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The effect of pit closure on futures trading☆ This Draft: Nov 21st 2017☆

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ABSTRACT

Motivated by the Chicago Mercantile Exchange's (CME) decision to close down most of the futures pits in July of 2015, we analyze how this event may have affected the livestock and treasury futures markets. We find that although the already declining futures pit trading decreased further after the pit closure, it has not completely disappeared. Execution costs, following the pit closure, appear to have increased for livestock futures and declined for treasury futures transactions on the electronic platform. We, also, find that pit users, who had been active in both trading venues, remain active in the electronic market. However, there is no evidence of pit traders (locals) transitioning to the electronic market. Nevertheless, some of them are still active in options pits. When we explore the changes in daily trading patterns, we observe an ongoing shift in the timing of trading hours for livestock futures, but we note that this shift is unlikely to be driven by the pit closure.

1. Introduction

With the widespread use of electronic trading, futures volume in floor trading has been steadily declining. On July 6th, 2015,[1] floor trading ceased on almost all CME futures pits.[2] The change, originally announced on February 4th, 2015, was met with resistance by some floor traders.[3] Those specializing on treasury futures have been insisting that the pit allows them to execute complicated strategy trades[4] during the quarterly roll, such as calendar spreads with tails; a functionality which has not been readily available on Globex, CME's electronic trading platform.

The floor traders' resistance raises concerns over the transition of floor order flow to the electronic market, and it consequently

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[1] Polansek (2015, July 6th). Closing bell rings on Chicago futures pits for final time. *Reuters*. Retrieved on October 12th, 2015 from http://www.reuters.com/article/2015/07/07/us-cme-group-futures-closure-end-idUSKCN0PG2BX20150707.

[2] Only the S & P 500 futures pit remains open. Source: CME Group (2015, June 6). Market Notice, SER-7416, Retrieved from http://www.cmegroup.com/tools-information/lookups/advisories/ser/SER-7416.html#pageNumber=1.

[3] Polanskek (2015, June 24th). CME traders push regulator to delay futures pit closure by 90 days. Reuters. Retrieved on October 12th, 2015 from http://www.reuters.com/article/2015/06/24/cme-group-futures-closure-cftc-idUSL1N0ZA2DS20150624.

[4] Strategy trades (often called spread trades) refer to the simultaneous trade on more than one securities, in this case futures of different maturities (calendar spreads) or futures and options. We distinguish them from outright trades, which refer to positions in one security.

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questions whether CME's decision to close the futures pits had an effect on market liquidity. The execution difficulty of non-standard strategy trades, often cited by pit traders as a reason to keep the pits open, may have prevented the transition of floor order flow to the electronic market even after the pits closed, resulting in lower liquidity for such trades and the overall market. At the same time, orders for non-standard strategy trades may have also been alternatively diverted to the upstairs market as block orders[5]; such order flow migration could have started long before CME's decision to close the futures pits and as early as in October 2012, when minimum block thresholds were substantially reduced (Gousgounis and Srinivasan, 2016). However, despite concerns from former floor traders, it is also possible that the transition of floor trading to the electronic market has been relatively smooth, resulting in lower execution costs, increased liquidity and improved price discovery.

The objective of this study is to explore potential changes in the liquidity of livestock and treasury futures markets following the pit closure. Livestock futures are of interest because they exhibit the highest proportion of pit trading prior to the pit closure.[6] Similarly, treasury futures represent a commodity class with substantial daily volume and a measurable activity in pit trading. While this paper complements a large number of studies comparing the electronic order book to pit trading, it is the first study, to our knowledge, to explore changes in liquidity after a pit closure. It is, also, the first study to examine the evolution of pit trading separately for outright and strategy futures trades, in order to address liquidity concerns for strategy trades raised by treasury futures.

We analyze the ongoing decline in floor trading (compared to electronic) during the three and a half years preceding and one year following the shutdown of futures pits, using rich, transaction level data. Since we do not observe a substantial increase in block trading for these contracts during this period, we examine whether floor order flow migrated to the electronic market following CME's decision to close futures pits and we evaluate the potential subsequent effects on liquidity in the electronic market. More specifically, our main analysis is centered on the following questions:

i. How did the ratios of futures pit volumes to overall volume change between 2012 and 2016 for the contracts analyzed? Are these changes significantly different for outright and strategy trades?
ii. Have execution costs changed for the contracts analyzed in the electronic market? Are these changes different for outright and strategy trades?
iii. What happened to pit users and pit traders (locals) after the closure of pits?[7]
iv. How has the daily timing of trading (what the literature calls “main trading hours”) changed with the closure of pits?

Although livestock futures contracts have experienced a gradual decline in proportion of pit volume during the past four years, we still find a structural break around the time of the pit closure, which can be detected even when we account for the declining trend. This suggests that the livestock pits were active prior to their closure and that the pit closure itself diminished pit trading. Futures trading activity at the livestock pit appears to have been similar for outrights and strategy trades, a fact which contradicts the commonly cited reason for the existence of pit: the execution of complex strategy trades.

However, pit trading activity in treasury futures presents a different picture; it exhibits a distinct cyclical pattern, indicating significant pit trading around roll dates. These patterns persist and are more pronounced for strategy trades. It is interesting to note that, while futures pit volume declines significantly after the pit closes, it does not disappear completely. These futures trades represent legs of strategy trades consisting of futures and options, which are still allowed to be executed at the pit. Moreover, futures trading involved in strategies is high enough after the official pit closure, so that we do not find a structural break in the futures pit ratios of treasury strategy trades. This suggests that a substantial proportion of the treasury futures pit volume, prior to the pit closure, corresponded to trades associated with treasury options trading, which is consistent with the complaints of treasury pit traders. Such futures trading activity remained at the pit even after the pit closed, despite pit liquidity dropping due to the migration of outright trades to the electronic market. This is especially true for the 10 year treasury note futures contract.

To examine liquidity in the electronic market, we estimate execution costs for those commodities and types of trades (outrights vs. strategies), for which we find a structural break in their respective pit ratios. Our findings indicate that execution costs increase after the pit closure for livestock futures, and this increase is more pronounced for outrights compared to strategy trades. In the case of live cattle and lean hog futures, the rise in execution costs is associated with a higher permanent price impact whereas the higher execution costs in feeder cattle futures seem to be associated with higher search costs. While it is tempting to attribute higher execution costs to the migration of informed pit trades to the electronic market, it is unlikely that such link exist, as livestock pit trades generally exhibit low information content and represent high search costs. Execution costs for treasury outright futures trades[8] appear to be lower after the pit closure.

We, also, explore what happens to pit users and pit traders (locals) after the pits close. We find that livestock pit users, who appear to be collectively responsible for a substantial proportion of the total volume, are active in both venues prior to the pit closure and remain active participants in the electronic market thereafter. On the contrary, treasury futures pit users are responsible for

[5] Block trades are privately negotiated transactions executed away from the public auction market, are subject to minimum transaction size requirements.

[6] The proportion of pit trading for livestock futures is compared to other commodity classes for which pit trading seized, such as agricultural commodities, metals, treasury and energy futures.

[7] We distinguish “pit users” from “pit traders (locals)”. The first include accounts of market participants (identified by the clearing account number) with any pit trading activity. The latter (identified by the trader id) refer to pit traders, located at the pit who execute orders primarily for their own, non-proprietary clearing accounts.

[8] Due to the computational burden of execution cost calculations, we limit our analysis to the 5 year Treasury Futures market only.