JSBF VIRTUAL

GUEST LECTURE

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INSTITUTION OF EMINENCE DEEMED TO BE
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JINDAL SCHOOL OF
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on

IMPROVED PREDICTION OF COMMODITY RETURNS USING CLIMATE MODEL FORECASTS OF THE EL NIÑO SOUTHERN OSCILLATION

The physical and socio-economic environments in which we live are intrinsically linked over a wide range of timescales. With application to multi-year lead times, the price of certain commodities produced predominantly in tropics, co-vary with the dominant mode of climate variability in this region, namely the El Niño Southern Oscillation (ENSO). The seminar will be structured in two parts: the first will present a primer on climate science, simulation and available datasets; and the second part will focus on exploiting these climate data sets for the enhanced prediction of certain commodity prices. With regards to the second part we develop autoregressive models for the real log returns of commodity spot prices with exogenous ENSO indices on monthly intervals for the markets of vegetable oils produced in Asia. All model coefficients are calculated from historical observations, with skill assessed in a future out-of-sample period. The exogenous ENSO factors come from a variety of sources, including: no ENSO information as a lower bound; perfect future ENSO knowledge as an upper bound; an autoregressive model of ENSO; and general circulation model (GCM) climate forecasts produced by the CSIRO Climate re-Analysis and Forecast Ensemble (CAFE) system. The GCM couples together the atmosphere, ocean, and sea-ice, with the initial conditions tailored to maximise forecast skill at multi-year time scales in the tropics. All models adopting ENSO factors outperform those that do not, indicating the importance of incorporating climate knowledge into investment in commodities such as vegetable oils. For multi-year timescales, commodity forecasts adopting ENSO factors from the GCM are more skilful than those adopting an autoregressive econometric model of ENSO. Having a better understanding of the impact of climate factors on commodities can assist farmers, policy makers and regulators in better managing their risk.

SPEAKER

VASSILI KITSIOSA

Laboratory for Turbulence Research in Aerospace and Combustion, Department of Mechanical and Aerospace Engineering, Monash University

LURION DE MELLO

Senior Lecturer, Department of Applied Finance Macquarie University, Sydney

TUE, 13 APRIL 2021

10:00 AM – 12:00 PM

Join us on zoom

http://bit.ly/jsbf-13apr

Bio of Speakers

Vassili Kitsios is a research scientist in the Climate Science Centre at CSIRO Oceans and Atmosphere (O&A). He is currently undertaking research and development on the data assimilation and ensemble forecasting components of the Climate Analysis and Forecast Ensemble (CAFE) system. He is also leading the parameter estimation effort within the group focussed toward improving the underlying climate model in a multi-year forecasting context. Additionally he has initiated new collaborative ties with the health and finance communities to quantify the influence of climate variability and change on socio-economic indicators, in order to better assess climate risk. Prior to joining the decadal climate forecasting project Vassili undertook post-doctoral research with the CSIRO O&A and then the Monash University Laboratory for Turbulence Research in Aerospace and Combustion, on the numerical simulation and parameterisation of atmospheric, oceanic and boundary layer processes. His PhD was with the University of Melbourne and the Université de Poitiers on numerical simulation and model reduction of canonical turbulent flows. He has also held industrial positions in applied computational fluid dynamics, mathematical finance and machine learning.

Dr. Lurion De Mello is the course director for the Bachelor of Applied Finance and Bachelor of Commerce degrees at Macquarie University Sydney. He is also the co-chair of the Australasian Commodity Markets conference currently in its 5th year. Lurion completed his PhD in Economics at Macquarie University in 2012 where his thesis focused on the price dynamics of upstream and downstream petrochemical markets such as ethylene, propylene and methanol. His research interests are around energy economics and finance and behavioural finance. He has provided commentary through the Australian media (Television and Radio) and written various opinion pieces on the issues surrounding crude oil markets including the fuel price cycles and adopting new fuel standards in Australia. Lurion has published papers in internationally refereed high impact journals . In addition to his teaching and research commitments Lurion mentors first year students through the business school's First-STEP mentoring program. He is also involved in designing and delivering economic, financial and business literacy programs to high school's with students from low socio economic status (SES) background through the Federal Govt HEPPP funding program to Universities. He and his team are currently looking for industry sponsors to develop, deliver and engage with new low SES schools.