High-Frequency Trading in the U.S. Treasury Market around Macroeconomic News Announcements

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Summary

High-frequency (HF) trading carried out by computers has become prevalent in financial markets during the past decade. As a result of this market innovation, trading and quoting activities now regularly take place within a fraction of a second. One of the main advantages of trading at a very high speed is that computers, with the capacity to rapidly process a large amount of information, are well positioned to execute multiple actions in response to information arrival. Despite the mounting theoretical literature and the ongoing policy debate on the role of computers in financial markets, there has been little empirical research on the impact of trading speed on liquidity and price efficiency especially around news announcements. We aim at filling this gap by investigating the effect of HF trading in the U.S. Treasury market before and after the release of macroeconomic news.

With the help of a granular dataset containing very high-frequency information about market and limit orders for the main on-the-run Treasury benchmarks, from one of the major

interdealer platform (BrokerTec), we empirically identify HF market and limit orders based on the speed of their placement alteration and cancellation deemed beyond manual ability. We then assess the impact of HF trading on liquidity and price efficiency explicitly accounting for the natural endogeneity arising between these variables using the introduction of the co-location facility by BrokerTec as an exogenous instrument.

Our results suggest that HF trading substantially increases after news announcements (but marginally decreases before announcements). HF trading exhibits a negative impact on liquidity, as it widens spreads before announcements and lowers depth of the order book after announcements, but improves price efficiency after and before announcements