

High frequency trading and the trade-off between trading costs and market resiliency

A comparison of research from market microstructure and the social studies of finance

Master's thesis

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Executive summary

High frequency trading (HFT) is the use of computer algorithms to trade on financial markets within milliseconds. HFT has raised heated debates since the “flash crash” of May 6, 2010, when leading indexes plunged within 13 minutes by more than 9%. While the public is rather skeptical of this “financial innovation”, most financial economists see HFT as a good thing for society. Financial economists use the *market microstructure* approach to analyze HFT. Most of these market microstructure papers find that HFT increases the liquidity of markets which should ultimately reduce the cost of capital for firms.

This brings me to my research question: *Does market microstructure research fail to see some of the risks associated with HFT?* This question should be taken seriously in light of recent events (see chapter 1). Before the financial crisis, financial economists argued that collateralized debt obligations (CDO) and credit default swaps (CDS) are good for society. This evaluation proved to be misguided because financial economists failed to see some of the (systemic) risks associated with CDOs and CDSs. One should therefore ask whether financial economists offer a better informed evaluation when it comes to HFT.

I start my analysis with a literature review of eight market microstructure papers which I categorize into three approaches: *panel analyses*, *event studies*, and *theoretical models* (see chapter 2). Furthermore, I introduce the distinction between three dimensions of liquidity: *market spread*, *market depth*, and *market resiliency*. While panel analyses and theoretical models are in a good position to analyze the impact of HFT on market spread and market depth, they cannot tell us much about the impact of HFT on market resiliency. Neither can event studies offer a comprehensive analysis of the impact of HFT on market resiliency.

This limitation brings me to the *social studies of finance* (see chapter 3). They use methods from sociology to show that *financial objects*, *financial theories*, *public facts*, and *corporeality* matter for liquidity supply. On this basis they point to potential problems that HFT might create for market resiliency. I show that the social studies of finance are in a much better good position to analyze the impact of HFT on market

resiliency than market microstructure. The social studies of finance address some risks associated with HFT which cannot be seen with the market microstructure approach.

My Master's thesis thus makes *two key contributions* (see chapter 4). First, I show that these different approaches add up to quite a coherent picture of the impact of HFT on the three dimensions of liquidity. Panel analyses and theoretical models demonstrate that HFT lowers market spread and increases market depth, while the social studies of finance (and event studies) show that HFT might undermine market resiliency. Taken together, these approaches point to a *tradeoff between trading costs and market resiliency*. Second, I contribute to the recent debate about *pluralism in financial research*. I show that pluralism does not necessarily lead to state of "anything goes" because the results from *different* approaches help to clarify *different* dimensions of liquidity.