January 2018 Newsletter
Nirvikar Singh, Director of CAFIN and Distinguished Professor of Economics

Note from the Director
The past year has been a significant one for CAFIN, with the launch of an educational initiative geared toward preparing students for the Chartered Financial Analyst qualification, progress on a major research project on market design involving core CAFIN members and international collaborators, and an international conference on high frequency trading, co-sponsored with the Global Research Unit of the City University of Hong Kong, and hosted by our partner. This newsletter reports on these, and other notable happenings over the past year. We have added three Research Affiliates, and continued to receive strong support from UCSC alumni such as Stephen Bruce and James Hutchinson. Our new Research Affiliates are Elena Asparouhova (U. of Utah), Mario Gonzalez (Central Bank of Chile), and Vladyslav Sushko (Bank for International Settlements). Also, from Spring 2018, UCSC’s Natalia Lazzati, a Research Affiliate, will join the CAFIN steering committee. Their bios and photos are at http://cafin.ucsc.edu/people/affiliates.html. Please join me in welcoming them. I am once again drawing attention to our brochure, designed by alumnus Larry Rowen and his team, the cover of which can be seen above. The brochure can be downloaded at http://cafin.ucsc.edu/support-us/index.html.

High Frequency Trading Conference
Summary by CAFIN Associate Director Eric Aldrich:
On December 7-8, 2017, the City University of Hong Kong (CUHK) and the Center for Analytical Finance at UCSC hosted a conference on the topic of financial market design and regulation in the presence of high-frequency trading at the CUHK campus in Hong Kong. Over two days, academics spanning eight countries and three continents convened to discuss current research on the implications of market design and
regulation at financial exchanges. Topics included regulations governing quoting activity, strategic behavior during pre-market opening periods, triggering auction extensions following large price moves, conditions under which fast traders treat speed technology and information acquisition as substitutes, scenarios in which information transparency may harm market quality and the implications of asymmetrically delaying certain messages to financial exchanges.

Keynote addresses were given by Peter Bossaerts from the University of Melbourne and Allison Bishop from Columbia University and IEX. Professor Bossaerts discussed the historical role of experimental work in natural sciences and the importance for laying an experimental foundation in Finance and Economics in order to inform future thought in these disciplines. Professor Bishop spoke about the role of the “crumbling quote” signal at IEX (a newly approved public equities exchange in the United States), which attempts to make statistical predictions about the deterioration of market quality in an effort to protect orders at their exchange from adverse selection by fast, predatory traders. The conference proved to be an excellent forum for the exchange and discussion of new ideas in these areas of interest.

The conference program can be found here. Abstracts of the presentations can be found here. Special thanks to Prof. Yin-Wong Cheung for initiating this collaboration.

**Comments by CAFIN Research Affiliate Vladyslav Sushko**

Adverse selection by HFT firms has presented a challenge to bank dealers both in equity markets and foreign exchange (FX) markets. The presentations and discussions at the conference raised some interesting points about how equity markets and FX markets have been adopting differently to this phenomenon, in part due to differences in the market structure.

First, both equity and FX markets have seen the rise in trading venues with built-in “speed bumps.” IEX exchange in the case of equities and ParFX trading platform in the case of FX have been the prime examples. However, while ParFX largely failed to attract substantial trading volumes because the primary FX trading venues (such as Thomson Reuters Matching and EBS Spot) quickly implemented their variants of latency floors, thus retaining their clients’ trading volumes, it was interesting to learn that IEX has been a success story so far.
Second, the nature of “speed bumps” between equity and FX markets seems to differ. In equities, “speed bumps” appear to be based on uniform order delay times, such the 350 microsecond delay on IEX, and have to do with the speed with which information can be transmitted and aggregated across exchanges. In FX markets, in contrast, trading platforms have been applying various forms of randomization, such as randomized re-ordering of messages within the batch and a random batch length. In addition, many FX trading venues give liquidity providers the so-called “last look” option, which is the ability to reject an order even if the order matches the liquidity provider’s quoted price. Defense against adverse selection is one of the benefits of Last Look, but, as it is currently practiced, there may also be adverse effects on market integrity and liquidity, so its application is currently under review by the Global Foreign Exchange Committee.

CAFIN Lectures

**Darrell Duffie: Efficient Contracting in Network Financial Markets (April 2017)**
Darrell Duffie is Dean Witter Distinguished Professor of Finance at the Graduate School of Business, and professor by courtesy, Department of Economics, Stanford University. He is a Fellow and member of the Council of the Econometric Society, a Research Associate of the National Bureau of Economic Research, a member of the Financial Advisory Roundtable of the Federal Reserve Bank of New York, and a Fellow of The American Academy of Arts and Sciences. The abstract of the lecture can be found [here](#).

**Jonathan Wright: Extracting Density Forecasts from Asset Prices (May 2017)**
Jonathan Wright is a professor of economics at Johns Hopkins University, specializing in empirical macroeconomics and finance and time series econometrics. His recent topics of research include high-frequency effects of macroeconomic news announcements, forecasting, seasonal adjustment, the term structure of interest rates, and unconventional monetary policy. He is a Research Associate at the National Bureau of Economic Research. The abstract of the lecture can be found [here](#).

**Yan Chen: Recommending teams promotes pro-social lending in online microfinance (November 2017)**
Yan Chen is the Daniel Kahneman Collegiate Professor of Information at the University of Michigan, and Distinguished Visiting Professor of Economics at Tsinghua University. Her research interests include market and mechanism design, behavioral and experimental economics, and information economics. The abstract of the lecture can be found [here](#).
Research
CAFIN has provided research support for several projects over the past year, and many of the results can be found in CAFIN Working Papers, available here.

Our most ambitious research project has been on financial market design, tackling problems highlighted in Michael Lewis’ bestselling book, *Flash Boys*. Professors Aldrich, Friedman and López Vargas (photo) are working with several other researchers, including CAFIN Research Affiliate Professor Peter Cramton of the University of Maryland and University of Cologne, and Professor Axel Ockenfels of the University of Cologne, to study the performance of competing market formats in the presence of high frequency trading (HFT), computerized trading strategies that seek profit via faster execution of orders, at the level of a thousandth (or even a millionth) of a second.

*Eric Aldrich reports:*
We recently completed initial trials in the LEEPS lab, comparing traditional continuous trading markets (the continuous double auction format used by, e.g., NYSE and NASDAQ) with the frequent batch auctions proposed by Budish, Cramton and Shim (The High-Frequency Trading Arms Race: Frequent Batch Auctions as a Market Design Response, *Quarterly Journal of Economics*, 2015). The initial results are very encouraging and supportive of frequent batch auctions as a design improvement (e.g., deterring predatory trading behavior and reducing wasteful expenditure on speed technology). Kristian López Vargas and I are actively writing a draft of the first working paper and currently running more experiments. Our experimental colleague, Axel Ockenfels, at University of Cologne, received the prestigious European Research Council (ERC) grant, in part to support our collaborative activities at Santa Cruz. Also, Daniel Friedman and I now have a working paper (here) about the impact of delayed messaging at financial exchanges.

*Daniel Friedman adds:*
On March 14, the CAFIN Quarterly Lecture will be given by Professor Albert S. (Pete) Kyle. Known for his pioneering work on price formation and information aggregation in financial markets, Professor Kyle has served on the faculty at Princeton, Berkeley and Duke, and since 2006 has held the Charles E. Smith Chair at the University of Maryland’s School of Business. His CAFIN lecture will propose a radically new way of organizing trade in financial markets. The same week, CAFIN will sponsor a visit by Professor Axel Ockenfels of the University of Cologne. He is a distinguished contributor to market design, including financial market design, and is a key collaborator to the High Frequency Trading project anchored at UCSC by CAFIN members Eric Aldrich, Kristian López Vargas, and myself.
Financial Education

In a collaboration with the UCSC Department of Economics, CAFIN launched a program in Spring 2017 to support UCSC undergraduate and Master’s students in qualifying as charterholders of the Chartered Financial Analyst (CFA) Institute. The non-profit CFA Institute oversees worldwide admittance into its University Affiliation Program, leading to the CFA professional credential or “charter.” UC Santa Cruz is one of only two UC campuses currently to achieve this recognition. The program includes a professional development seminar and guest speakers from the financial services industry, including CFA charterholders.

Our CFA program is led by CAFIN Research Affiliate Kai Pommerenke, a UCSC PhD alumnus, finance lecturer and CFA charterholder. He describes the CFA as the “gold standard” in the investment world. Yesenia Lopez (College Ten ‘17) who took the seminar, said that the class introduced the possibility of a new career direction: “I never thought about it. But now, looking at the presentations, I’ve given some thought to a job in the financial sector.” Plantronics corporate finance director Jon Auman, a guest lecturer in the 2017 seminar, was impressed with the practical focus of Pommerenke’s class: “Giving students a view of the range of jobs available in the function is a great head start for them as they think about taking their first career steps,” he said. See here for a more detailed account of the seminar and its goals.

Other News

- Professor Daniel Friedman has been named president-elect of the Economic Science Association (ESA). He will hold the position, which began July 1, 2017, for two years, after which he will become president of the association for two years. With about 600 active members, the ESA is the main association of experimental and behavioral economists. It hosts conferences around the world, and publishes the Journal Experimental Economics.
- CAFIN is planning an event to mark the 10th anniversary of the collapse of Lehman Brothers, titled, “Ten Years after Lehman: What has changed? What is to come?” in September 2018.

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