High frequency trading and the new market makers

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Available online 28 June 2013

Abstract

This paper characterizes the trading strategy of a large high frequency trader (HFT). The HFT incurs a loss on its inventory but earns a profit on the bid–ask spread. Sharpe ratio calculations show that performance is very sensitive to cost of capital assumptions. The HFT employs a cross-market strategy as half of its trades materialize on the incumbent market and the other half on a small, high-growth entrant market. Its trade participation rate in these markets is 8.1% and 64.4%, respectively. In both markets, four out of five of its trades are passive i.e., its price quote was consumed by others.

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JEL classification: G10

Keywords: High frequency trading; Market maker; Multiple markets

Equity trading fragmented substantially in the first decade of the twenty-first century. Fig. 1 illustrates how NYSE market share in its listed stocks was still 80% in 2005 and declined to 25% in 2010. In Europe, equity trading started fragmenting somewhat later as, for example, the
London Stock Exchange market share dropped from 30% at the start of 2008 to about 20% at the end of 2010. New, high-tech entrant markets, such as BATS in the U.S. and Chi-X in Europe, captured a substantial part of the market share lost by incumbents. In 2011, Chi-X became the largest European equity market according to trade statistics published by the Federation of European Exchanges.

Fig. 1. Market fragmentation Europe and U.S. This figure illustrates the recent fragmentation in equity markets. The top graph plots incumbent and entrant market share in NYSE-listed stocks. The bottom graph does the same for European listed stocks. Source: Barclays Capital and Federation of European Exchanges.
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