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Employment

Sungkyunkwan University, SKK Business School, Department of FinTech, Associate Professor, 2022-present

The University of Suwon, Department of Economics & Finance, Associate Professor, 2019–2022.

The University of Suwon, Department of Economics & Finance, Assistant Professor, 2016–2018.

The University of Suwon, Graduate School of Financial Engineering, Assistant Professor, 2012–2016

Korea Economic Research Institution (한국경제연구원), 기업연구실, Research Fellow, 2010–2012

KAIST(Korea Advance Institution of Science and Technology), Research Institution of Natural Science, BK21 Research Fellow, 2009–2010

Education

Ph.D. Mathematical Science (M.S. & Ph.D joint Program), *The Youngest Ph.D of the Year*, KAIST, 2009.

(Dissetation: Portfolio Selection and Asset Pricing under Asymmetric Information)

B.S. Mathematics, KAIST, 2004.

Research

Research Interests

Portfolio Optimization, Asset Pricing, Market Microstructure, Derivatives, Quantitative Finance, Blockchain and crypto-assets, FinTech, Machine Learning and Deep Learning in Finance

Peer-Reviewed Journal Articles

International Journal Articles (SSCI & SCIE Indexed)

1. Consumption and Life Insurance Decision with Hyperbolic Discounting and Taxation, (with Ja Eun Koo,) ***Economic Modelling***, 2021, Volume 94, pp.288-295.
2. Household utility maximization with life insurance: a CES utility case, (with Ho-Seok Lee), ***Japan Journal of Industrial and Applied Mathematics***, 2021, Volume 38, pp.271–295.
3. Optimal Investment, Consumption and Leisure with an Option to File for Bankruptcy, (with Ho-Seok Lee) ***Symmetry***, 2020, 12(5), 827
4. Optimal Consumption and Investment under Time-Varying Liquidity Constraints, (with Seryoong Ahn and Kyoung Jin Choi), ***Journal of Financial & Quantitative Analysis***, 2019, Volume 54 (4), pp.1643-1681.

5. The impact of a partial borrowing limit on financial decisions, (with Minsuk Kwak), ***Quantitative Finance***, 2019, Volume 19, pp.859-883.
6. Portfolio Decision with a Quadratic Utility and Inflation Risk, (with Ho-Seok Lee), ***Advances in Difference Equations***, 2018, 366.
7. The effects of pre-/post-retirement downside consumption constraints on optimal consumption, portfolio, and retirement, (with Ho-Seok Lee and Yong Hyun Shin), ***Finance Research Letters*** *(Ranked 6 among 108 Business/Finance SSCI Journals, IF=5.596)*, 2018, Volume 25, pp.213-221.
8. Robust Consumption and Portfolio Rules with Time-Varying Model Confidence, (with Bong-Gyu Jang and Seungkyu Lee), ***Finance Research Letters*** *(Ranked 6 among 108 Business/Finance SSCI Journals, IF=5.596)*, 2016, Volume 18, pp.342-352.
9. Bequest Motive and Incentive to Retire: Consumption, Investment, Retirement, and Life Insurance Strategies (with Minsuk Kwak), ***Finance Research Letters*** *(Ranked 6 among 108 Business/Finance SSCI Journals, IF=5.596)*, 2016, Volume 16, pp.19-27.
10. Optimal portfolio selection with life insurance under inflation risk (with Minsuk Kawk), ***Journal of Banking & Finance***, 2014, Volume 46, pp.59-71
11. Optimal Investment, Consumption and Retirement Decision with Disutility and Borrowing Constraints (with Yong Hyun Shin), ***Quantitative Finance***, 2011, Volume 11, pp.1581-1592
12. Comparison of Optimal Portfolios With and Without Subsistence Consumption Constraints, (with Yong Hyun Shin), ***Nonlinear Analysis***, 2011, Volume 74, pp.50-58
13. Optimal investment, consumption and retirement choice problem with disutility and subsistence consumption constraints (with Yong Hyun Shin and U Jin Choi), ***Journal of Mathematical Analysis and Applications***, 2008 Volume 345, pp.109-122.
14. Optimal Consumption and Portfolio Selection Problem with Downside Consumption Constraints (with Yong Hyun Shin and U Jin Choi), ***Applied Mathematics and Computation***, 2007 Volume 188, pp.1801 - 1811.

Revise and Resubmit

1. Endogenous Credit, Business Cycle, and Portfolio Selection (with K.J. Choi, H.K. Koo, and J. Yoo)
   - R&R in ***Operations Research***
2. Strategic Default and Post-bankruptcy Liquidity Constraint (with H.S. Lee)
   - R&R in ***Journal of Banking & Finance***

Working Papers and Work in progress

1. Consumption and Portfolio Selection with Recursive Utility, Stochastic Income, and Liquidity Constraints (with K.J. Choi and M. Kwak)
   - Under Review
2. What Determines Household Credit Limits? (with K.J. Choi, H.K. Koo, and J. Yoo)
3. Optimal Employment Contracts with Limited Commitments (with K.J. Choi, J. Jeon, and H.K. Koo)
4. Credit Rating Classification of Korean Listed Companies using Self-Organizing Maps
5. Optimal Consumption, Investment, Labor supply, and Retirement With Subsistence Consumption and Taxation (with H.S. Lee)

6. Demand for Life Insurance of a Family with Working Couple (with M. Kwak and H.K. Koo)
7. When to go from renter to homeowner? (with H.S. Lee)
8. Subsistence Consumption, Borrowing Constraints, and Retirement (with H.S. Lee and Y.H. Shin)
9. Time-Varying Liquidity Constraints, Incomplete Market, and Consumption-Investment (with S. Ahn and K.J. Choi)
10. Oligopolistic Market Making in a Security Market (with H.K. Koo)
11. Research trends in Crpytocurrency, 2018
12. A Lattice Method for Lookback Options with Regime-Switching Volatility (with U. Choi, B. Jang, and J.H. Yoon)

Domestic Journal Articles

1. 블록체인과 지속가능금융, *글로벌금융리뷰*, 제2권 제2호, 2021, pp.51-86
2. 디파이(DeFi)의 이해와 시사점, *글로벌금융리뷰*, 제2권 제1호, 2021, pp.73-110
3. 일본 암호자산 법제화와 그 시사점에 관한 연구, *금융감독연구*, 제7권 제2호, 2020 pp.83-140
4. 중앙은행 디지털화폐(CBDC) 도입 현황 및 시사점, *글로벌금융리뷰*, 제1권 제1호, 2020, pp.151-187
5. Debtor's Bankruptcy and Upper Bound on Consumption (with H.S. Lee), *East Asian Mathematical Journal*, Vol 36 No 1, 2020, pp.91-99
6. Blockchain and Finance (with T.H. Ha), *The Magazine of the IEEE*, Vol 46, No 5, 2019, pp.61-68
7. Optimal Bankruptcy with a Continuous Debt Repayment, *Management Science and Financial Engineering*, Vol 22, No 1, May 2016, pp.13-20
8. Testing Multi-Factor Models of the Term Structure of Chinese Gold Futures Market (with N. Zhao and T.H. Ha), *금융지식연구*, Vol 13, 2015, pp.105-135
9. 다요인 CIR 모형을 통한 국내 이자율 기간구조 추정 (with T.H. Ha), *금융공학연구*, Vol 14, No 1, 2015, pp.34-64
10. 최소 자산제약 및 인플레이션을 고려한 자산 할당에 관한 연구, *경영과학지*, Vol 30, No 1, March 2013, pp.167-181
11. Portfolio choice under inflation risk: Martingale approach, *Journal of Chungcheong Mathematical Society*, Volume 26, No. 2, May 2013, pp.343-349
12. A risk-averse insider and asset pricing in continuous time, *Management Science and Financial Engineering*, Vol 19, No 1, May 2013, pp.11-16
13. The effect of inflation risk and subsistence constraints on portfolio choice, *Journal of Korean Society for Industrial and Applied Mathematics*, Vol.17, No.2, 2013, pp.115–128

Other Publications

1. 회사채시장 활성화 방안, 2013, *KERI (Korea Economic Research Institution)*
2. 경제경영을 위한 수학, 2017, 8판(번역), 한티미디어

Professional Activities

Reviewer (international journals) for *Journal of Banking & Finance*, *Economic Modelling*, *The North American Journal of Economics and Finance*, *IMA Journal of Management Mathematics*, *Quantitative Finance*, *Finance Research Letters*, *Asia-Pacific Journal of Financial Studies*

Departmental Service: Head of Department of Economics, The University of Suwon, 2014–Present.

Member, Econometric Society, 2015–Present.

Member, American Finance Association, 2014–Present.

Member, Bachelier Finance Society, 2015–Present.

한국금융공학회, 상임이사(2017–2019), 총무이사(2020), 감사(2021, 2022)

한국파생상품학회, 이사(2019–2021)

Teaching

Sungkyunkwan University

Graduate (Department of FinTech)

Blockchain and Financial Applications

The University of Suwon

Undergraduate (경제학부, 데이터과학부)

Investment and Securities, Derivatives, Principles of Economics, Microeconomics, Econometrics, Industrial Organization, International Finance, Introduction to Artificial Intelligence, Introduction to Deep Learning

Graduate (일반대학원, 경영대학원)

Financial Management, Corporate Finance, Investment, Derivative Pricing, Microeconomics, Financial Econometrics, Data Analysis and Decision Making

Graduate School of Financial Engineering(금융공학대학원)

Investment, Corporate Finance, Risk Management, Credit Derivatives, Theory of Derivative Pricing, Stock Derivatives, Theory of Bond Pricing

Projects

1. 블록체인과 가상자산에 관한 연구 (with 구형건(아주대)), 한국블록체인협회, 2021.04.21 – 2021.07.21
2. 일본의 암호자산 관련 법제에 관한 연구, 금융감독원 2018.05.24 – 2018.12.15

Grants, Fellowships, & Awards

NRF(National Research Foundation of Korea) Grants, *기본(수학)*, *Optimal consumption and investment choice problem under limited commitment*, June 2020 – February 2023

NRF(National Research Foundation of Korea) Grants, *전략과제(산업수학)*, *Optimization and Hybrid Neural Networks with Self Organizing Map - Applications to Finance*, September 2017 – August 2020

NRF(National Research Foundation of Korea) Grants, *신진연구자지원사업(인문사회)*, *The effect of households' credit constraints on consumption, investment, and voluntary retirement*, May 2014–April 2017

NRF(National Research Foundation of Korea) Grants, *신진연구자지원사업(인문사회)*, *Optimal Portfolio Selection with Endogenous Liquidity Constraint*, May 2013–April 2014

TJ Park Science Fellowship, 2010–2011

SIAM (East Asia Section) Student Paper Competition, Second Prize, 2008

Merit-Based Scholarship, KAIST: 2004–2007

Merit-Based Scholarship, KAIST: 2000–2003

The National Scholarship for Science and Engineering, KOSAF, 2006

Sangae Scholarship, KAIST, 2006

Articles

1. 논설위원, *데일리임팩트*, 2021.06. ∼ present
2. 임병화 칼럼, *이투데이*, 2017.07. ∼ 2019.07.

Miscellaneous

Programming Languages: Matlab, LaTeX, Mathematica, Stata, R, Python

Last updated: March 6, 2022