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31st August, 2020

Dear Professor Lambrecht,

Greetings! Please find enclosed updates to the outputs of our postdoc project.

Sincerely,

Handwritten signature of Oliver Linton, consisting of the letters 'OL' followed by a stylized flourish.

Theme 4 – Apr – Aug 2020 working papers and publications

Working Papers

1) April 2 2020

Geraci, M. V., Gnabo, J-Y. and Veredas, D.

Common Short Selling and Excess Comovement

WP Number: 2034

Abstract: We show that common short sold capital can explain future six-factor excess return correlation one month ahead, controlling for many pair characteristics, including similarities in size, book-to-market, and momentum. We explore the possible mechanisms that could give rise to this relationship. We find that price pressure cannot explain the uncovered relationship. Rather, the relationship is consistent with informed trading, which we identify using additional profiling data for short sellers.

2) June 16 2020

Li, S. and Linton, O.

When will the Covid-19 pandemic peak?

WP Number: 2011

Abstract: We carry out some analysis of the daily data on the number of new cases and the number of new deaths by (191) countries as reported to the European Centre for Disease Prevention and Control (ECDC). Our benchmark model is a quadratic time trend model applied to the log of new cases for each country. We use our model to predict when the peak of the epidemic will arise in terms of new cases or new deaths in each country and the peak level. We also predict how long the number of new daily cases in each country will fall by an order of magnitude. Finally, we also forecast the total number of cases and deaths for each country. We consider two models that link the joint evolution of new cases and new deaths.

Published Papers

1) July 2020

Linton, O.

A coupled component DCS-EGARCH model for intraday and overnight volatility

Journal of Econometrics

(2020)

Abstract: We propose a semi-parametric coupled component exponential GARCH model for intraday and overnight returns that allows the two series to have different dynamical properties. We adopt a dynamic conditional score model with t-distributed innovations that captures the very heavy tails of overnight returns. We propose a several-step estimation procedure that captures the nonparametric slowly moving components by kernel estimation and the dynamic parameters by maximum likelihood. We establish the consistency, asymptotic normality, and semiparametric efficiency of our semiparametric estimation procedures. We extend the modelling to the multivariate case where we allow time varying correlation between stocks. We apply our model to the study of Dow Jones industrial average component stocks and CRSP size-based portfolios over the period 1993–2017. We

show that the ratio of overnight to intraday volatility has actually increased in importance for Dow Jones stocks during the last two decades. This ratio has also increased for large stocks in the CRSP database, but decreased for small stocks in CRSP.

2) May 2020

Vogt, M., Linton, O.

Multiscale clustering of nonparametric regression curves

Journal of Econometrics

(2020)

Abstract: In a wide range of modern applications, one observes a large number of time series rather than only a single one. It is often natural to suppose that there is some group structure in the observed time series. When each time series is modeled by a nonparametric regression equation, one may in particular assume that the observed time series can be partitioned into a small number of groups whose members share the same nonparametric regression function. We develop a bandwidth-free clustering method to estimate the unknown group structure from the data. More precisely speaking, we construct multiscale estimators of the unknown groups and their unknown number which are free of classical bandwidth or smoothing parameters. In the theoretical part of the paper, we analyze the statistical properties of our estimators. Our theoretical results are derived under general conditions which allow the data to be dependent both in time series direction and across different time series. The technical analysis of the paper is complemented by simulated and real-data examples.

3) April 2020

Li, Z. M., Laeven, R. J. A. and Vellekoop, M. H.

Dependent Microstructure Noise and Integrated Volatility: Estimation from High-Frequency Data

Journal of Econometrics

Vol. 215(2) pp. 536-558 (2020)

Abstract: In this paper, we develop econometric tools to analyze the integrated volatility (IV) of the efficient price and the dynamic properties of microstructure noise in high-frequency data under general dependent noise. We first develop consistent estimators of the variance and autocovariances of noise using a variant of realized volatility. Next, we employ these estimators to adapt the pre-averaging method and derive consistent estimators of the IV, which converge stably to a mixed Gaussian distribution at the optimal rate $n^{1/4}$. To improve the finite sample performance, we propose a multi-step approach that corrects the finite sample bias, which turns out to be crucial in applications. Our extensive simulation studies demonstrate the excellent performance of our multi-step estimators. In an empirical study, we analyze the dependence structures of microstructure noise and provide intuitive economic interpretations; we also illustrate the importance of accounting for both the serial dependence in noise and the finite sample bias when estimating IV.