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# Cong Zhang

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## Education

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### The University of Chicago Booth School of Business

Ph.D. Candidate in Business Administration (Finance and Econometrics)

June 2025 (Expected)

### The University of Chicago Booth School of Business

Master of Business Administration

Aug 2021

### The University of Chicago Law School

Master of Legal Studies

June 2021

### The University of Michigan

Bachelor of Science in Economics, Statistics and Mathematics (Triple Major)

April 2015

## Research Interests

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**Asset Pricing:** Empirical asset pricing; Asset pricing theory

**Applied Econometrics:** Time series econometrics; Machine learning

**Financial Regulation:** Banking regulation; Insurance regulation; Securities regulation; Corporate and entrepreneurial finance

## Working Papers

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### Regulatory Uncertainty Pricing in Digital Economy

*Job Market Paper*

**Abstract:** In this paper, we quantitatively assess the economic implications of two potential regulatory shifts within the digital economy—data privacy laws and command-and-control regulations. We develop a production-based equilibrium model that incorporates the characteristics of digital capital along with data emission externalities. This model is disciplined by empirical evidence demonstrating that risk prices, driven by the increasing market concentration of digital capital, have turned negative since 2004. Our theoretical framework elucidates how the model-implied risk prices, induced by these regulatory changes, correspond with the observed market patterns. Utilizing this model, we conduct a counterfactual analysis to scrutinize the broader economic impacts, thereby illuminating the complex interplay between market concentration and regulatory interventions in shaping economic outcomes.

### Optimizing Return Forecasts: A Bayesian Intermediary Asset Pricing Approach

*with Ming Gao*

### Winner of the Arnold Zellner Doctoral Prize

*Under Review*

#### Abstract:

This study presents a novel Bayesian approach incorporating financial frictions into a panel structural break model, utilizing economically informed priors from intermediary asset pricing theories. Our data-driven prior selection method, adept at handling unbalanced panels, enhances the identification of regime shifts and the selection of return predictors, thereby improving equity return forecasts. Validated through simulations and empirical analysis, our approach boosts out-of-sample cumulative returns and

Sharpe ratios. Leveraging asset holdings data and intermediary-induced priors, the framework facilitates precise real-time regime change detection and provides Bayesian insights into the inconsistencies of risk prices associated with intermediary risks.

### **The Effects of Economic Uncertainty on Financial Volatility: A Comprehensive Investigation**

*with Zhuo Huang, Tianyi Wang, Chen Tong*

*Journal of Empirical Finance, Volume 73, September 2023, Pages 369-389*

#### **Abstract:**

We provide new empirical evidence of how financial volatility responds to an increase in economic uncertainty. Consistent with the implications derived from a theoretical equilibrium model in which investors are uncertain about the true state of the economy, our estimates for the contemporaneous effects of uncertainty on volatility are significantly positive, and their magnitudes critically depend on the economic situation and degree of investors' risk aversion. Specifically, stock return volatility tends to overreact to increased uncertainty during good times when investors are more risk-averse. All these relations remain robust to different uncertainty measures. We further build a simple reduced-form predictive model augmented with uncertainty measure, and find the uncertainty displays additional predictive power for future volatility. Moreover, this improvement is concentrated around bad times with high risk aversion, most of which are located in the NBER-dated recession periods.

### **Synchronized Shifts: Decoding the Co-movement of Stock and Bitcoin Returns**

#### **Abstract:**

This study introduces an innovative asset-pricing model designed to analyze the co-movement between stock and bitcoin returns within a dual-agent equilibrium framework. By weaving habit formation and fluctuating risk aversion into the fabric of this model, we enable an exploration of dynamic risk-sharing strategies between equity and cryptocurrency markets. Such an approach underscores the model's capacity to elucidate the empirical phenomena characterizing cryptocurrency markets, with a particular focus on the time-varying correlation with stock returns. Additionally, our model innovatively connects both the spot and futures prices of cryptocurrencies to these dynamic risk-sharing mechanisms, guided by crucial state variables that influence consumption patterns. Furthermore, the model delves into the covariance of returns and their association with both external and internal habit formation preferences, thereby offering new insights into the complexities of interactions within and between traditional and digital asset markets.

### **Impact of AI Adoption on Economic Dynamics through Habit Formation**

*Under Review*

#### **Abstract:**

This study enhances the Lucas tree model by incorporating habit formation, exploring the strategic decision-making behind artificial intelligence (AI) adoption and its impact on asset pricing. The study points out that AI adoption decisions are significantly influenced by the indirect visibility of productivity gains and agents' habitual consumption patterns, increasing alongside the surplus consumption ratio until reaching a specific point where adoption begins to decline. Our study highlights the pivotal role of habit formation in shaping AI adoption decisions and its profound effects on economic and market dynamics. Specifically, the initiation of AI adoption is marked by a surge in return volatility, which later decreases, leading to a price-dividend ratio bubble and eventual market downturn. Furthermore, the research identifies a critical relationship between the uncertainties tied to AI adoption and increases in risk premiums and interest rates, illustrating the intricate interplay among AI adoption, technological advancement, and the dynamics of financial markets through the perspective of habit formation.

## Online Advertising Strategy for Long-Term Good via IV-Q-learning with Noisy Instruments

with Yueyang Zhong

### Abstract:

This paper studies how an online advertising system should load ads to maximize the expected revenue in the long run, when the observed feedback is biased. To do this, we combine robust causal inference with reinforcement learning, and use a model-free and off-policy method, ModeIV-Q-learning algorithm, coupled with state aggregation and linear function approximation, to develop a proposed ad load strategy that can be implemented using a simple lookup table. This approach captures the causal effect of ad load on the long-term revenue, which is robust to violations of the validity assumptions of instrumental variables. We test our proposed ad load strategy in the auction simulator of the online advertising firm with whom we are collaborating. It turns out that our strategy outperforms the status quo by improving the total revenue by 35% over a five-day period.

## Teaching Experience

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<b>Executive MBA Business Statistics (by Prof. Jefferey Russell)</b> <i>Teaching assistant; Evaluation: 4.7/5</i>	<b>Chicago Booth</b> <i>Jan 2022- May 2022</i>
<b>Executive MBA Investment (by Prof. John Heaton)</b> <i>Teaching assistant; Evaluation: 4.5/5</i>	<b>Chicago Booth</b> <i>Aug 2019- Sep 2019</i>
<b>MBA Business Statistics (by Prof. Bryon Aragam)</b> <i>Teaching assistant</i>	<b>Chicago Booth</b> <i>Jan 2022- March 2022</i>
<b>MBA Competitive Strategy (by Prof. Yoad Shefi)</b> <i>Teaching assistant</i>	<b>Chicago Booth</b> <i>March 2019- June 2019</i>
<b>PhD Time-series Analysis (by Prof. Jefferey Russell)</b> <i>Teaching assistant</i>	<b>Chicago Booth</b> <i>2018-2021</i>

## Employment

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<b>University of Chicago, Booth School of Business</b> <i>Research assistant for Prof. Marianne Bertrand</i>	<i>June 2016 – Aug 2016</i>
<b>Columbia Business School</b> <i>Research assistant for Prof. Marco Di Maggio</i>	<i>June 2014 – Aug 2014</i>
<b>China International Capital Corporation</b> <i>Financial analyst</i>	<i>June 2013 – Aug 2013</i>

## Fellowships, Awards & Grants

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Winner of the Arnold Zellner Doctoral Prize, Chicago Booth  
MLS Full Tuition Waiver and Stipend (Inaugural Recipient), University of Chicago Law School  
Stevens Doctoral Program Research Funding Support, Chicago Booth  
Doctoral Program Research Funding Support, Chicago Booth  
The Eugene Fama Endowed Ph.D. Fellowship, Chicago Booth  
The Beryl W. Sprinkel Ph.D. Stipend, Chicago Booth  
Financial Economics of Insurance Workshop Grant, Bendheim Center for Finance at Princeton  
Chicago Booth Ph.D. Fellowship, Chicago Booth  
Phi Beta Kappa, University of Michigan  
James B. Angell Scholar, University of Michigan  
High Honors and High Distinction, University of Michigan

## Others

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**Language:** English (fluent), Mandarin (native)

**Programming:** R, Python, Stata, Matlab, C++

## References

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**George M Constantinides (Co-chair)**

Leo Melamed Professor of Finance

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**Jeffrey R Russell (Co-chair)**

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**Lars Peter Hansen**

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**Chad Syverson**

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