

## PROGRAMME AND ABSTRACTS

13th International Conference on  
Computational and Financial Econometrics (CFE 2019)

<http://www.cfenetwork.org/CFE2019>

and

12th International Conference of the  
ERCIM (European Research Consortium for Informatics and Mathematics) Working Group on  
Computational and Methodological Statistics (CMStatistics 2019)

<http://www.cmstatistics.org/CMStatistics2019>

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UNIVERSITY  
OF LONDON

Computational and  
Methodological Statistics **CMStatistics**  
**CFENetwork** Computational and  
Financial Econometrics



estimators, such as the Hill estimator, have usually a strong bias. Consequently those estimators are quite sensitive to the number of top order statistics used in the estimation. To improve the mean squared error of the aforementioned estimators, many alternative estimators have appeared in the literature. We analyse several generalizations of the Hill estimator. The aim is to study their non degenerate asymptotic behaviour and to compare them altogether.

**CO861 Room G3 PREDICTIVE ACCURACY METHODS**
**Chair: Emanuela Raffinetti**
**C0432: Simple ways to interpret effects in modeling binary and ordinal data**
*Presenter:* **Alan Agresti**, University of Florida, United States

Probability-based effect measures for models for binary and ordinal response variables can be simpler to interpret than logistic and probit regression model parameters and their corresponding effect measures, such as odds ratios. For describing the effect of an explanatory variable while adjusting for others in modeling a binary response, it is sometimes possible to employ the identity and log link functions to generate simple effect measures. When such link functions are inappropriate, one can still construct analogous effect measures. For comparing groups that are levels of categorical explanatory variables or relevant values for quantitative explanatory variables, such measures can be based on average differences or ratios of the probability modeled. For quantitative explanatory variables, they can also be based on average instantaneous rates of change for the probability. Analogous measures are proposed for interpreting effects in models for ordinal responses and with nonlinear predictors, such as generalized additive models, and are illustrated with an example implemented with R software.

**C0497: A rank graduation measure to assess predictive accuracy**
*Presenter:* **Emanuela Raffinetti**, University of Milan, Italy

*Co-authors:* Paolo Giudici

A very key point in the application of statistical and machine learning methods in Artificial Intelligence (AI) is the evaluation of their predictive accuracy. This is because the “automatic” choice of an action crucially depends on the predictive scenario under which that action will be implemented. Machine learning and statistics have provided, over the years, a number of summary measures aimed at measuring predictive accuracy, such as the root mean squared error, and the area under the ROC curve. Note that most of them are response-specific, and none of them can be applied to all types of response. This can be a problem in a complex situation, with different types of responses and, more generally, for an Artificial Intelligence system whose evaluation criteria should be determined exogenously and not endogenously. The aim is to present a more general measure which can improve predictive accuracy assessment in highly complex situations. More precisely, the proposed measure, called Rank Graduation index, is based on the comparison between the observed and the predicted response variable ranks, as in ordinal response models, but using, rather than the ranks themselves, the actual values of the response variable corresponding to both ranks, as in continuous or 0/1 response models. In order to appreciate the RG features, an application to credit scoring is also considered.

**C0517: Evaluation of a hydro-economic forecasting system as a support tool for energy trading**
*Presenter:* **Nicola Di Marco**, Free University of Bozen/Bolzano, Italy

*Co-authors:* Francesco Ravazzolo, Maurizio Righetti

Real-time balancing of the electricity grid is increasingly challenging due to intermittent supply of energy produced by non-programmable energy sources, such as wind farms, solar, photovoltaic and run-of-the-river power plants. Operators on electricity markets have therefore to be careful in scheduling the amount of energy and the bidding price in order to optimize the energy trading as well as to minimize electricity grid unbalancing. The aim is to help trading operators involved in hydro-power energy generation combining forecasts of Northern Italian hourly electricity prices and water inflow to a run-of-the-river power plant, installed in the South-Tyrol region, East-Northern Italy. Prices are predicted with an ARMA model augmented with demand and production information such as renewable energy resources and then combined with hourly water inflow predictions (a proxy for the energy production), which reliability is mostly affected by weather forecast uncertainties. The accuracy of the hydro-economic forecasts are evaluated through a back-test carried out over the period May-October 2019, where hydro-power production data are available. Results show promising performance of the proposed system, even though the accuracy changes over the year and depending on the statistical metric employed.

**CO384 Room G4 PRICE DISCOVERY AND LIQUIDITY IN MODERN FINANCIAL MARKETS**
**Chair: Mohammad Jahan-Parvar**
**C1331: What makes HFTs tick?**
*Presenter:* **Alain Chaboud**, Federal Reserve Board, United States

*Co-authors:* Clara Vega, Avery Dao

The purpose is to study the impact that two trading rule changes in the interdealer spot foreign exchange market, a reduction in the tick size and a subsequent increase, had on the trading behavior of various types of market participants. We find that the most notable impact of the tick size reduction was a substantial increase in the liquidity demand of high-frequency traders (HFTs), not the decrease in their liquidity provision predicted by recent literature. We show that this change in behavior was linked to the richer information environment that arose after the tick size reduction and to the ability of faster traders to exploit it. Following the tick size decrease, and owing importantly to the increase in liquidity consumption by HFTs, the role of the spot market in price discovery dropped relative to that of the futures markets. This points to the need for a balanced market ecology in financial markets where fast and slow traders coexist.

**C1301: Arbitrage and liquidity: Evidence from a panel of exchange traded funds**
*Presenter:* **David Rapoport**, Federal Reserve Board, United States

*Co-authors:* Tugkan Tuzun

Market liquidity is expected to facilitate arbitrage, which in turn should affect the liquidity of the assets traded by arbitrageurs. This relationship is studied by using a unique dataset of equity and bond ETFs compiled from big trade-level data. We find that liquidity is an important determinant of the efficacy of the ETF arbitrage. For less liquid bond ETFs, Granger-causality tests and impulse responses suggest that this relationship is stronger and more persistent, and liquidity spillovers are observed from portfolio constituents to ETF shares. The results inform the design of synthetic securities, especially when derived from less liquid instruments.

**C1113: When low-frequency measures really measures transaction costs**
*Presenter:* **Mohammad Jahan-Parvar**, Federal Reserve Board of Governors, United States

*Co-authors:* Filip Zikes

Popular measures of transaction costs based on daily data with their high-frequency data-based counterparts are compared. We find that for U.S. equities and major foreign exchange rates, (i) the measures based on daily data are highly upward biased and imprecise; (ii) the bias is a function of volatility; and (iii) it is primarily volatility that drives the dynamics of these liquidity proxies both in the cross section as well as over time. We corroborate the results in carefully designed simulations and show that such distortions arise when the true transaction costs are small relative to volatility. Many financial assets exhibit this property, not only in the last two decades, but also in the previous century. We document that using low-frequency measures as liquidity proxies in standard asset pricing tests may produce sizable biases and spurious inferences about the pricing of aggregate volatility or liquidity risk.