

# Flow Trading

Eric Budish, Peter Cramton,  
Albert S. Kyle, Jeongmin Lee, and David Malec<sup>1</sup>

February 2020

*Preliminary, not for circulation*

## *Abstract*

We propose a new market design for trading financial assets to remedy fundamental flaws in existing markets. Unifying the frequent batch auctions of Budish-Cramton-Shim 2015 and flow trading of Kyle and Lee 2017, the new design clears the market periodically and allows traders to directly express preferences in a simple, yet powerful way. Our solution technique is computationally efficient and readily handles many assets simultaneously. Traders can submit one order to trade an entire portfolio. An order expresses piecewise-linear demands for any linear combination of assets. Demands are expressed as flows—a rate of trade in shares per second. Market clearing involves aggregating orders to form a concave quadratic program that maximizes gains from trade.

---

<sup>1</sup> [Eric Budish](#) is Professor of Economics at the University of Chicago, Booth School of Business; his research is in market design with application to finance, education, health, and other industries. [Peter Cramton](#) is Professor of Economics at the University of Cologne and the University of Maryland; his research focuses on market design; he has applied that research to design auction-based markets of radio spectrum, electricity, financial securities, and other products. [Albert S. “Pete” Kyle](#) is Professor of Finance at the University of Maryland; his research focuses on market microstructure; he has recently worked on the theory and implementation of smooth trading, market microstructure invariance, measurement of trading costs, and stock market crashes; he is a non-executive director of a U.S.-based asset management company. [Jeongmin “Mina” Lee](#) is Assistant Professor of Finance at the Olin Business School, Washington University in St. Louis; her research focuses on market microstructure, banking, and asset pricing. [David Malec](#) is Research Scholar at the University of Cologne and the University of Maryland; his research combines economics and computer science to address market design problems in finance, transport, communications, and electricity.