Shuyi Ge

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Placement Information

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Education Background

Ph.D. in Economics, University of Cambridge   *Oct 2016 – June 2021 (Expected)*
  Research fields: Financial Econometrics, Asset Pricing, Network, Machine learning
  Supervisor: Professor Oliver Linton

Visiting Ph.D student, University of Southern California   *Jan 2020 – June 2020*
  Hosts: Professor M. Hashem Pesaran, Professor Cheng Hsiao

MPhil in Economics Research, University of Cambridge   *2015 – 2016*

BSc in Money, Banking and Finance, University of Birmingham (First Class)   *2013 – 2015*

BSc in Economics, Southwestern University of Finance and Economics   *2011-2013*

References

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Teaching Experience

Teaching Assistant, F500 Empirical Finance, Faculty of Economics (Graduate)   *2020-2021*

Supervisor, MS2 Quantitative Methods, Judge Business School (Undergraduate)   *2019 – 2020*

Teaching Assistant, R300 Advanced Econometrics, Faculty of Economics (Graduate)   *2017 – 2019*

Teaching Assistant, S301 Applied Econometrics, Faculty of Economics (Graduate)   *2017 – 2019*

Working Papers

Text-Based Linkages and Local Risk Spillovers in the Equity Market (Job Market Paper)

ABSTRACT: This paper uses extensive text data to construct firms' links via which local shocks transmit. Using the novel text-based linkages, I estimate a heterogeneous spatial-temporal model which accommodates the contemporaneous and dynamic spillover effects at the same time. I document a considerable degree of local risk spillovers in the market plus sector hierarchical factor model residuals of $S\&P$ 500 stocks. The method is found to outperform various previously studied methods in terms of out-of-sample fit. Network analysis of the spatial-temporal model identifies the major systemic risk contributors and receivers, which are of particular interest to micro-prudential policies. From a macro-prudential perspective, a rolling-window analysis reveals that the strength of local risk spillovers increases during periods of crisis, when, on the other hand,

the market factor loses its importance.

A Revisit to Sovereign Risk Contagion in Eurozone with Mutual Exciting Regime-Switching Model

ABSTRACT: This paper proposes a new mutual exciting regime-switching model where crises can spread contagiously across countries. Each country has its own hidden stochastic process that determines whether the country is in a normal or crisis regime. Contagion is defined as a rise in the transition probability to the crisis regime when other countries are in crisis in the past state. Using this new approach, I revisit the sovereign risk contagion in the euro area. I find that there are striking shifts in market pricing functions for the sovereign bond spreads. Multi-country contagion plays a dominant role in driving such shifts, while common risk factors and country-specific fundamentals are much less important.

A Dynamic Network of Arbitrage Characteristics (with Shaoran Li and Oliver Linton), *Revise and Resubmit for Journal of Business & Economic Statistics*

We propose an asset pricing factor model constructed with semi-parametric characteristics-based mispricing and factor loading functions. This model captures common movements of stock excess returns and includes a two-layer network of arbitrage returns interconnected by security-specific characteristics. We approximate the unknown functions by B-splines where the number of B-splines coefficients is diverging. We estimate this model and test the existence of the mispricing function by a power enhanced hypothesis test. The enhanced test solves the low power problem caused by diverging B-spline coefficients. Meanwhile, the strengthened power approaches to one asymptotically. And the dynamic networks are explored through Hierarchical K-Means Clusterings from detected mispricing functions. We apply our methodology to CRSP monthly data for the US stock market with one-year rolling windows during 1967-2017. This empirical study shows the presence of mispricing functions in certain time blocks and a dynamic network structure of arbitrage returns through groups of some characteristics.

WORKING IN PROGRESS

Augment Large Covariance Matrix Estimation with Auxiliary Information (with Shaoran Li and Weiguang Liu)

ABSTRACT: To estimate a large covariance matrix is a challenging job. Suppose we have identified a network G among cross-sections from auxiliary information such as network data. We propose a linear projection method to incorporate such information in the estimation of large covariance matrix to improve efficiency. The simulation shows improvement in both Frobenius Norm and Matrix 1-norm over the linear shrinkage method, sample covariance matrix, and thresholding estimator.

Spatial Threshold Model: with an Application to Euro Area Credit Risk Contagion (with Yimeng Xie)

ABSTRACT: In this paper, we study the spatial autoregressive (SAR) model with threshold in a small N and large T setting. The framework is used to model multi-country contagion, and several sources of contagion can be distinguished. We apply it to study the Euro area credit risk contagion problem. We use time-varying foreign claims as our spatial weighting matrices, and alternative threshold variables are applied. We found significant fundamental contagion and shift contagion but no pure contagion. In the crisis regime, sovereign credit risk is more 'sovereign' and less exposed to spatial spillovers, supporting the decoupling hypothesis.

Generalized EGARCH Model: Factor-EGARCH (with Shaoran Li and Weiguang Liu)

ABSTRACT: One interesting stylized facts of the financial market is although firms' idiosyncratic returns share very little common variation, their idiosyncratic volatilities tend to move together.

While the volatility clustering in time has been widely explored, the volatility clustering in cross-sections has been less touched until recently. In this paper, we propose a Generalized EGARCH model with multiplicative common volatility factor, which aims to capture volatility clustering in both time and cross-sectional dimensions.

PROFESSIONAL ACTIVITY	**Referee for** *Journal of Econometrics*×3

PRESENTATIONS

• Modelling with Big Data & Machine Learning, Bank of England	*2020*
• Department of Economics Seminar, University of Reading	*2020*
• EDGE Jamboree, University of Copenhagen	*2020*
• Econometrics workshop, University of Southern California (twice)	*2020*
• Economics Brownbag Seminar, University of Southern California	*2020*
• Cambridge-INET Econometrics Mini Conference, University of Cambridge	*2019*
• Cambridge Econometrics workshop, University of Cambridge (twice)	*2019*
• UC3M Econometrics Conference (jointly with Cambridge, LSE, and QMUL), UC3M	*2018*
• Cambridge Econometrics workshop, University of Cambridge (twice)	*2018*

AWARDS

• Cambridge Trust Scholarship	*2016 – 2019*
• Faculty of Economics Trust Fund	*2019 – 2020*

PROGRAMMING TOOLS

• Matlab, Python, R, STATA

LANGUAGES

• Language: Mandarin(native). English (fluent)