HAO MA

Via Buffi 13 ⋄ Lugano, Switzerland

(+41)586664492 ⋄ hao.ma@usi.ch

EDUCATION

University of Lugano & Swiss Finance Institute — 09/2016 - Present
Ph.D. in Finance — *Lugano, Switzerland*

Duisenberg School of Finance — *09/2014 - 08/2015*
MSc Finance — Amsterdam, the Netherlands

Shandong University — *09/2010 - 07/2014*
Bachelor of Economics and Finance — Jinan, China

RESEARCH INTERESTS

Financial Econometrics, Empirical Asset Pricing, Machine Learning, Chinese Financial Market

WORKING PAPERS

Conditional Latent Factor Model Via Structured Neural Networks
(Presented at CFE-CMStatistics 2021, SFI Research Days 2021)
<u>Abstract</u>

I introduce a strategy that can generate fully-interpretable deep learning models by building econometrics into its neural structures. I argue that the strategy is extendable for many economic topics and can generally earn bet- ter performance with much lower computational cost. Under this framework, a challenging problem is studied that is to extract time-varying betas from conditional latent factor models. I firstly construct my econometric founda- tion by proving the time-varying betas and the latent factors are identifiable under very mild assumptions. Next, I design my deep learning model that guarantees a one-to-one mapping between the econometric conditions and its neural structures. Compared with the autoencoder asset pricing model, my model reduces the number of parameters to be estimated by at least n/K[1] times. The empirical analysis on the US stock market also records great predictive powers with out-of-sample R2 of 1.6% for monthly returns of an unbalanced panel of over 8000 firms, outperforming all the direct applications of machine learning methods and the autoencoder asset pricing model.

Extracting Statistical Factors When Betas Are Time-Varying
with *Patrick Gagliardini*, available at SSRN
(Presented at EFA 2020, MFA 2020, CFE-CMStatistics 2019, EEA & ESAM 2019, SoFiE 2019)
<u>Abstract</u>

This paper deals with identification and inference on the unobservable conditional factor space and its dimension in large unbalanced panels of asset returns. The model specification is nonparametric regarding the way the loadings vary in time as functions of common shocks and individual characteristics. The number of active factors can also be time-varying as an effect of the changing macroeconomic environment. The method deploys Instrumental Variables (IV) which have full-rank covariation with the factor betas in the cross-section. It allows for a large dimension of the vector generating the conditioning information by machine learning techniques. In an empirical application, we infer the conditional factor space in the panel of monthly returns of individual stocks in the CRSP dataset between January 1971 and December 2017.

---

[1] For the US stock market, n ≈ 30,000 is the number of firms, and K ≈ 100 is the number of firm characteristics

The AH Premium Puzzle
with *Mirela Sandulescu*
(Presented at SFI Research Days 2020)
<u>Abstract</u>

We provide a systematic study of the price discrepancies between the shares in mainland China (A-shares) and Hong Kong (H-shares) stock markets for dual-listed companies. Since these companies have the same fundamentals and dividend policy, their price should be identical, irrespective of the trade location. We document two anomalies that are at odds with existing financial theories. First, the price in mainland China has been persistently higher than the corresponding one in the Hong Kong market, violating the foreign investor premium. Second, following a Chinese regulation that allowed the two classes of investors to trade across the two exchanges, which should have led to a convergence in the trading prices, we establish the opposite effect: there is a surge in the price discrepancy that consistently remained at high levels. However, we find no evidence of AH premium in terms of returns. Finally, we argue that limits to arbitrage prevent the convergence of the prices on the two exchanges, mainly due to the non-convertibility of the two shares.

HONORS, AWARDS AND GRANTS

Society for Financial Econometrics Travel Grant, 2019
Graduate Scholarship of the Swiss Finance Institute at Università della Svizzera italiana, 2016
2nd place in the Credit Suisse HOLT Competition, 2016
Orange Tulip Scholarship, Netherlands Education Support Offices, 2014
Merit-based University Scholarship, Duisenberg School of Finance, 2014
Excellent Undergraduate Scholarship, Shandong University, 2013

PROFESSIONAL SERVICE

Referee Journal of Financial Econometrics

TEACHING EXPERIENCE

Financial Econometrics   09/2017 - 08/2020
Master in Finance

· Overall TA Satisfaction: 8.13/10.00 (Faculty Mean: 7.90/10.00)

WORK EXPERIENCE

Avanade Netherlands B.v.   04/2015 - 06/2015
Intern, Case Study Challenge   *Almere, the Netherlands*

· Carried out research on *Internet of Things* by conducting interviews with experts from Avanade and Accenture in areas of Big Data, Cloud Computing, Application Development etc.

ERGO China Life Insurance Co., Ltd.   07/2014 - 08/2014
Intern, Department of Asset Management   *Jinan, China*

· Conducted research on money market funds, bond funds and equity funds and assisted the CIO in building up a portfolio of CNY 500 million

PROGRAMMING & SOFTWARE

Python, MATLAB, R, Stata, SAS, LaTeX

LANGUAGES

English (Fluent), Chinese (Native)