SHIJIA (SCARLETT) LIU

shijia.liu@nyu.edu ■ linkedin.com/in/shijialiu/

EDUCATION

NEW YORK UNIVERSITY New York, NY
The Courant Institute of Mathematical Sciences
MS in Mathematics in Finance (expected – Dec. 2020)

- ***Current Coursework:*** VaR, Black-Litterman model, Object-Oriented Programming in Java, Monte Carlo simulation, Brownian motion and martingales, Ito calculus, Option Greeks, Option pricing

UNIVERSITY OF MINNESOTA – TWIN CITIES Minneapolis, MN
BA in Mathematics (May 2019)

- ***Coursework:*** Markov chain, Merton's risk neutral pricing method and Black-Scholes formula, Optimization, dynamic and probability models, Root-finding methods, Heat and wave equation
- ***Awards:*** High Honors in Mathematics, High Distinction in Degree, Dean's List

EXPERIENCE

BANK OF CHINA Shanghai, China
Corporate Finance Summer Analyst (Jun. 2018 – Aug. 2018)

- Conducted equity research in R.Y.B Education Company and wrote research reports for initiations of coverage, analysis of data and industry news
- Analyzed data by using R and developed financial models to evaluate projects of the company including children's STEAM education service
- Integrated income statement, balance sheet and cash flow statements to evaluate the company's operating condition and performed sensitivity analyses

HSBC Hong Kong, China
Financial Advisor Assistant (Jun. 2017 – Aug. 2017)

- Illustrated currency-linked deposits to retail investors
- Presented retail investors with corresponding risks, including credit risk, liquidity risk, etc., and scenario analysis, by comparing fixing value and reference value

PROJECTS

UNIVERSITY OF MINNESOTA – TWIN CITIES Minneapolis, MN
Portfolio Optimization

- Examined historical price movement and volatility with 15 stocks in Yahoo, exported data into MATLAB and formed a portfolio consisting of these 15 stocks
- Ran functions in MATLAB to estimate mean and covariance matrix of all stock returns in the portfolio, find the stock weights of optimal portfolio and maximize Sharpe ratio together with its risk and return
- Visualized the efficient frontier by using plot frontier function and analyzed the result

Option Strategy Trading

- Constructed strangle option strategy for Alibaba based on speculation of large price fluctuation and facilitated the trade at "Investopedia.com" with desired strike price
- Simulated in C++ with stock price movement following random walk with large volatility
- Analyzed resulting profits/losses and performed sensitivity analyses with varying variables

A Dynamic Model on Chemical Reaction

- Nondimensionalized the CIMA model of chlorine-iodine-malonic acid reaction to find the equilibrium point, then analyzed its stability
- Used MATLAB to sketch phase portraits and approximated changing behavior of dynamic systems in the neighborhood of the fixed point, then identified types of bifurcation

COMPUTER SKILLS/OTHER

Programming Languages: Java, Python, MATLAB, R
Other Software: Microsoft Office
Languages: Mandarin (native), English (fluent)