# CONFERENCE PROGRAM 2022 CONFERENCE ON DERIVATIVES & VOLATILITY

# 11 - 12 November 2022

## Chicago, IL





## **#FMAatCboe**

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### Welcome to the 2022 Conference on Derivatives and Volatility!

Welcome to the sixth annual Conference on Derivatives and Volatility, co-hosted by Cboe Global Markets and the Financial Management Association International. This year's program offers thirteen paper sessions with a number of timely papers, and keynote addresses by David S. Bates (University of Iowa), and Vance Harwood (Six Figure Investing). We hope you will find something on the program that is especially interesting to you.

#### **Program Co-Chairs:**

Torben Andersen, Professor of Finance, Northwestern University Bjorn Eraker, Professor of Finance, University of Wisconsin-Madison

#### About Cboe Global Markets and The Options Institute

Cboe Global Markets, Inc. ("Cboe Global Markets" or "Cboe") is one of the world's largest exchange holding companies, offering cutting-edge trading and investment solutions to investors around the world. The company is committed to defining markets and driving the global marketplace forward through product innovation, leading edge technology and seamless trading solutions.

The Options Institute has been the light-bearer of derivatives education since 1985. In the era of information overload, the Options Institute has evolved to keep the everyday investor empowered using education. Through its global network of expert instructors, adjunct faculty, bespoke training programs, and free educational events and content, the OI is the premier education hub for curious minds of all experience levels.

#### About the Financial Management Association International

Established in 1970, the Financial Management Association (https://www.fma.org/) is a global leader in developing and disseminating knowledge about financial decision making. FMA's mission is to broaden the common interests between academicians and practitioners, provide opportunities for professional interaction between and among academicians, practitioners and students, promote the development and understanding of basic and applied research and of sound financial practices, and to enhance the quality of education in finance. It serves over 5,100 members across 74 countries.

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## **Conference Program**

All conference events will take place on the  $7^{th}$  Floor

| Friday, 11 November   |  |  |  |  |
|---|--|--|--|--|
| 9:00 AM – 9:45 AM   |  |  |  |  |
| Registration  |  |  |  |  |
| 9:45 AM – 11:45 AM  |  |  |  |  |
| Session I – Pricing Kernel  |  |  |  |  |
| Volatility and the Pricing Kernel<br>David Schreindorfer, Arizona State University   Tobias Sichert, Stockholm School of Economics  |  |  |  |  |
| Presenter: David Schreindorfer<br><b>Discussant</b> : Mete Kilic, University of Southern California   |  |  |  |  |
| <b>Exploring Risk Premia, Pricing Kernels, and No-Arbitrage Restrictions in Option Pricing Models</b><br>Steven Heston, University of Maryland   Kris Jacobs, University of Houston   Hyung Joo Kim, University of<br>Houston |  |  |  |  |
| Presenter: Steven Heston<br>Discussant: Jeroen Dalderop, University of Notre Dame   |  |  |  |  |
| Uncertainty, Risk, and Capital Growth<br>Gill Segal, University of North Carolina   Ivan Shaliastovich, University of Wisconsin   |  |  |  |  |
| Presenter: Gill Segal<br>Discussant: Francois Gourio (Chicago Federal Reserve)  |  |  |  |  |
|   |  |  |  |  |
| 11:45 AM – 1:45 PM  |  |  |  |  |

#### Luncheon & Keynote Address

#### **Keynote Address**

#### David S. Bates C. Woody Thompson Professor of Finance, University of Iowa

David S. Bates is the C. Woody Thompson Professor of Finance at the Tippie College of Business of the University of Iowa. He builds, estimates, and tests option pricing models that include jump risks and stochastic volatility, with applications to currency and stock index options. His early research stressed the importance of including asymmetric jumps to capture the risk-neutral skewness implicit in currency and stock index option prices, including in index options prior to the 1987 stock market crash (*J.Finance*, 1991). Later research included testing whether models are consistent with how option prices evolve (including finding early evidence of volatility jumps) and the degree of consistency with the observed evolution of exchange rates and the stock market. He expanded the Fourier inversion approach of Heston (*RFS*, 1993) to include affine processes with constant-intensity and stochastic-intensity price jumps. His more recent research has focused on using Fourier inversion for time series analysis, including estimation of latent state variables such as stochastic volatility and jump intensities. His 2019 *J.Finance* paper examines how stock market crashes develop intradaily, and finds self-exciting volatility spikes. He is currently exploring models of longer-term stock market risk.

#### 1:45 PM – 3:45 PM

#### Session 2 – Retail Traders and Order Flow

**Retail Option Traders and the Implied Volatility Surface Gregory Eaton**, Oklahoma State University | T. Clifton Green, Emory University | Brian Roseman, Oklahoma State University | Yanbin Wu, University of Florida

Presenter: Gregory Eaton Discussant: Christian Dorion, HEC Montreal

#### Payment for Order Flow and Asset Choice

Thomas Ernst, University of Maryland | Chester Spatt, Carnegie Mellon University

Presenter: Thomas Ernst Discussant: Saad Ali Khan (HEC Montreal)

**Factor and stock-specific disagreement and trading flows** Fotis Grigoris, Indiana University | Christian Heyerdahl-Larsen, Indiana University | **Preetesh Kantak,** Indiana University

Presenter: Preetesh Kantak Discussant: Vincent Bogousslavsky, Boston College

#### 3:45 PM - 4:30 PM

#### Coffee Break

#### 4:30 PM – 5:50 PM

#### Session 3 – Information Content on Option Prices

Pricing Event Risk: Evidence from Concave Implied Volatility Curves

Lykourgos Alexiou, University of Liverpool Management School | **Amit Goyal,** University of Lausanne | Alexandros Kostakis, University of Liverpool Management School | Leonidas Rompolis, Athens University of Economics and Business

Presenter: Amit Goyal Discussant: Paola Pederzoli, University of Houston

How Common is Insider Trading? Evidence from the Options Market Oleg Bondarenko, University of Illinois at Chicago | Dmitriy Murayvev, Michigan State University

Presenter: Oleg Bondarenko Discussant: Clifton Green (Emory University)

#### 5:50 PM - 7:30 PM

**Conference Dinner** 

**Practitioner Keynote Presentation** 

Vance Harwood Six Figure Investing

After graduating from the University of Colorado with a BS in Electrical Engineering, Vance embarked on a 35year career working for Hewlett Packard and other high-tech companies in technical and managerial roles in R&D, Marketing, and Finance. His career in high-tech included two international assignments, 5 patents, and managing engineering teams in Colorado, California, Germany, and Shanghai. Vance changed careers in 2011, developing a financial blogging/consulting business. His blog, <u>Six Figure Investing</u> has logged over 5 million page views, and he has been quoted in Barron's, Reuters, and the Wall Street Journal. Vance blogs and tweets <u>@6\_figure\_invest</u>, on investor psychology, Exchange Traded Funds (ETF), volatility topics such as the VIX<sup>®</sup> index, and volatility ETFs with VIX<sup>®</sup> futures as their underlying securities. Vance is on the advisory board and is a Senior Consultant for <u>Invest in Vol</u>. Vance and his wife Heidi live in Erie, CO.

| Saturday, 12 November<br>9:15 AM – 9:45 AM   |  |  |  |  |
|--|--|--|--|--|
| Registration   |  |  |  |  |
| 9:45AM – 11:45 AM  |  |  |  |  |
| Session 4 – Option Returns   |  |  |  |  |
| Common Factors in Equity Option Returns<br>Alex Horenstein, University of Miami   Aurelio Vasquez, ITAM   Xiao Xiao, University of London  |  |  |  |  |
| Presenter: Alex Horenstein<br>Discussant: Piotr Orlowsky, HEC Montreal   |  |  |  |  |
| Risk Preferences Implied by Synthetic Options<br>Ian Dew-Becker, Northwestern University   Stefano Giglio, Yale University   |  |  |  |  |
| Presenter: Ian Dew-Becker<br>Discussant: Bjorn Eraker, University of Wisconsin - Madison   |  |  |  |  |
| <b>Why Does Options Market Information Predict Stock Returns?</b><br>Dmitriy Muravyev, Michigan State University   <b>Neil Pearson</b> , University of Illinois, Urbana-Champaign   Joshua<br>Pollet, University of Illinois, Urbana-Champaign |  |  |  |  |
| Presenter: Neil Pearson, University of Illinois, Urbana-Champaign<br>Discussant: Sang Seo, University of Wisconsin - Madison   |  |  |  |  |
| I I:45 AM – I:40 PM  |  |  |  |  |
| Lunch  |  |  |  |  |
| Product Innovation Presentation:   |  |  |  |  |
| I:40 PM – 3:00 PM  |  |  |  |  |

#### Session 5 – Jumps and Volatility

Forecasting realized volatility: An automatic system using many features and machine learning algorithms **Sophia Zhengzi Li**, Rutgers University | Yushan Tang, Rutgers University

Presenter: Sophia Zhengzi Li Discussant: Aurelio Vasquez, ITAM

The shape of the pricing kernel and expected option returns **Tobias Sichert,** Stockholm School of Economics and Swedish House of Finance | Christian Schlag, Goethe University – Frankfurt

Presenter: Tobias Sichert Discussant: Fousseni Chabi-Yo, University of Massachusetts – Amherst

Realised volatility forecasting: Machine learning via financial world embedding **Eghbal Rahimikia**, University of Manchester | Stefan Zohren, University of Oxford |Ser-Huang Poon, University of Manchester

Presenter: Eghbal Rahimikia Discussant: Dacheng Xiu, University of Chicago

## Participant Index

| Name                   | Affiliation                              | Session Number |
|------------------------|--|----------------|
| Bates, David           | University of Iowa                       | Keynote        |
| Bogousslavsky, Vincent | Boston College                           | 2              |
| Bondarenko, Oleg       | University of Illinois – Chicago         | 3              |
| Dalderop, Jeroen       | University of Notre Dame                 | 1              |
| Dew-Becker, lan        | Northwestern University                  | 4              |
| Dorion, Christian      | HEC Montreal                             | 2              |
| Eaton, Gregory         | Oklahoma State University                | 2              |
| Eraker, Bjorn          | University of Wisconsin – Madison        | 4              |
| Ernst, Thomas          | University of Maryland                   | 2              |
| Green, Clifton         | Emory University                         | 3              |
| Goyal, Amit            | University of Lausanne                   | 3              |
| Gourio, Francois       | Chicago Federal Reserve                  | 1              |
| Han, Yufeng            | University of North Carolina – Charlotte | 5              |
| Harwood, Vance         | Six Figure Investing                     | Keynote        |
| Heston, Steven         | University of Maryland                   | 1              |
| Horenstein, Alex       | University of Miami                      | 4              |
| Kalnina, Ilze          | North Carolina State University          | 5              |
| Kantak, Preetesh       | Indiana University                       | 2              |
| Khan, Saad Ali         | HEC Montreal                             | 2              |
| Kilic, Mete            | University of Southern California        | 1              |
| Murayvev, Dmitriy      | Michigan State University                | 5              |
| Orlowsky, Piotr        | HEC Montreal                             | 4              |
| Pearson, Neil          | University of Illinois, Urbana-Champaign | 4              |
| Pederzoli, Paola       | University of Houston                    | 3              |
| Schreindorfer, David   | Arizona State University                 |                |
| Segal, Gill            | University of North Carolina             |                |
| Seo, Sang Byung        | University of Wisconsin – Madison        | 4              |
| Todorov, Viktor        | Northwestern University                  | 5              |

## Attendees

| Last Name     | First Name          | Affiliation                              |
|---------------|---------------------|--|
| Abrokwah      | Michael             | Dominican University                     |
| Andersen      | Torben              | Northwestern University                  |
| Antunes-Neto  | Jose                | Northwestern University                  |
| Artz          | Sebastian           | UCLA                                     |
| Bakosova      | Petra               | Hull Tactical                            |
| Bangsgaard    | Christine           | Aarhus University                        |
| Bates         | David               | University of Iowa                       |
| Bogousslavsky | Vincent             | Boston College                           |
| Bondarenko    | Oleg                | University of Illinois - Chicago         |
| Bridges       | John                |  |
| Cocquemas     | Francois            | Hull Tactical                            |
| Dalderop      | Jeroen              | University of Notre Dame                 |
| Dew-Becker    | lan                 | Northwestern University                  |
| Dorion        | Christian           | HEC Montreal                             |
| Eaton         | Gregory             | Oklahoma State University                |
| Engst         | Stephen             | Southern Utah University                 |
| Eraker        | Bjorn               | University of Wisconsin - Madison        |
| Ernst         | Thomas              | University of Maryland                   |
| Fang          | Lei                 | Cognitive Capital                        |
| Fast          | Petri               | Hull Tactical                            |
| Fregeau       | Bryan               | Cboe Global Markets                      |
| Ghanbari      | Hamed               | University of Lethbridge                 |
| Gogate        | Manajit             | Hull Tactical                            |
| Gourio        | Francois            | Federal Reserve Bank of Chicago          |
| Goyal         | Amit                | University of Lausanne                   |
| Green         | Clifton             | Emory University                         |
| Gruenthaler   | Thomas              | University of Muenster                   |
| Habib         | Ali                 | LWC                                      |
| Han           | Yufeng              | University of North Carolina - Charlotte |
| Harwood       | Vance               | Six Figure Investing                     |
| Heston        | Steven              | University of Maryland                   |
| Horenstein    | Alex                | University of Miami                      |
| Howson        | David               | Cboe Global Markets                      |
| Hull          | Blair               | Hull Tactical                            |
| Jeon          | Byounghyun          | Marquette University                     |
| Juneja        | Neil                | Hull Tactical                            |
| Kalnina       | llze                | North Carolina State University          |
| Kantak        | Preetesh            | Indiana University                       |
| Kerala Varma  | Vipin               | Capital Fund Management                  |
| Kilic         | Mete                | University of Southern California        |
| Kirvaitis     | Tom                 | KL Capital LLC                           |
| Lanza         | Ariel Aldo Giovanni | Northwestern University                  |
| Li            | Sophia Zhengzi      | Rutgers University                       |
| Lin           | Jimin               | University of California – Santa Barbara |
| Lui           | Michelle            | FMA                                      |
| Moran         | Matthew             | Cboe Global Markets                      |
| Muravyev      | Dmitriy             | Michigan State University                |
| Nenekpeku     | Charles             | EchoHouse Ghana Limited                  |
| Orlowsky      | Piotr               | HEC Montreal                             |

| Otto            | Tizian     | Yale University                           |
|-----------------|------------|---|
| Pansera         | Jerome     | Hull Tactical                             |
| Park            | Taeyoung   | University of Texas - Dallas              |
| Pearson         | Neil       | University of Illinois – Urbana-Champaign |
| Pederzoli       | Paola      | University of Houston                     |
| Rhoads          | Russell    | Indiana University                        |
| Richard         | Rob        | Hull Tactical                             |
| Riva            | Raul       | Northwestern University                   |
| Rosa            | Mark       | University of New Orleans                 |
| Saad            | Khan       | HEC Montreal                              |
| Schreindorfer   | David      | Arizona State University                  |
| Segal           | Gill       | University of North Carolina              |
| Seo             | Sang Byung | University of Wisconsin - Madison         |
| Shafaati        | Mobina     | Old Dominion University                   |
| Tissot-Daguette | Valentin   | Princeton University/Bloomberg            |
| Todorov         | Viktor     | Northwestern University                   |
| Vasquez         | Aurelio    | ITAM                                      |
| Walden          | Johan      | University of California - Berkeley       |
| Wang            | Zhiguang   | South Dakota State University             |
| Wu              | Yanbin     | University of Florida                     |
| Xu              | Yang       | Calamos Investment                        |
| Zhao            | Yiwei      | Cboe Global Markets                       |
| Zhao            | Ran        | Claremont Graduate University             |

### **Program Committee**

#### **Co-Chairs**

- Torben Andersen, Northwestern University
- Bjorn Eraker, University of Wisconsin-Madison

#### **Committee Members**

- Patrick Augustin, McGill University
- Gurdip Bakshi, Temple University
- Nina Boyarchenko, Federal Reserve Bank of New York
- Fousseni Chabi-Yo, University of Massachusetts Amherst
- Jaewon Choi, University of Illinois
- Jeroen Dalderop, University of Notre Dame
- Christian Dorion, HEC Montreal
- Peter Feldhutter, Copenhagen Business School
- Nicola Fusari, Johns Hopkins University
- Elise Gourier, ESSEC Business School
- Michael Halling, University of Luxembourg
- Steven Heston, University of Maryland
- Sophia Li, Rutgers Business School
- Juan Londono, Federal Reserve Board
- Dmitriy Muravyev, Michigan State University
- Neil Pearson, University of Illinois
- Paola Pederzoli, University of Houston
- Seth Pruitt, Arizona State University
- Alberto Rossi, Georgetown University
- Sang Byung Seo, University of Wisconsin-Madison
- Zhaogang Song, Johns Hopkins University
- Viktor Todorv, Northwestern University
- Peter Van Tassel, Federal Reserve Bank of New York
- Aurelio Vasquez, ITAM
- Grigory Vilkov, Frank School of Finance and Management
- Dacheng Xiu, University of Chicago

Notes





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