Hyuna Ham

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HIGHLIGHTS

- Research Ability – Published papers in Q1 ranked journals (SSCI), and continue research on finance and AI
- Professional Experience – Built 5 years of field experience in leading Fintech companies, including launching the first-ever discretionary Robo-Advisor service and thematic ETF house in South Korea
- Teamwork and communication skills – Collaborated with a cross-functional team, and contributed to the successful launch of services

EDUCATION

2016.02 ~ 2018.02

Korea Advanced Institute of Science and Technology

Master of Science, Financial Engineering

- Thesis: "Time-Series Momentum in the Chinese Commodity Futures Market"
- Received the highest scores in the Time Series Analysis and Programming classes
- Course Highlights: Stochastic Calculus, Statistical Analysis, Time Series Analysis, Business Modeling Analysis and Programming (Python & C++)

Investment Strategy Team / KAIST Student Investment Fund (KSIF)

- Managed about 1 million dollars in student investment funds with automated algorithms
- Created a KOSPI index forecasting model using the Bag of Words from daily economic news
- Developed automatic asset allocation modules through literature review
- Constructed a market and portfolio performance analysis platform

2012.01 ~ 2015.05

University of Iowa

Bachelor of Business Administration, Finance

- Accepted as a member of the Honors Society
- Acquired Kepner-Tregoe Certification through leadership cultivation activities, including presentations and teamwork in Italy; Won the best leadership award in the program
- Participated the Dream Volunteers' program in Guatemala
- Member, Badminton Club; trained other members based on the experience as an award-winning quasi-career Badminton player from elementary to junior high

WORK EXPERIENCE

2020.11 ~ Present

Fount Investment

Principal Researcher / Core AI Department

Project Leader – Research on AI Models in Finance

- Leading industry-university collaborative projects for developing a trading execution strategy
- Developing intraday stock price prediction models with state-of-the-art techniques
- Developing a new model by redesigning AI models suggested in computer science papers for financial data and research purpose (using PyTorch)

Supervisor – Administration of ETF Listing

- Played a key role in launching a thematic ETF house for the first time in South Korea
- Develop a module for automatically constructing thematic portfolios according to requests
- Created 13 themed portfolio strategies with automated algorithms
- Listed metaverse- and subscription services-related ETFs on the NYSE (tickers: MTVR, SUBS)
- Managed a wide range of materials including prospectuses, fact sheets and promotion articles

Supervisor – Design of Robo-Advisor Systems

- Developed architectural frameworks for Robo-Advisor investment systems
- Redesigned order management systems for the discretionary investment business; preventing transaction errors and improving execution speed
- Constructed a backtesting platform that is easy to use and share the results of analysis

2017.01 ~ 2020.10

December & Company Asset Management

Senior Quantitative Researcher / Portfolio Solution Team Department

Principal Strategist – Core Module & Platform Development for Robo-Adviser Service

- Played a key role in launching a discretionary Robo-Advisor investment service for the first time in South Korea
- Designed a mock investment platform enabling users to acquire real investment experience
- Developed and provided a variety of customer-specific strategies and services that take into account market conditions and investor preferences
- Headed the development of investment systems, including a trading plan computation module for small amount accounts *(corporate patent registration)*
- Created an automatic message module tailored to each portfolio management situation
- Developed a customer account monitoring module for performance tracking and charging fees
- Developed a monitoring module for handling issue in investment assets, including delisting from stock exchanges

Product Manager – Investment Strategy Improvement and Management

- Refined the existing the monthly regular rebalancing strategies to a dynamic rebalancing strategy to instantly reflect major changes in the market and reduce trading costs
- Developed global tactical asset allocation strategies through literature reviews
- Included assets from emerging countries and commodities to improve the diversification effect of existing US-centric investment universe
- Minimized costs of carry by changing to a passive ETF-centric investment universe
- Participated the Robo-Advisor testbed and achieved the highest performance

Senior Researcher – Research on Investment Strategy and Financial Markets

- Studied investment strategies to improve traditional asset allocation strategies by applying various renowned models from gradient boosting machines to deep neural networks
- Researched the characteristics of the international stock markets using statistical models, and investigated the impact and trends after shocks in the financial markets
- Developed a financial crisis forecasting model using the CBOE Volatility Index (VIX)
- Endeavored to predict financial market phases by using the Change Point method

Project Leader – Database Development and Management

- Redesigned data processing systems for over 30,000 data items, and reduced the processing time from 1 hour to 1 second
- Constructed databases and managed the records of trading

Product Manager – Preparation of Performance and Management Reports

- Wrote the performance and management reports for the discretionary and advisory customers
- Considered the customer's expertise in finance, and used proper terms and tones

Principal Strategist – Participation in Fintech Fair (Korea Fintech Week)

- Participated in a Fintech fair as a corporate representative, and introduced service processes and handled customer services for corporate investors
- Visited and interacted with key players from Korea's leading Fintech companies
- Designed improvement ideas to enhance services through communication with customers

PUBLISHED PAPERS

2022

The Effects of Overnight Events on Daytime Trading Sessions

Ham, H., Ryu, D., & Webb, R. I. *International Review of Financial Analysis*

Abstract: This study investigates the association between overnight and daytime-trading session returns in U.S. equity markets over the last 14 years and interpret it using the overreaction hypothesis. To identify the effects of overnight overreactions on daytime trading sessions, we control for daily investor sentiment, firms' fundamental variables, and risk factors. Our results suggest that investors tend to overreact overnight and react more dispassionately during daytime trading sessions. Investors' reactions also differ across sectors, and the degree of overreaction is greater in cyclical industries than in defensive industries. Additionally, we analyze the impacts of overnight reactions on daytime trading sessions focusing on recession periods. The impacts differ by subperiods and are pronounced during the Global Financial Crisis and the onset of the COVID-19 pandemic. Finally, we examine whether investors' reactions to overnight news events respond differently to demand and supply shocks.

2022 **Are Analyst Recommendations Recommended?**
Lee, J., Batten, J. A., Ham, H., & Ryu, D. *Abacus (under review)*

Abstract: By analyzing the United States equity market over the past 23 years, this study constructs three types of portfolios: analyst-recommended, recommendation change, and momentum. We compare these portfolios by period, size, and industry. Our results show that the momentum portfolio performs the best across all periods, sizes, and sectors, except the utility sector, which tends to have stationary earnings. Analysts perform worse in industries that are highly correlated with oil prices (consumer staples and materials). These results suggest that portfolios using a simple technical indicator outperform information-based investments.

2019 **Time-Series Momentum in China's Commodity Futures Market**
Ham, H., Cho, H., Kim, H., & Ryu, D. *Journal of Futures Market*

Abstract: This study examines the time-series momentum in China's commodity futures market. We find that a time-series momentum strategy outperforms classical passive long and cross-sectional momentum strategies in terms of the Sharpe ratio, risk-adjusted excess returns, and cumulative returns. The time-series momentum strategy with a 1-month look-back period and a 1-month holding period exhibits the best performance. We observe clear time-series momentum patterns and find that the time-series momentum strategy is effective in the China's commodity futures market. However, the momentum lasts for less time in China than in the United States because China's futures market seems to have a greater number of speculative investors.

WORK IN PROGRESS

Pivot Attention for Intraday Stock Price Prediction
Lee, W., Ham, H., & Lee, J *(in the final stage of completion)*

Summary: We design a novel architectural unit called the "Pivot Attention" block for effective learning of time-series data. Pivot Attention blocks are designed to learn the periodicities, characteristics, and gradual changes in each dimension of a batch, feature, and timestep. However, given that the blocks are highly scalable, they can also be applied to other non-time-series data such as images. Furthermore, we identify the relationships between pre-market and intraday stock movements using our model. We forecast Dow 30 index components' intraday returns using the pre-market returns. Our model shows the best performance with the least amounts of training data, compared to existing CNN, ResNet, and SENet models. Our results suggest the existence of a nonlinear relationship between pre-market and intraday returns. Although our model is limited because it cannot accurately predict every one-minute intraday return using the pre-market returns, the trends of intraday stock movement are predictable.

Who reacts to overnight returns in South Korea?
Ham, H., Lee, J., & Ryu, D. *(in the completion stage of deriving main results)*

Summary: We find that the relationship between overnight returns and institutional buy-sell balances is positive. This suggests that institutional investors respond quickly to the information published overnight, affecting the overnight returns. However, our results show that the retail buy-sell balance is negatively associated with overnight returns. This suggests that, after the market reopens, retail investors tend to trade in the opposite direction to the overnight returns. Akbas, Boehmer, Jiang, and Koch (2021) argue that there are "daily tugs of war" between "noise traders" who respond to new information reported overnight, and "daytime arbitrageurs" who judge overnight returns as noise. We suggest that the noise traders are mainly composed of instructional investors, while daytime arbitrageurs constitute the retail investors in South Korea. This tug of war causes the daily daytime reversals in South Korea.

Transformer-based Intraday Stock Price Prediction Model
Ham, H., Lee, W., Lee, J., & Cho, Y *(in the process of model designing)*

Summary: Recently, attention-based models have been gaining popularity for their strong performance across various fields. As of 2021, the Temporal Fusion Transformer (Lim et al., 2019) is marked as the SOTA (State of The Art) model in time-series forecasting. In this study, we predict intraday prices of the stocks from the Dow 30 index. We modify the Temporal Fusion Transformer to fit financial analysis by changing the Variable Selection Networks structure. Additionally, we consider the Known Future Inputs designed to reflect the characteristics of financial markets.