Automation Adoption and Financial Regulation: Evidence from Stock Trading Firms and Workers*

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November 7, 2021

Job Market Paper

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Abstract

How did trading automation impact broker-dealer firms and workers? While electronic trading platforms have been available in stock markets for decades, widespread adoption of automated trading occurred only after the 2007 major market redesign promoted by the US Securities and Exchange Commission. With the intent of lowering access costs to stock markets, the policy fostered speed-driven competition between exchanges and trading firms. By combining several sources of regulatory records, I construct a rich linked panel of trading firms and workers for the last 40 years with detailed employment records, licenses, and financial information. I show that trading automation increased aggregate profits in the investment industry and induced greater revenue concentration in large broker-dealers. Consistent with higher technology setup requirements and increased local competition, the entry of new broker-dealers decreases. Interestingly, survival rates of existing firms display a U-shaped pattern: large, multi-billion dollar investment banks and brokers as well as the smallest trading firms, which offer specialized, boutique services with high IT capital, are more likely to stay in business. Trading automation generated large employment displacement effects, severely decreasing the probability of stock traders remaining employed, even compared to investment advisors, bond traders, and other financial workers in less automated markets. Through a series of tests, I show that these results are unlikely to be driven by the Great Recession or the rise in online brokerage services.

*I am very grateful to Scott Irwin, Michel Robe, and Dan Bernhardt for their continuous guidance and support. I also thank Aymeric Bellon, Yashar Barardehi, Philip Garcia, Benedict Guttman-Kenney, Richard Haynes, Jared Hutchins, Joe Janzen, Sida Li, Tong Liu, Charles Martineau, Tatiana Mocanu, Carl Nelson, George Pennacchi, Teresa Serra, Bruce Sherrick, Chong Shu, Mao Ye, and participants at the 2020 EALE-SOLE-AASLE, 2020 Young Economists Symposium, 2020 Empirics and Methods in Economics Conference, 2020 Brazilian Econometric Society Meeting, 2021 North American Summer Meeting of the Econometric Society, 2021 Australasian Meeting of the Econometric Society, 2021 European Summer Meeting of the Econometric Society, and seminars at the University of Illinois for insightful discussions and comments.

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