

# Hang Sun

**PhD Candidate**

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## Research Interests

Commodity Pricing, Time Series Modeling, Financial Stability

## Education

Ph.D., Finance, Maastricht University, 2017 (Expected)

M.A., International Economics, Wuhan University, 2013

B.S., Statistics, Wuhan University, 2011

B.A., Accounting, Wuhan University, 2011

## Working Papers

**“Crisis-Contingent Dynamics of Connectedness: An SVAR-Spatial-Network ‘Tripod’ Model with Thresholds” (Job Market Paper)**

In recent years a growing number of methodologies have been proposed to empirically measure the connectedness among financial entities. However, few of them attempt to profile the *dynamics* of the financial connectedness. This paper aims to fill this gap and proposes a novel and systematic model to portray not only the connectedness in a given regime but also its *transitions* across different regimes. The model is based on an improved version of a “tripod” model, which unifies structural vector auto-regressions (SVARs), spatial models, and

network models under one framework. I introduce a transition mechanism into my model, thus making it possible to observe how the interconnections among financial entities vary with certain threshold variables. My model may be applied to various issues regarding the financial and non-financial interconnections among certain entities. As an illustration, I show how my model can shed some new light on the modeling of the recent Eurozone contagions. I reveal a clear causal map of the propagation of shocks among the stock markets in five selected Eurozone countries in both the contagion and non-contagion periods, which are determined automatically by a CDS index. I confirm the existence of contagion among the stock markets in these countries in recent years, and reject the hypothesis that the contagion is solely conducted by the cross-border interbank channel. And the unique roles played by each selected market under both the contagion and non-contagion regimes are efficiently summarized by network analyses.

### **“Peeping into among Clock Ticks: A Heteroskedastic SVAR Model and Its Application to the Crude Oil Futures Market”, with Jaap Bos and Zhuo Li**

Many economic analyses revolve around the impact of shocks. However, economists are not always able to observe the variables causing and reacting to these shocks at a sufficiently high frequency. As a result, if the response of one variable to a shock to another takes place before the next observation is made, this response will be typically imperceptible. This paper introduces a novel way to reveal the prompt impact of these shocks without recourse to higher-frequency data. Our method can be especially useful for - but is in no way limited to - the study of financial markets, where information usually diffuses very quickly. With this approach, we shed light on the hotly debated relationship between commodity prices and commodity index trader flows. We identify a structural vector-autoregression (SVAR) model by assuming Markov-switching heteroskedasticity in the data generating process. With proper selection of a supporting ‘labeler’, we can then capture the *mutual instantaneous* impulse-response relationship between trading patterns and excess returns in the highly developed crude oil futures market, even though we observe both at a weekly frequency. We find evidence that the inflow of index traders has contributed significantly to the increase in crude oil futures excess returns.

### **“Ferretting out the Naïve One: Positive Feedback Trading and Commodity Equilibrium Prices”, with Jaap Bos and Paulo Rodrigues**

We study the behaviors of different classes of traders in commodity markets and their impacts on commodity prices. We find that positive feedback traders, whose existence can be reflected in the CFTC non-reportable long to total open interests, were linked to the price trends in commodity markets in recent years. And the commodity index traders also played an indispensable role in the determination of commodity prices, though in the different way from the ‘speculator--destabilizer’ narrative, as we document that those index traders were likely to trade in a negative feedback way.

## Work in Progress

**“When is Banks’ Competition Good for Their Stability?”**, with Martien Lamers and Irina M. Stanga

## Seminar and Conference Presentations

14th Congress of the European Association of Agricultural Economists, Ljubljana, 2014

Third International Conference on Futures and Derivative Markets, Shanghai, 2014

ECCE Webinar, Maastricht, 2014

International PhD Colloquium on Finance and Economics, Aachen, 2016

Chinese Finance Annual Meeting, Dalian, 2016

## Teaching Experience

Maastricht University, School of Business and Economics, 2013-present:

Tutor: Corporate Finance, Macroeconomics and Finance (Bachelor)

Supervision: Master thesis

## References

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## Others

Language: Mandarin (Native), English (Fluent), Japanese (Intermediate), Dutch (Beginner)

IT: R (Expert), MATLAB (Proficient), C (Proficient), etc.