

# Financial Infrastructure Security Research



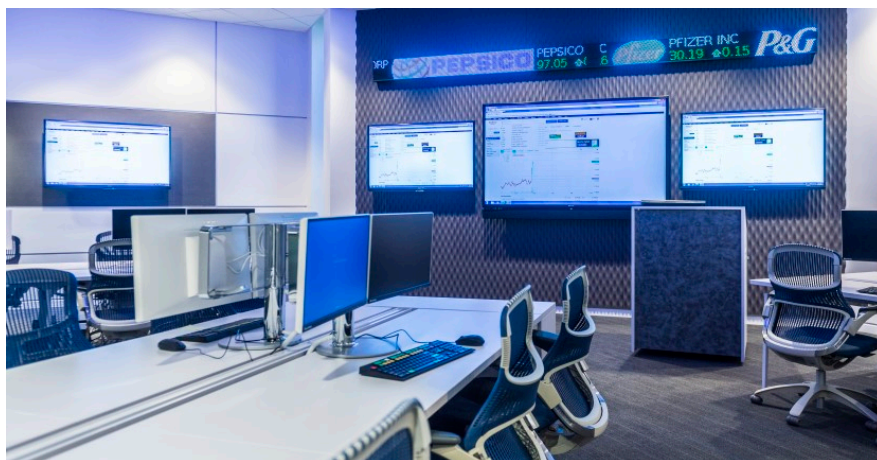
The **Financial Infrastructure Stability and Cyber-security (FISC) Center** works to identify systemic threats to financial infrastructure stability and market resiliency by applying big data analytics and advanced statistical techniques to financial data.

## **-Research Interests & Capabilities-**

Financial Market Infrastructure for the US capital markets is a complex network of securities and derivative or structured products that are quoted and traded on numerous stock and derivative exchanges and alternative trading facilities such as dark pools.

FISC has the capacity to process large datasets, bring additional datasets, read distributed ledgers generated by blockchain technology (FINTECH) and extend the analysis to cyber-security applications by engaging full time faculty and PhD/graduate students in Finance, Statistics, and Computer Sciences.

FISC's current research projects include financial impact of regulations, market design, technology and its risks, social media, big data and analytics, Bayesian and non-Bayesian statistical modeling, illiquidity and loss-spirals, and institutional ownership and trades. FISC faculty are also interested in Cybersecurity research on topics currently being funded by government agencies and relevant to industry include Anonymous Networks & Currencies (Cryptocurrencies), Cyber Risk Economics (CyRiE), Cyber Security Forensics, Cybersecurity Competitions, Enterprise Level Security Metrics and Usability, and Insider Threats.



## **-Infrastructure-**

The Cook Analytics & Trading Lab hosts security microstructure data sets, servers, and 12 Bloomberg terminals with real-time and historic information on a variety of markets including equities, fixed income, government securities, commodities and foreign currency markets. The size of the microstructure datasets, Daily NYSE's Trade and Quote (D-TAQ) and Nasdaq's order message data (ITCH) together represent more than 1 TB of data per day. Datastream International provides international coverage. Additionally WRDS access is available for CRSP and Compustat. The Lab has data from just before the 2008 Financial Crisis to the current year.

## **-Most Recent Scholarship-**

*Does High Frequency Trading Increase Systemic Risk?* Pankaj Jain, Pawan Jain, and Thomas H. McNish, 2016, Journal of Financial Markets 31, 1-24. Lead Article.

*Permanent Price Impact Asymmetry of Trades with Institutional Constraints.* Chiyachantana Chiraphol, Pankaj Jain, Christine Jiang, and Vivek Sharma, Journal Financial Markets, 2017, Lead Article.

For more information please visit:  
<http://www.memphis.edu/finance/research/fisc.php>

Pankaj K. Jain, Ph.D.

Rasheek Irtisam  
[rirtisam@memphis.edu](mailto:rirtisam@memphis.edu)