

# Guofu Zhou

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## Education

<i>Ph.D.</i> , Economics	Duke University, 1990 (Econ PhD program, 08/1986–05/1990) ( <i>PhD Advisor: John F. Geweke; Finance Mentor: Campbell R. Harvey</i> )
<i>M.A.</i> , Mathematics	Duke University, 1987 (Math PhD program, 08/1985–05/1986)
<i>M.S.</i> , Numerical Analysis	Academia Sinica, China, 1985 (Math MS program, 1982–1985)
<i>B.S.</i> , Mathematics	Chengdu University of Technology, China, 1982

## Experience

*Frederick Bierman* and *James E. Spears* Professor of Finance  
Olin Business School, Washington University in St. Louis, 1/1/2010–present  
Past Positions: Professor of Finance, 7/07–12/09; Associate Professor, 07/96–06/07;  
Assistant Professor, 07/91–06/96; Fossett Fellow, 07/90–06/91; all at Washington University in St. Louis.

Consultant                      Various firms during various time periods

Visiting Scholar                Federal Reserve Bank of Atlanta, of St. Louis,  
and of Minneapolis (respectively; on certain days in the past)

Courses Taught:                Options & Futures, Derivatives, Real Options (MBA and MSFin);  
Advanced Topics in Finance (EMBA); Corporate Finance (BA);  
Data Analysis for Investments (MBA and MSFin)  
(*implementing quantitative equity strategies using Matlab*)  
Mathematical Finance (MSFin) (*pricing various derivatives*)  
Financial Economics (PhD empirical, discrete-&cont.-time theory)

Research Interests:            Investment management, big data, machine learning, asset allocation, anomalies,  
Empirical asset pricing, technical analysis, behavioral finance, Bayesian inference.

## Awards

Reid Teaching Award (MBA)	Washington University, 1997
Marcile and James Reid Chair (for consistently outstanding teaching)	Washington University, 1998 (one-time award to junior faculty)
Special Recognition for Excellence (in mentoring graduate students)	Washington University, 2003, 2013
Reid Teaching Award (MSF-Quant)	Washington University, 2010, 2014, 2018
Reid Teaching Award (MSF-WealthAssetMgt)	Washington University, 2019, 2020
Reid Teaching Award (MSF-Corporate)	Washington University, 2020

Best Paper Award	The Chinese Finance Association, 2010
Emerald Best Paper Award	China Finance Review Int'l Conference, 2014
KFA-Mirae Best Paper Award	Asian Finance Assoc. Annual Meetings, 2015
GTA Best Paper Award	China Finance Review Int'l Conference, 2015, 2016
ASX Best Paper Award	Australasian Finance and Banking Conf., 2015
CFA Best Paper Award	FMA Asia/Pacific Conf., 2017
Inquire Best Paper Award	Inquire UK and Inquire Europe, 2019
Best Paper Award	World Finance Conference, 2019
Pacific-Basin Fin J. BP Award	CIRF-CFRI Conference, 2020

## Impact Measures

- Google citations: 9,996 (<https://scholar.google.com>)
- SSRN downloads: 97,126 (ranked 106<sup>th</sup> among over 503,000 academics in Social Science Research Network)

## Major Academic Contributions

- Machine Learning/Big Data/Bitcoin/Textual Analysis
  - provide perhaps the first LASSO application in finance back in 2013 (prior to the recent rise in 2020) to select predictors from a large set (“big-data”) of candidates for forecasting stock markets globally. [Rapach, Strauss and Zhou (2013)]
  - construct the first manager sentiment index via textual analysis, which drives both firm investments and market returns. [Jiang, Lee, Martin and Zhou (2019)]
  - propose the first equilibrium model validating technical analysis endogenously via rational learning and apply it to Bitcoin. [Detzel, Liu, Strauss, Zhou and Zhu (2021)]
  - propose C-LASSO. [Han, He, Rapach and Zhou (2020), Rapach and Zhou (2020)]
  - propose a scaled PCA. [Huang, Jiang, Li, Tong, and Zhou (2020)]
- Testing Asset Pricing Models/Cross Section of Stock Returns
  - provide the first exact test for zero-beta CAPM; Bayesian tests for the CAPM and the APT. [Zhou (1991), Harvey and Zhou (1990), Geweke and Zhou (1994)]
  - robust, bootstrap and GMM tests. [Harvey and Zhou (1993), Chou and Zhou (2006), Zhou (1993), Hong, Tu and Zhou (2007)]
  - first econometric comparison bw beta pricing and SDF. [Kan and Zhou (1999)]
  - tests in FM two-pass Regressions. [Shanken and Zhou (2007), Bai and Zhou (2015)]
- Predictability
  - provide the first empirical evidence that: the US market risk premium is consistently predictable out-of-sample, and the predictability varies from recessions to expansions. [Rapach and Strauss and Zhou (2010)]

- identify various variables that have predictive power on the market. [Neely, Rapach, Tu and Zhou (2014), Gao, Han, Li and Zhou (2018), Jiang, Lee, Martin and Zhou (2019), Chen, Tang, Yao and Zhou (2020)]
  - theoretical bounds on predictability. [Zhou (1999), Huang and Zhou (2017)]
  - impact of permanent/temporary or long-run/short-run risk decomposition. [Lamoureux and Zhou (1996) and Zhou and Zhu (2015)]
  - t-/corp-bond predictability. [Lin, Wu and Zhou (2017), Zhao, Zhou and Zhu (2021)]
- Technical Analysis/Momentum/Anomalies
    - provide the first theoretical model to show that the widely used moving averages, a tool of technical analysis, can add value to asset allocation under uncertainty about predictability or about model. [Zhu and Zhou (2010)]
    - provide the first technical analysis based trend factor that outperforms leading factors in terms of Sharpe ratio. [Han, Zhou and Zhu (2016)]
    - discover an intraday momentum pattern: the first half-hour return on the market predicts the last half-hour return. [Gao, Han, Li and Zhou (2018)]
    - find that technical analysis, when applied to portfolios sorted by, say, volatility, can yield abnormal returns over 20% annually. [Han and Yang and Zhou (2013)]
    - provide a trading strategy to improve anomalies. [Han, Huang and Zhou (2021)]
- Portfolio Choice under Estimation Risk
    - derive the first explicit expression for expected utility loss under maximum likelihood estimates, and provide a portfolio that hedges estimation risk. [Kan and Zhou (2007)]
    - combine optimized and naive rules. [Tu and Zhou (2011)]
    - provide a Bayesian economic prior solution. [Tu and Zhou (2004, 2010)]
    - extend the fundamental law of active portfolio management [Zhou (2008)]
- Behavior Finance/Household Finance
    - provide a new investor sentiment index. [Huang, Jiang, Tu and Zhou (2015)]
    - the first manager sentiment index. [Jiang, Lee, Martin and Zhou (2019)]
    - an investor attention index. [Chen, Tang, Yao and Zhou (2020)]
    - role of insurance in household investment decisions. [Gormley, Liu and Zhou (2010)]
- Chinese Financial Markets and Monetary Policies
    - Chinese stock market predictability and momentum. [Jiang, Rapach, Strauss, Tu and Zhou (2011), Han, Wang, Zhou and Zou (2014), Jiang, Tang and Zhou (2018)]
    - Chinese bond market. [Fan, Jiang and Zhou (2014), Fan, Li and Zhou (2013)]
    - Chinese monetary policies. [Liu, Tu, Zou and Zhou (2018)]
    - Chinese derivatives market. [Wang, Zhou and Zhu (2021)]

## Publications (academic journals)

- “Bayesian Inference in Asset Pricing Tests,” **Journal of Financial Economics** 26, 1990, 221–254 (with Campbell Harvey).
  - Reprinted in *Financial Econometrics* edited by Andrew Lo, 2006.
- “Small Sample Tests of Portfolio Efficiency,” **Journal of Financial Economics** 30, 1991, 165–191.
- “Algorithms for the Estimation of Possibly Nonstationary Vector Time Series,” **Journal of Time Series Analysis** 13, 1991, 171–188.
- “Asset Pricing Tests Under Alternative Distributions,” **Journal of Finance** 48, 1993, 1927–1942.
- “International Asset Pricing with Alternative Distributional Specifications,” **Journal of Empirical Finance** 1, 1993, 107–131 (with Campbell Harvey).
- “Analytical GMM Tests: Asset Pricing with Time-varying Risk Premiums,” **Review of Financial Studies** 7, 1994, 687–709.
- “Small Sample Rank Tests with Applications to Asset Pricing,” **Journal of Empirical Finance** 2, 1995, 71–93.
- “Time to Build Effects and the Term Structure,” **Journal of Financial Research** 18, 1995, 115–127 (with Jack Strauss).
  - Synthesized by *The CFA Digest*, 1995, Vol. 25, No. 3.
- “Measuring the Pricing Error of the Arbitrage Pricing Theory,” **Review of Financial Studies** 9, 1996, 553–583 (with John Geweke).
- “Temporary Components of Stock Returns: What Do the Data Tell Us?” **Review of Financial Studies** 9, 1996, 1033–1059 (lead article; with Christopher Lamoureux).
- “A Critique of the Stochastic Discount Factor Methodology,” **Journal of Finance** 54, 1999, 1021–1048 (lead article; with Raymond Kan).
  - Reprinted in *Asset Pricing Theory and Tests* edited by Roll and Grauer, 2003.
- “Testing Multi-beta Pricing Models,” **Journal of Empirical Finance** 6, 1999, 219–241 (with Raja Velu).
- “Security Factors as Linear Combinations of Economic Variables,” **Journal of Financial Markets** 2, 1999, 403–432.
- “Investment Horizon and the Cross Section of Expected Returns: Evidence from the Tokyo Stock Exchange,” **Annals of Economics and Finance** 1, 2000, 79–100 (with Pin-Huang Chou and Yuan-Lin Hsu).
- “On Rate of Convergence of Discrete-time Contingent Claims,” **Mathematical Finance** 10, 2000, 53–75 (with Steve Heston).
- “What Determines Expected International Asset Returns,” **Annals of Economics and Finance** 3, 2002, 83–127 (with Campbell Harvey and Bruno Solnik; also NBER Working Paper 4660).

- “Data-generating Process Uncertainty: What Difference Does It Make in Portfolio Decisions?” **Journal of Financial Economics** 72, 2004, 385–421 (with Jun Tu).
- “A New Variance Bound On the Stochastic Discount Factor,” **Journal of Business** 79, 2006, 941–961 (with Raymond Kan).
- “Portfolio Optimization Under Asset Pricing Anomalies,” **Japan & The World Economy** 18, 2006, 121–142 (lead article; with Pin-Huang Chou and Wen-Shen Li).
- “Using Bootstrap to Test Portfolio Efficiency,” **Annals of Economics and Finance** 7, 2006, 217–249 (lead article; with Pin-Huang Chou).
- “Estimating and Testing Beta Pricing Models: Alternative Methods and Their Performance in Simulations,” **Journal of Financial Economics** 84, 2007, 40–86 (with Jay Shanken; also NBER Working Paper 12055).
- “Optimal Portfolio Choice with Parameter Uncertainty,” **Journal of Financial and Quantitative Analysis** 42, 2007, 621–656 (with Raymond Kan).
- “Asymmetries in Stock Returns: Statistical Tests and Economic Evaluation,” **Review of Financial Studies** 20, 2007, 1547–1581 (with Yongmiao Hong and Jun Tu).
  - Synthesized by *The CFA Digest*, 2008, Vol. 38, No. 2.
- “Technical Analysis: An Asset Allocation Perspective on the Use of Moving Averages” **Journal of Financial Economics** 92, 2009, 519–544 (with Yingzi Zhu).
- “Out-of-Sample Equity Premium Prediction: Combination Forecasts and Links to the Real Economy,” **Review of Financial Studies** 23, 2010, 821–862 (with David Rapach and Jack Strauss).
  - #1 on the Mostread List of *Review of Financial Studies* (June 22, 2017).
- “Limited Participation, Consumption, and Saving Puzzles: A Simple Explanation and the Role of Insurance,” **Journal of Financial Economics** 96, 2010, 331–344 (with Todd Gormley and Hong Liu)
- “How Much Stock Return Predictability Can We Expect From an Asset Pricing Model?” **Economics Letters** 108, 2010, 184–186.
- “Incorporating Economic Objectives into Bayesian Priors: Portfolio Choice under Parameter Uncertainty,” **Journal of Financial and Quantitative Analysis** 45, 2010, 959–986 (with Jun Tu).
- “Markowitz Meets Talmud: A Combination of Sophisticated and Naive Diversification Strategies,” **Journal of Financial Economics** 99, 2011, 204–215 (with Jun Tu).
- “Volatility Trading: What Is the Role of the Long-Run Volatility Component?” **Journal of Financial and Quantitative Analysis** 47, 2012, 273–307 (with Yingzi Zhu).
- “Tests of Mean-variance Spanning” **Annals of Economics and Finance** 13, 2012, 145–193 (with Raymond Kan).
- “International Stock Return Predictability: What is the Role of the United States?” **Journal of Finance** 68, 2013, 1633–1662 (with David Rapach and Jack Strauss).
  - Synthesized by *The CFA Digest*, 2013, Vol. 43, No. 4.

- “A New Anomaly: The Cross-Sectional Profitability of Technical Analysis” **Journal of Financial and Quantitative Analysis** 48, 2013, 1433–1461 (with Yufeng Han and Ke Yang).
  - Synthesized by *The CFA Digest*, 2014, Vol. 44, No. 8.
  - SSRN downloads: 9697 ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1656460](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1656460))
- “Forecasting the Equity Risk Premium: The Role of Technical Indicators” **Management Science** 60, 2014, 1772–1791 (with Christopher Neely, David Rapach and Jun Tu).
- “Macroeconomic Volatilities and the Long-run Risks of Asset Prices” **Management Science** 61, 2015, 413–430 (with Yingzi Zhu).
- “Investor Sentiment Aligned: A Powerful Predictor of Stock Returns” **Review of Financial Studies** 28, 2015, 791–837 (with Dashan Huang, Fuwei Jiang and Jun Tu).
  - Top 4 on the Mostread List of *Review of Financial Studies* (Aug., 2017)
  - Synthesized by *The CFA Digest*, 2015, Vol. 45, No. 7.
- “Fama-MacBeth Two-pass Regression: Improving the Risk Premia Estimates” **Finance Research Letters** 15, 2015, 31–40 (with Jushan Bai).
- “Short Interest and Aggregate Stock Returns” **Journal of Financial Economics** 121, 2016, 46–65 (with David Rapach and Matthew Ringgenberg).
  - Synthesized by *The CFA Digest*, 2016, Vol. 46, No. 12.
- “A Trend Factor: Any Economic Gains from Using Information over Investment Horizons?” **Journal of Financial Economics** 122, 2016, 352–375 (with Yufeng Han and Yingzi Zhu).
  - SSRN downloads: 7277 ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2182667](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2182667))
- “Modeling Non-normality Using Multivariate t: Implications for Asset Pricing” **China Finance Review International** 7, 2017, 2–32 (with Raymond Kan).
- “Upper Bounds on Return Predictability” **Journal of Financial and Quantitative Analysis** 52, 2017, 401–425 (lead article; with Dashan Huang).
- “Market Intraday Momentum” **Journal of Financial Economics** 129, 2018, 394–414 (with Lei Gao, Yufeng Han and Sophia Zhengzi Li).
  - SSRN downloads: 7302 ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2182667](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2182667))
- “Asymmetry in Stock Comovements: An Entropy Approach” **Journal of Financial and Quantitative Analysis** 53, 2018, 1479–1507 (with Lei Jiang and Ke Wu).
- “Forecasting Corporate Bond Returns: An Iterated Combination Approach” **Management Science** 64, 2018, 4218–4318 (with Hai Lin and Chunchi Wu).
- “Firm Characteristics and Chinese Stocks” **Journal of Management Science and Engineering** 3, 2018, 259–283 (with Fuwei Jiang and Guohao Tang).
- “Manager Sentiment and Stock Returns” **Journal of Financial Economics** 132, 2019, 126–149 (with Fuwei Jiang, Joshua Lee and Xiumin Martin).

- “Stock Return Asymmetry: Beyond Skewness” **Journal of Financial and Quantitative Analysis** 55, 2020, 357–386 ([lead article](#)); with Lei Jiang, Ke Wu and Yifeng Zhu).
- “Time-Series Momentum: Is It There?” **Journal of Financial Economics** 135, 2020, 774–794. (with Dashan Huang, Jiangyuan Li, and Liyao Wang).
- “The Chinese warrant bubble: A fundamental analysis” **Journal of Futures Markets** 41, 2021, 3–26 ([lead article](#); with Yintian Wang and Yingzi Zhu).
- “Bitcoin: Predictability and Profitability via Technical Analysis” **Financial Management** (with Andrew Detzel, Hong Liu, Jack Strauss and Yingzi Zhu, forthcoming).
- “Anomalies Enhanced: A Portfolio Rebalancing Approach” **Financial Management** (with Yufeng Han and Dayong Huang, forthcoming).
- “Investor Attention and Stock Returns” **Journal of Financial and Quantitative Analysis** (with Jian Chen, Guohao Tang and Jiaquan Yao, forthcoming)
- “Unspanned Global Macro Risks in Bond Returns” **Management Science** (with Feng Zhao and Xiaoneng Zhu, forthcoming)

#### Publications (academic journals in Chinese)

- “How Predictable Is the Chinese Stock Market?” **金融研究** (Journal of Financial Research; the top finance journal in China) 9, 2011, 107–121 (with Jiang Fuwei, David Rapach, Jack Strauss and Tu Jun).
- “Are There Trends in Chinese Stock Market?” **金融研究** (Journal of Financial Research; the top finance journal in China) 12, 2014, 152–163 (with Yufeng Han, Xiongjian Wang and Heng-fu Zou).
- “Multiple Monetary Policy Tools in China: Applicability and Reliability of the DSGE Model and the Taylor rule” **金融评论** (Chinese Review of Financial Studies) 5, 2018, 1–21 (with Hongkui Li and Wei Tu).

#### Publications (practitioner/industry journals)

14. “Volatility-Managed Portfolio: Does It Really Work?” **Journal of Portfolio Management** 2019, 46 (1), 2019, 38–51 (with Fang Liu and Xiaoxiao Tang)
13. “Industry Return Predictability: A Machine Learning Approach” **Journal of Financial Data Science** 1 (3), 2019, 9–28 ([lead article](#); with David Rapach, Jack Strauss and Jun Tu).
12. “The Chinese Bond Market: Risk, Return and Opportunities” **Journal of Portfolio Management** *Special China Issue*, 2015, 110–126 (with Longzhen Fan and Fuwei Jiang).
11. “Strategy Diversification: Combining Momentum and Carry Strategies within a Foreign Exchange Portfolio” **Journal of Derivatives and Hedge Funds** 19, 2014, 311–320 (with Francis Olszewski).
10. “The Supply Factor in the Bond Market: Implications for Bond Risk and Return” **Journal of Fixed Income** 23, 2013, 62–81 (with Longzhen Fan and Canlin Li).

9. “Asset Allocation: Can Technical Analysis Add Value?” **International Journal of Portfolio Analysis and Management** 1, 2012, 83–176 (with Sheng Qiang and Yingzi Zhu).
8. “Predicting Market Components Out of Sample: Asset Allocation Implications” **Journal of Portfolio Management** 37 (4), 2011, 29–41 (with Aiguo Kong, David Rapach and Jack Strauss).
7. “What Will the Likely Range of My Wealth Be?: Author Response” **Financial Analysts Journal** 66 (3), 2010, 12 (with Raymond Kan).
6. “Is the Recent Financial Crisis Really a ‘Once-in-a-century’ Event?” **Financial Analysts Journal** 66 (1), 2010, 24–27 (with Yingzi Zhu).
5. “Beyond Black-Litterman: Letting the Data Speak” **Journal of Portfolio Management** 36 (1), 2009, 36–45.
  - Synthesized by *The CFA Digest*, 2009, Vol. 39, No. 4.
4. “What Will the Likely Range of My Wealth Be?” **Financial Analysts Journal** 65 (4), 2009, 68–77 (with Raymond Kan).
3. “On the Fundamental Law of Active Portfolio Management: How to Make Conditional Investments Unconditionally Optimal?” **Journal of Portfolio Management** 35 (1), 2008, 12–21 ([lead article](#)).
2. “On the Fundamental Law of Active Portfolio Management: What Happens if Our Estimates Are Wrong?” **Journal of Portfolio Management** 34 (4), 2008, 26–33.
1. “Going to Extremes: Correcting Simulation Bias in Exotic Option Valuation,” **Financial Analysts Journal** 53, 1997, 62–68 (with David Beaglehole and Philip Dybvig).

#### Publications (review papers)

4. “Measuring Investor Sentiment,” **Annual Review of Financial Economics** 10, 2018, 239–259.
3. “Bayesian Portfolio Analysis,” **Annual Review of Financial Economics** 2, 2010, 25–47 (with Doron Avramov).
2. “On Cross-section Analysis of Stock Returns,” **Annual Review of Financial Economics** 2, 2010, 49–74 (with Ravi Jagannathan and Ernst Schaumburg).
1. “Robust Portfolios: Contributions from Operations Research and Finance,” **Annals of Operations Research** 176, 2010, 191–220 (with Frank Fabozzi and Dashan Huang).

#### Publications (books)

1. **An Introduction to Financial Economics** (with Frank Fabozzi and Edwin Neave; Wiley, 2011).

#### Publications (book chapters)

6. “Time-Series and Cross-Sectional Stock Return Forecasting: New Machine Learning Methods” (in **Machine Learning for Asset Management**, edited by Emmanuel Jurczenko, Wiley, 2020), 1–33 (with David Rapach).



5. “Forecasting Stock Returns,” (in **Handbook of Forecasting II**, edited by G. Elliott and A. Timmerman, North-Holland, 2013), 329–383 (with David Rapach).
4. “General Principles of Asset Pricing” (in **Encyclopedia of Financial Models**, Volume I, edited by F. Fabozzi, Wiley, 2013), 49–63 (with Frank Fabozzi).
3. “Factor Models,” (in **The Theory and Practice of Investment Management**, 2nd edition, edited by F. Fabozzi and H. Markowitz, Wiley, 2011), 103–124 (with Frank Fabozzi).
2. “Understanding the Role of Diversification,” **Q-finance: The Ultimate Resource**, 380–381, Bloomsbury, London.
1. “Exploring the Relation Between Discrete-time Jump Processes and the Finite Difference Method,” (in **Advanced Fixed-Income Valuation Tools** edited by N. Jegadeesh and B. Tuckman, Wiley, 2000), 347–366 (with Steve Heston).

### Publications (earlier math papers)

#### *PDE and Numerical Analysis*

12. “High Order Difference Methods for the Biharmonic Equation,” *Acta Mathematica* 6, 223–230, 1986 (with Qin Lin and Tao Lu).
11. “Highly Accurate Numerical Solutions of Elliptic Boundary Value Problems on General Regions,” *Journal of Computational Mathematics* 4, 3–10, 1985.
10. “Fourth Order Finite Analogues for Poisson’s Equation,” *The Mathematics of Computations* 23, 318–322, 1985 (lead article).

#### *Function Theory*

9. “Some Theorems on Almost Left- and Right-Continuous Functions,” *Journal of Sichuan Teachers University* 12, 39–42, 1981 (with Wangjin Liu, Chiding Kang and Daqing Wan).

#### *Number Theory*

8. “On the Diophantine Equation  $x^4 - Dy^2 = 1$ ,” *Journal of Mathematical Research and Exposition* 3, 83–84, 1983 (with Chiding Kang and Daqing Wan).
7. “On the Diophantine Equation  $\sum_{k=1}^m k^n = (m+1)^n$ ,” *Journal of Mathematical Research and Exposition* 3, 47–48, 1983 (with Chiding Kang).
6. “On Giuga’s Conjecture and a Necessary and Sufficient Condition for Fermat’s Numbers to be Prime,” *Mathematical Monthly, Chinese Mathematical Society* 23, 20–22, 1983 (with Chiding Kang).
5. “On Giuga’s Conjecture and a Necessary and Sufficient Condition for Mersenne’s Numbers to be Prime,” *Mathematical Monthly, Chinese Mathematical Society* 23, 20–22, 1983 (with Chiding Kang).
4. “Remarks on Two Diophantine Equations of the Fourth Order,” *Annals of Hunan Mathematical Society* 22, 112–116, 1982 (with Chiding Kang and Daqing Wan).

3. “Remarks on the Diophantine Equation  $\prod_{i=1}^k x_i^{x_i} = z^z$ ,” *Journal of China University of Science and Technology* supplement, 19–22, 1982 (with Chiding Kang, Daqing Wan and Liren Zhao).
2. “On the Diophantine Equation  $x^4 - 2Dy^2 = 1$ ,” *Journal of China University of Science and Technology* 12, 119–121, 1982 (with Chiding Kang, Daqing Wan and Liren Zhao).
1. “On Gigua’s Conjecture,” *Journal of Chengdu College of Geology* 24, 87–92, 1980 (with Chiding Kang).

## Working Papers

- “Anomalies and the Expected Market Return” (with Xi Dong, Yan Liu and David Rapach)
- “Exchange Rate Prediction with Machine Learning and a Smart Carry Trade Portfolio” (with Ilias Filippou, David Rapach and Mark Taylor)
- “Fundamental Extrapolation and Stock Returns” (with Dashan Huang, Huacheng Zhang and Yingzi Zhu)
- “An Economic Test of Asset Pricing Models with Large Number of Assets” (with Ai He and Dashan Huang; presented at 2020 AFA Annual Meetings)
- “Firm Characteristics and US Stock Returns?” (with Yufeng Han, Ai He, and David Rapach; presented at the 2019 AFA Annual Meetings)
- “Trend Factor in China: The Role of Large Individual Trading” (with Yang Liu and Yingzi Zhu)
- “Seeing is Believing: Annual Report ‘Graphicity’ and Stock Returns Predictability” (with Xiahu Deng, Lei Gao and Bo Hu)
- “Mispricing and Anomalies: An Exogenous Shock to Short Selling from the Dividend Tax Law Change” (with Yufeng Han, Yueliang (Jacques) Lu and Weike Xu )
- “New Maximizing the Sharpe Ratio: A Genetic Programming Approach” (with Yang Liu and Yingzi Zhu)
- “Shrinking Factor Dimension: A Reduced-rank Approach” (with Dashan Huang and Jiaen Li; presented at Booth-EDHEC-RFS conference “New Methods for the Cross Section”)
- “Momentum, Reversal, and the Firm Fundamental Cycle” (with Yufeng Han Zhaodan Huang, Weidong Tian; Best Paper Award, The World Finance Conference, 2019)
- “Extracting Information from Corporate Yield Curve: A Machine Learning Approach” (with Gu Xu, Hai Lin and Chunchi Wu; presented at 2018 EFA Annual Meetings)
- “Twin Momentum: Fundamental Trends Matter” (with Dashan Huang, Huacheng Zhang and Yingzi Zhu; presented at 2018 FMA Annual Meetings)
- “Optimal Portfolio Choice with Estimation Risk: No Risk-free Asset Case” (with Raymond Kan and Xiaolu Wang)
- “Scaled PCA: A New Approach to Dimension Reduction (with Dashan Huang, Fuwei Jiang, Kunpeng Li, and Guoshi Tong)
- “Sparse Macro Factors” (with David Rapach)

- “Employee Sentiment and Stock Returns” (with Jian Chen, Guohao Tang and Jiaquan Yao)
- “Sentiment Across Asset Markets” (with Dashan Huang, Heikki Lehkonen and Kuntara Pukthuanthong)
- “An Information Factor: Can Informed Traders Make Abnormal Profits?” (with Matthew Ma, Xiumin Martin and Matthew Ringgenberg)
- “Investor Sentiment and the Cross-Section of Corporate Bond Returns” (with Xu Guo, Hai Lin and Chunchi Wu)
- “Lottery Preference and Anomalies” (with Lei Jiang, Quan Wen, and Yifeng Zhu)
- “Corporate Activities and the Market Risk Premium” (with Erik Lie, Bo Meng and Yiming Qian)
- “Are Bond Returns Predictable with Real-Time Macro Data?” (with Dashan Huang, Fuwei Jiang, and Guoshi Tong)
- “Forecasting Stock Returns During Good and Bad Times” (with Dashan Huang, Fuwei Jiang and Jun Tu)
- “Cost Growth and Stock Returns” (with Dashan Huang, Fuwei Jiang and Jun Tu)
- “Taming Momentum Crashes: A Simple Stop-loss Strategy” (with Yufeng Han and Yingzi Zhu)
- “Which Hedge Fund Styles Hedge Against Bad Times?” (with Charles Cao and David Rapach)
- “Forecasting Bond Risk Premia Using Technical Indicators” (with Jeremy Goh, Fuwei Jiang, and Jun Tu)
- “Hansen-Jagannathan Distance: Geometry and Exact Distribution” (with Raymond Kan)
- “Toward a Better Understanding of the Beta Method and the Stochastic Discount Factor Method” (with Raymond Kan)

## Professional Service

<i>Associated Editor:</i>	Journal of Financial and Quantitative Analysis (top 4 in finance), 2000–present Journal of Financial Markets, 2019–present Journal of Empirical Finance, 2016–present
<i>Editorial Board:</i>	Journal of Portfolio Management, 2008–present International Journal of Portfolio Analysis & Management, 2011–present Journal of Systematic Investing, 2020–present Annals of Economics and Finance, 2000–present
<i>Director:</i>	Asian Finance Association, 2008–2010
<i>Program Co-Chair:</i>	China International Conference in Finance, 2007, 2008
<i>Prog. Asso. Chair:</i>	Meetings of the Financial Intermediation Research Society, 2008

Western Finance Association, 2002 Annual Meetings

*Tracking Chair:* Midwest Finance Association Conference, 2016

*Co-Organizer:* Asset Pricing Mini-Conference at Washington University, 2007

*Program Committee:* Western Finance Association Annual Meetings, 1999–2021  
European Finance Association Annual Meetings, 2014–2021  
Financial Management Association Annual Meetings, 2019–2020  
World Symposium on Investment Research, 2018–2021  
Georgia State FinTech Conference, 2019, 2020  
Young Scholars Finance Consortium, 2019  
China International Conference in Finance, 2002–2016  
Asian Finance Association/Nippon Fin. Association Conference, 2008–2013  
Northern Finance Association Annual Meetings, 2017–2020  
Midwest Finance Association Annual Meetings, 2015–2016  
The Summer Institute of Finance (China), 2017, 2019  
Finance Down Under, 2014–2019  
Society for Financial Studies Cavalcade, 2013  
McGill Global Asset Management Conference, 2013–2015  
FMA Latin American Conference, 2017  
The Fourth Singapore International Conference on Finance, 2010  
Meetings of the Financial Intermediation Research Society, 2009–2016  
Far Eastern Econometric Society Meetings, 2006  
Fourth Annual Conference on Corporate Finance at Washington U., 2007

*Keynote Speaker:* 2020 FinTech Conference, Qingdao, China  
2020 Quantitative Investing Conference, USA  
2019 China Finance Review International Conference  
Conference on Financial Predictability and Big Data, China, 2017, 2018, 2019  
North America Annual Meeting of Chinese Economists Society, 2019, USA  
2012 International Conference for the Economic and Financial  
Challenges and Issues in the Asia-Pacific Countries, China

*Invited Speaker:* 2020 Shanghai Financial Forefront Symposium  
2017 Workshop on Advanced Econometrics at U. Kansas  
2014 Int'l Symposium on Financial Engineering and Risk Management  
2014 Q-group Conference in Charleston, SC.  
2013 International Conference of Financial Econometrics at Shandong U.  
2013 China Finance Review International Conference  
3rd Annual Conference of the Society for Financial Econometrics  
(@University of Melbourne, 2010)  
19th International Workshop on Matrices and Statistics  
(@Shanghai Finance University, 2010)  
2009 Montreal Financial Econometrics Conference  
(@HEC Montreal)  
2008 Asian FA-NFA International Conference  
2008 Workshop on Advances in Portfolio Optimization  
(@London Imperial College Business School)

*Panelist:* Doctoral consortium, Financial Management Association Int'l, 2016.

*PhD Supervision:* Chair or co-chair on the thesis committees for  
 Federico Nardari (1999, first job at Arizona State University)  
 Paskalis Glabadanidis (2003, first job at Koc University)  
 Yufeng Han (2003, first job at Tulane University)  
 Jun Tu (2004, first job at Singapore Management University)  
 Dashan Huang (2013, first job at Singapore Management University)  
 Suying Liu (2015, first job at J. P. Morgan)  
 Committee member for  
 Students in Accounting, Management and Economics (in- and out-side B-school).

*Assessor:* National Science Foundation, 2004;  
 National University of Singapore, 1995  
 Research Grants Council, Hong Kong, 1998–present  
 Social Sciences and Humanities Research Council of Canada, 1996, 2004

*Referee:*

Review of Financial Studies	Journal of Financial Economics
Journal of Finance	Journal of Financial and Quantitative Analysis
Journal of Portfolio Management	Financial Analysts Journal
Journal of Financial Markets	Finance Research Letters
Journal of Empirical Finance	Mathematical Finance
Econometrica	Journal of Econometrics
Econometric Theory	Journal of Applied Econometrics
Management Science	Review of Economic Studies
Journal of Financial Research	Journal of Business and Economic Statistics
Engineering Economist	Journal of Futures Markets
Journal of Banking and Finance	Real Estate Economics
Journal of Business	International Review of Economics & Finance
European Finance Review	Journal of Financial Econometrics
Quantitative Finance	Applied Mathematical Finance
Southern Economic Journal	Review of Economics and Statistics
North American Actuarial Journal	European Journal of Finance
European Financial Management	Journal of Forecasting
Global Finance Journal	China Economic Review
Pacific-basin Finance Journal	Journal of International Money and Finance
Canadian Journal of Economics	International J. of Business and Systems Research
Annals of Economics and Finance	Quarterly Review of Economics and Finance
Physica A	Computational Statistics and Data Analysis
Statistica Sinica	Statistics

Journal of Money, Credit and Banking  
Int'l J. of Portfolio Analysis & Mag.  
Review of Asset Pricing Studies  
Review of Finance  
Econometric Reviews  
Scandinavian J. of Statistics  
Complexity  
Economic Modelling  
Sankhya  
Quantitative Economics

Economics Letters  
Journal of Risk  
Critical Finance Review  
Int'l Review of Finance  
SIAM Journal on Financial Mathematics  
Applied Economics Letters  
North American J. of Economics and Finance  
Journal of Multivariate Analysis  
J. of Behavioral and Experimental Finance  
Journal of Investing

### **Professional Associations**

Member: American Finance Association, 1990–present

### **Personal**

*Birth Place:* Chengdu, Sichuan Province, China.  
*Citizenship:* The United States of America.

**Hobbies&Interests:** reading (philosophy, martial arts fiction), playing chess, and lifting weights.