

HUB-SBA FS Summer Conference on Finance 2024

July 25, 2024

Hitotsubashi University – Chiyoda Campus
(2-1-2 Hitotsubashi, Chiyoda-ku, Tokyo, JAPAN 101-8439)

Program

Conference Venue: Room 608 “Lecture Room #4” on 6F

Session 1

1:00 – 1:40 Public perception, identification, and market impact of ESG events
Presenter: Vitali Alexeev (The University of Technology Sydney)

Session 2

1:45 – 2:25 Modelling High Frequency Crude Oil Dynamics using Affine and Non-Affine Jump-Diffusion Models
Presenter: Katja Ignatieva (The University of New South Wales)

Session 3

2:30 – 3:10 Structural change in the relationship between electricity and fuel prices: Evidence from the Japanese electricity market before and after the Great East Japan Earthquake and Fukushima nuclear accident in 2011
Presenter: Kazuhiko Ohashi (Hitotsubashi University)

Short break

3:15 – 3:30

Session 4

3:30 – 4:10 The Low Frequency Trading Arms Race: Machines Versus Delays
Presenter: Yoshio Nozawa (The University of Toronto)

Session 5

4:15 – 4:55 Dynamics of Market Spread of First-to-Default Swap in an Information-Based Approach
Presenter: Hidetoshi Nakagawa (Hitotsubashi University)

Session 6

5:00 – 5:40 The impact of homeless encampments on housing prices
Presenter: Yoshiki Shimizu (Hitotsubashi University)

Note: Each presenter has 40 minutes for presentation (including Q&A's).

Session 1:*Public perception, identification, and market impact of ESG events*

Vladislav Pyzhov (University of Technology Sydney)

Kristoffer Glover (University of Technology Sydney)

Vitali Alexeev (University of Technology Sydney)

We propose a novel procedure for detecting ESG-specific ‘events’ using a large dataset of news and social media. Tracking firm-specific sentiment and controversies, we find a significant impact of both positive and negative ESG events on stock market valuations, with larger reactions observed for negative events. Surprisingly, when classifying events as either E, S, or G, the observed price impact is mainly concentrated in the Social and Governance pillars, with little reaction to Environmental issues. Significant heterogeneity is observed when decomposing the results across industries, revealing strong responses in the Technology, Basic Materials, and Consumer Cyclical sectors, but little evidence of an effect in the Financial and Industrials sectors. Finally, we provide evidence that the impact of media ESG events has declined over time, but only for negative events, suggesting a changing valuation of ESG risks.

Session 2:*Modelling High Frequency Crude Oil Dynamics using Affine and Non-Affine Jump-Diffusion Models*

Katja Ignatieva (UNSW Sydney)

Patrick Wong (UNSW Sydney)

This paper investigates the dynamics of high frequency crude oil markets proxied by the United States Oil (USO) exchange traded fund (ETF). USO returns are modelled using a stochastic framework with jumps and stochastic volatility (SVCJ). We consider three nested models within the affine SVCJ framework, and extend our analysis to three additional models within the non-affine framework. We compare six modelling frameworks (affine/non-affine and with/without jumps) based on their ability to capture high frequency USO dynamics. The modelling parameters are estimated using the Particle Markov Chain Monte Carlo (PMCMC) approach. We investigate whether jumps in USO returns and volatility are important, and whether it is necessary to leave the affine model class for the non-affine frameworks when jumps are included in the model. Using various statistical criteria and based on volatility forecasting performance, we document that (i) jumps in the returns and stochastic volatility are essential when modelling USO dynamics; (ii) the non-affine specifications are preferred to the affine specifications: The non-affine SVCJ-NL and SVJ-NL models stand out when modelling high frequency USO returns, followed by the affine SVCJ-L and SVJ-L models. The latter might be better suited for theoretical finance applications, such as derivative pricing, as closed form solutions for option prices are available under the affine frameworks.

Session 3:

Structural change in the relationship between electricity and fuel prices: Evidence from the Japanese electricity market before and after the Great East Japan Earthquake and Fukushima nuclear accident in 2011

Ryoji Miyawaki (Aakel Technologies inc.)

Kazuhiko Ohashi (Hitotsubashi University)

Yohei Yamamoto (Hitotsubashi University)

We analyze the relationship between wholesale electricity price and fuel prices of crude oil, LNG, and coal in Japan from April 2005 to December 2021 by the Vector Error Correction Model (VECM). The Great East Japan Earthquake and the accident of the Fukushima nuclear reactors on March, 2011 resulted in the suspension of all nuclear power plants in Japan and caused a major shift in the composition of Japan's power sources. We show that there was a structural change in the relationship between electricity and fuel prices at this point. Thus, in addition to the analysis of the data for the entire period, we divide the data into two i.e., those before and after the Great East Japan Earthquake, and analyze the relationship between wholesale electricity price and fuel prices. Comparison of the pre- and post-earthquake periods shows that the electricity price became more strongly affected by LNG prices after the earthquake than before. This change can be attributed to the suspension of nuclear power plants and the resulting higher dependence on thermal (especially LNG) power plants in the power generation. Structural change in the power generation mix is an important determinant of the nature of electricity prices.

Session 4:

The Low Frequency Trading Arms Race: Machines Versus Delays

Alexander Dickerson (UNSW Business School)

Yoshio Nozawa (The University of Toronto)

Cesare Robotti (Warwick Business School)

We propose a novel framework to compute transaction costs of trading strategies using infrequently traded assets. The method explicitly accounts for the trade-off between bid-ask spreads and execution delays. The benefit of waiting for a better trading opportunity with lower bid-ask spreads is partly offset by the opportunity cost of delayed or missed execution. Applying this method to corporate bonds that trade infrequently, we show that even the latest machine-learning-based trading strategies earn zero or negative bond CAPM alphas after transaction costs. Consequently, our results raise doubts about the realistic outperformance capabilities of active bond trading strategies relative to the bond market factor.

Session 5:

Dynamics of Market Spread of First-to-Default Swap in an Information-Based Approach

Hidetoshi Nakagawa (Hitotsubashi University)

Hideyuki Takada (Toho University)

We investigate the dynamics of the market spread of the first-to-default swap (FtDS) using an information-based credit risk model, which was introduced by Brody et al. (2010) and slightly extended by Nakagawa and Takada (2023). Specifically, we derive stochastic differential equations satisfied by the market FtDS spread as well as the first-to-default hazard rate process under the information-based model, allowing us to consider how they are driven by the information flow.

Session 6:*The impact of homeless encampments on housing prices*

Jarl G. Kallberg (Washington State University)

Yoshiki Shimizu (Hitotsubashi University)

A topic of intense and heated discussion in urban America is the impact of homelessness. While there is an immense rhetoric surrounding this subject, quantitative analysis is scarce. This study attempts to provide some precise insight into the economic costs of homelessness. Specifically, we estimate the impact that proximity to a homeless encampment has on the prices of nearby residences. Using hedonic models, based on data from Seattle from 2017 to 2020, we show that proximity to a homeless encampment has generally an insignificant effect on house prices; however once we use a quantile regression approach we find that homeless encampments have a detrimental effect on prices of houses in higher-price segments: houses in the highest price segments (75% and 95% quantiles) are priced 2.2% and 3.9% lower than an otherwise identical residence, if they are within 0.75 miles of a nearby homeless encampment. For the average sale in our sample, this figure represents an approximate loss in value of \$21,340 and \$66,822, respectively. We obtain slightly weaker, but similar results once we adjust for spatial autocorrelation.