HYANGJU KIM

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EDUCATION

The State University of New York, Stony Brook University, New York, NY
   Ph.D. in Quantitative Finance, August 2014 - January 2021
      Dissertation Title: A joint framework for stochastic correlation and tempered stable process
      References:

Professor YoungShin Kim	Professor James Glimm
Harriman Hall 312	Math Tower 1-121
College of Business	Applied Mathematics and Statistics
Stony Brook University	Stony Brook University
aaron.kim@stonybrook.edu	james.glimm@stonybrook.edu
Professor Svetlozar Rachev	Professor Haipeng Xing
Math 238A	Math Tower 1-121
Department of Mathematics and Statistics	Applied Mathematics and Statistics
Texas Tech University	Stony Brook University
zari.rachev@ttu.edu	haipeng.xing@stonybrook.edu

Cornell University, Ithaca, NY
   M.P.S., Applied Statistics, 2011
      Thesis: Predicting a default probability using KMV model and portfolio selection based on the default risk
      Advisors: Professor Xiaolong Yang, Professor John Bunge

Yonsei University, Seoul, Korea
   B.A., Business Administration and Economics, 2009

RESEARCH INTERESTS

Financial Markets; Pricing, Derivatives, Portfolio Choice, Hedging, Regulation
Financial Econometrics; Time Series Econometrics, Volatility Forecasting

WORKING PAPERS

"A framework for quanto option pricing with stochastic correlation" with Young Shin Kim (2021)

We propose a general pricing framework for the European quanto option and derive its closed-form solution under the risk-neutral measure. To circumvent the discrepancy with the real market attributed to the quanto implied volatility skew and constant correlation, we employ the two key processes; the normal tempered stable (NTS) process for the underlying dynamics and the Ornstein-Uhlenbeck (OU) process for stochastic correlation between underlying assets. We refer to this model as the NTS-OU, and its solution is compared to the NTS based model with constant correlation and the Black-Scholes model. For the empirical illustration, we set up two quanto contracts in different market regimes; a quanto option with S&P 500 index and Euro-US dollar exchange rate, and a quanto option with Dow Jones Industrial Average and Bitcoin-US dollar exchange rate. In both examples, the NTS-OU model gives the best estimates

due to its flexibility. Building on our experimental findings, we also identify that the stochastic correlation exists in the risk-neutral world.

"Stochastic correlation impact measured by implied correlation of multi-asset option" (2021)

"Weekly option pricing with Dynamic Conditional Correlation-Multivariate GARCH" (2021)

PRESENTATIONS

"Quanto option pricing with stochastic correlation", Quantitative Finance Seminar, Stony Brook University, 2018
"A joint framework for stochastic correlation with tempered stable process", HSBC Business School, Peking University, 2021 (Expected)

HONORS AND AWARDS

Accelerated Qualifying Exam Completion (1 year) at Stony Brook University, 2015
Dean's List, 2004
Governor's Scholarship Winner, 2002
Professional Memberships: American Statistical Association (ASA), Korean-American Scientists and Engineers Association (KSEA)

TEACHING EXPERIENCE

Advanced Quantitative Analysis for Managers (MBA course), Adjunct Professor, Hofstra University, Spring 2020
Optimal Dynamic Programming (Undergraduate), Teaching Assistant, Yonsei University, Spring 2009

PROFESSIONAL EXPERIENCE

Stony Brook University, Stony Brook, NY
    Visiting Scholar, Feb 2021 - Current

UN Joint Staff Pension Fund, New York, NY
    Investment intern, May 2019 - Jan 2020

Glimm Analytics, Stony Brook, NY
    Research Assistant, May 2015 - July 2015

COHO Asset Management, New York, NY
    Quantitative Analyst, September 2012 - May 2013

InterEx, Hasbrouck Heights, NJ
    Project Associate, December 2011 - August 2012

Kiski Group Inc., New York, NY
    Quantitative Analyst Intern, September 2011 - November 2011

Deloitte, Seoul, Korea
    Project Associate, 2010-2011