deliverable futures contracts induce liquidity pressure in the underlying spot market? The answer is believed to be no since the asset is delivered sometimes after the expiration of the contract so that the futures trader's payoff does not clearly depend on the price of the underlying stock at expiration. We construct a rational expectations equilibrium model in which a strategic uninformed trader induces liquidity pressure in the underlying spot market at the expiration of a physically deliverable futures contract. Liquidity pressure is the result of a pure informational advantage: if it is known that futures traders hedge their position in the spot market then a strategic trader with no information about the fundamental value of the underlying has an incentive to create noise in the futures market in order to gain information on the composition of the spot order flow at future auctions.

We show that informed traders benefit from this form of strategic noise and that the efficiency of the prices remains unaffected.
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1. Introduction

The recent development of trading in single-stock futures contracts (SSF) poses some theoretical and empirical challenges[1].No arbitrage arguments suggest that a future price should correspond to the risk-adjusted expectation of the spot price at settlement date. Therefore one should not expect to make any profits by trading in futures markets. So, why should anyone trade futures? One of the answers to this question is that futures markets allow investors to pursue different trading strategies[2] as well as provide them with a hedge against future risks. From the spot market regulator's perspective, however, one of the main concerns about these contracts refers to the possibility of using futures to manipulate the spot price of the underlying stock.

Various forms of market manipulation depend on the settlement rules at expiration, namely cash settlement or physical delivery[3]. For example, for what concerns physically delivered contracts, manipulation models such as Jarrow (1992), Jarrow and Chatterjea (1998) and Nyborg and Strebulaev (2001) deal with the static and dynamic analysis of short squeezes in the context of Treasuries auctions[4].

Both at LIFFE and at the US exchanges however the newly introduced single-stock futures are written on highly traded and liquid stocks so that the possibility of a short squeeze is reasonably extremely low[5]. Kumar and Seppi (1992) and Capuano (2004), on the other hand, show that in the standard Kyle (1985) set up with a cash settled futures market an uninformed manipulator is able to make positive expected profits by creating liquidity pressure[6] in the spot market where an insider trades according to her private information.

In the market microstructure literature the liquidity of a financial market represents a determinant of the cost of trading. Investors naturally look for markets where their strategies can be cheaply implemented and as a consequence liquidity provision is a key element for the success of a market. Furthermore, liquidity represents one of the links between the market microstructure and the asset pricing literature since investors seem to require higher expected returns for less liquid stocks, Amihud (2002), Pastor and Stambaugh (2003). It is then of no surprise that institutional rules giving rise to liquidity pressure are of great concern to both regulators and market participants[7].

This paper analyzes the profitability of creating liquidity pressure at the expiration of a physically delivered contract. Since the asset is delivered sometime after the expiration of the contract[8] this case is

[1] SSF contracts started to trade in the US on November 9, 2002 at two newly created exchanges, NQLX and OneChicago, while the London International Forward and Futures Exchange (LIFFE) started on January 29, 2001 on a wide set of international stocks. For more details about SSF traded in the US and at LIFFE look at www.nqlx.com, www.onechicago.com and www.universal-stockfutures.com.

[2] For example, there are no short-sale constraints and no uptick rule on futures markets.

[3] It is interesting to note that while SSF are settled for cash at LIFFE, they are physically delivered in the US exchanges.

[4] A short squeeze realizes when one or more manipulators, after having acquired a long position greater than the available asset's supply, force the short investors (those who sold the asset without having the property) to deliver. However the shorts will be charged a higher price (squeezed) since they can only buy the asset they promised to deliver from the long manipulators.

[5] This is coupled with a reportable position limit corresponding to 20,000 shares at NQLX and 13,500 shares at OneChicago that essentially rules out short squeeze opportunities.

[6] In those models the manipulator succeeds in "cornering" the market, i.e., in artificially pushing the spot price up (down) in order to make profits on the previously acquired long (short) position in the futures market.

[7] Liquidity pressure realizes when it is difficult to find a trader willing to provide liquidity to the incoming order and as a consequence the market price abnormally overreacts.

[8] On both NQLX and OneChicago the delivery is due three business days after expiration.

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