State of the Art in Robo-Advising Systems: Financial Technologies for Enhanced Social Security

2018.04.12 (THU) - 2018.04.13 (FRI)
Millennium Seoul Hilton Hotel

Organized by

EDHEC-RISK Institute   PRINCETON UNIVERSITY   清華大学 Tsinghua University   交叉信息研究院 Institute for Interdisciplinary Information Sciences   KAIST

Sponsored by

SAMSUNG SAMSUNG ASSET MANAGEMENT

CONTENTS

CONFERENCE STATEMENT FROM ORGANIZING CHAIR

In the era of fourth industrial revolution, every aspect of our lives is rapidly changing. What were once perceived as topics of science fiction - including artificial intelligence, robotics, autonomous vehicles, Internet of Things, and quantum computing - are now being deployed in the real world, with a speed and a scale we have never seen. Thanks to the vast amount of data, increased computing power and newly developed technologies, the tasks that only human beings could do are now beautifully and efficiently conducted by machines. Without a question, many industries will face fundamental changes in an unprecedented manner – from daily operations to the whole value chains.

Wealth management industry is not an exception. For instance, just like a self-driving car, many tasks in financial industry that have been traditionally conducted only by human beings can be automatically done by machines. This opens a completely new possibility in the practice of financial services. Traditionally, financial services, especially customized wealth management services, are aimed for institutions and rich individuals. This is the due to the fact that these services are provided in a very labor intensive manner. Given the nature of financial services, the labor should be well-trained, and thus the services were inevitably expensive. Only institutions and high-net-worth individuals could afford such expensive services, and majority of the population around the world didn't have an opportunity to get a help from professionals. Certainly, this will change.

With the newly introduced technologies, the cost of financial services could significant decrease, which will ultimately allow every individual to afford customized wealth management services. This change allows the asset management industry to provide services to the long-tail, the general public without significant amount of financial assets. From the business perspective, this means that the industry will have a completely new, yet enormous market – customized wealth management for everyone. Especially, with the rise of defined contribution pension plans around the world, the customized wealth management service for general population is becoming a necessity, which could only be accomplished with technological innovations.

Besides business implications, these technologies can solve significant social problems that many countries are facing. For instance, Korea has the highest after-retirement poverty rate among OECD countries, reaching almost 50%. We can reduce the cost significant so that even people with lower than average income can get the customized life time financial planning services. Just like the universal healthcare, if we indeed make it happen, the after-retirement poverty rate can significant decrease over time, which will naturally lead to the decrease in public expenditure for social security, thus enhance the sustainability of the nation.

In response to the imminent changes, EDHEC, KAIST, Princeton, and Tsinghua have been hosting a series of rotational conferences on financial technologies to offer a forum to facilitate the discussions among all interested parties around the world – including academics, practitioners, and regulators. After the inaugural event that took place at Princeton University in 2017, the four universities will hold the second event of the conference series on April 12th and 13th in Seoul.

Leading experts from the US, Asia and Europe will be featured at the conference, including Michael Dempster (Founding editor of Quantitative Finance, Professor at Cambridge University), Woo Chang Kim (Professor and Head of KAIST Center for Wealth Management Technologies), Lionel Martellini (Professor and Director of EDHEC-Risk Institute), and John Mulvey (Professor and founding member of the Bendheim Center for Finance at Princeton University).

April, 2018
Organizing Chair, Woo Chang Kim

PROGRAM

Day 1: April 12, 2018 (Thu)

Time	Category	Contents
09:30 - 09:35	Congratulatory Speech	**Sung-Chul Shin** (President of KAIST)
09:35 - 09:40	Congratulatory Speech	**Sung Joo Kim** (Chairman of NPS)
09:40 - 10:20	Session 1	**Woo Chang Kim** (Professor, KAIST) **"Financial Technologies to Enhance Social Security"**
10:20 - 11:00	Session 2	**Wei Xu** (Professor, Tsinghua University) **"Handling Fintech Challenges in China: Consensus, Privacy, and Regulations"**
11:00 - 11:20		*Tea Break*
11:20 - 12:10	Plenary Session 1	**Michael Dempster** (Professor, Cambridge University) **"Intelligent Robo-Advice for Life Cycle Planning"**
12:10 - 13:30		*Lunch*
13:30 - 14:10	Session 3	**John Mulvey** (Professor, Princeton University) **"A Regime Aware Asset-Liability Management Framework"**
14:10 - 14:50	Session 4	**Giorgio Consigli** (Professor, University of Bergamo) **"Asset-Liability Management and Goal-Based Investing for Retail Business in the Robo-Advisory Era"**
14:50 - 15:10		*Tea Break*
15:10 - 15:50	Session 5	**Lionel Martellini** (Professor, EDHEC Business School) **"Mass-production, Mass-customization, and Mass-distribution of Welfare-improving Retirement Solutions with Digital Technology"**
15:50 - 16:30	Plenary Session 2 (online lecture)	**John Bogle** (Founder of Vanguard Group) **"Occam's Razor Redux: Establishing Reasonable Expectations for Financial Market Returns"**

Day 2: April 13, 2018 (Fri)

Time	Category	Contents
09:30 - 10:10	Session 1	**Heayoung Sung** (Deputy Research Fellow, NPS Research Institute) **"After-retirement Planning by NPS"**
10:10 - 10:50	Session 2	**Jang Ho Kim** (Professor, Kyung Hee University) **Yongjae Lee** (Professor, Seoul National University) **"Multi-stage stochastic goal programming explained: Holistic approach for goal-based investing"**
10:50 - 11:10		*Tea Break*
11:10 - 12:00	Session 3	**Jung-Hwan Lee** (Head of ETF Solutions, Samsung Asset Management) **"The Current Status and Future Prospects of the Korean Robo-Advisor Industry: GBI, Driving Changes in the Asset Management Industry"**
12:00 - 13:30		*Lunch*
13:30 - 14:10	Session 4	**Changle Lin** (Professor, Tsinghua University) **"Client Profiling via AI"**
14:10 - 15:00	Session 5	**Wonjong Rhee** (Professor, Seoul National University) **"On the Current Status of AI Technology"**
15:00 - 15:20		*Tea Break*
15:20 - 16:00	Session 6	**Youngsuh Cho** (Head of Digital Strategy Team, Shinhan Financial Group) **"Advanced Retirement Planning of Shinhan Financial Group via Digital Transformation"**
16:00 - 17:00	Panel Discussion	**"Financial Services to Enhance Social Security"** **Moderator** **Jae Hyeong Jeong** ChosunBiz **Panelists** **Jong Hyun Won** National Assembly Research Service **KyoungSeok Mun** Samsung Asset Management **Kyung Il Choi** Ministry of Health and Welfare **Gyun Jeon** Samsung Securities **Jin Soo Lee** iRobo Investment Advisory

PRESENTATIONS

CONGRATULATORY SPEECH

SUNG-CHUL SHIN

KAIST President

CONGRATULATORY SPEECH

SUNG JOO KIM

NPS Chairman

WOO CHANG KIM

- Associate Professor,
  Industrial & Systems Engineering Department, KAIST
- Head, KAIST Center for Wealth Management Technologies
- Organizing Chair

BIO

Woo Chang Kim is associate professor in the Industrial and Systems Engineering Department at the Korea Advanced Institute of Science and Technology (KAIST) and Head of KAIST Center for Wealth Management Technologies. He serves on the editorial boards for several journals, including Quantitative Finance, Journal of Portfolio Management, Optimization and Engineering, and Quantitative Finance Letters. He is an expert on financial optimization and portfolio management, and has published many papers in leading academic and practitioner journals in the related fields as well as a textbook on robust portfolio management. He is a member of the voting rights committee and the fund management refinement committee for Korea's National Pension System, a member of technology advisor group for Financial Services Commission, and an advisor for Samsung Asset Management. He earned his B.S. and M.S. degrees from Seoul National University, and Ph.D. from Princeton University.

TITLE

Financial Technologies to Enhance Social Security

ABSTRACT

FinTech represents the main changes driven by new technologies in financial sector. Its main implication is to enable more convenient, safer, and less expensive financial services via technologies. This has become possible because machines are now conducting many tasks that can be done only by seasoned experts previously, as in the case of autonomous vehicle. Asset management industry is not an exception, and the term "robo-advisor" reflects the fundamental changes of the industry.

One of the most notable changes is that the personalized life-time wealth management services that only high-net-worth individuals were accessible are now being available for everyone – including those who are not so rich – by reducing the costs of services with new technologies. Without a question, it has a huge business implication. More importantly, it has a meaningful impact on the social welfare, or the social security. As if the universal healthcare system has significantly contributed toward longer life expectancy of South Korea, enabling personalized life-time wealth management service for everyone will allow every single citizen to be actively prepared for their financial goals including the retirement needs. This will certainly improve the public utility. In addition, it will reduce the number of people who need the support from the social welfare system, which will ultimately cut the nation's expenditure, leading to a more stable fiscal health of the nation, and extending the sustainability of the society.

In this talk, I will discuss various technological issues on the relevant domain. Also, I will define the values created by the new technologies from the perspectives of the clients and service providers. In addition, I will exhibit the blueprint of the enhanced social security via personalized wealth management service for everyone.

Wei Xu (徐葳)

- Assistant Professor, Tsinghua University
- Assistant Dean,
  Institute for Interdisciplinary Information Sciences (IIIS),
  Tsinghua University
- Associate Director, Institute of Financial Technology,
  Tsinghua University

BIO

Wei Xu is an assistant professor and assistant dean at the Institute for Interdisciplinary Information Sciences (IIIS) of Tsinghua University in Beijing. He is also an associate director of the Tsinghua's Institute of Financial Technology. His research interest is distributed system design and data science, especially their applications in financial technology. He has published 40+ research papers in leading venues. He received the National Youth 1000 Program award of China, faculty research awards from Google and IBM, graduate student advising award and top-performance employee award from Tsinghua. He received his M.S. and Ph.D. from UC Berkeley, advised by Prof. David Patterson. Before Tsinghua, he worked for Google as a software engineer for 2.5 years.

TITLE

Handling Fintech Challenges in China: Consensus, Privacy, and Regulations
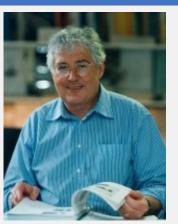
ABSTRACT

Fintech in China is developing fast. It faces significant challenges due to the lack of basic infrastructures we take for granted in developed countries, such as a trusted credit reporting system. In this talk, I provide an overview of our on-going research aiming at supporting next-generation Fintech applications on untrusted Internet infrastructure, using block chains and other crypto methods. Specifically, I will introduce three projects we are developing:

1) a new consensus protocol that combines gossip-like network broadcast with multi-round voting to achieve both high performance and provable correctness guarantees;

2) a Python-like programming environment to support general privacy-preserving multi-party computation with high performance;

3) a new blockchain protocol that provides anonymous transactions, but also guarantees that a regulatory agency can monitor these transactions.

MICHAEL A. H. DEMPSTER

- Professor Emeritus, Department of Pure Mathematics and Statistics, University of Cambridge
- Founder, Center for Financial Research

소개

Michael A. H. Dempster, is a professor emeritus and founder of Centre for Financial Research and department of Pure Mathematics and Statistics at University of Cambridge. He was the first Professor of Finance at the Cambridge Judge Business School and is currently founding Editor-in-Chief of Quantitative Finance and an Associate Editor of Stochastics, Computational Finance and the Journal of Risk Management in Financial Institutions. He has been consultant to a number of global financial institutions and corporations and several governments and is regularly involved in research presentations and executive education in financial engineering and risk management around the world. Author of over 110 published research articles in leading international journals, and 17 books including Introduction to Optimization Methods (with P.R. Adby), Stochastic Programming, Large Scale Linear Programming (with G.B. Dantzig and M. Kallio).

제목

Intelligent Robo-Advice for Life Cycle Planning

초록

This lecture is concerned with the use of currently available technology to provide individuals, financial advisors, and pension fund financial planners with detailed prospective financial plans tailored to an individual's financial goals and obligations. By taking account of all prospective cash flows of an individual, including servicing current liabilities, and simultaneously optimizing prospective spending, saving, asset allocation, tax, insurance, etc., using dynamic stochastic optimization, our research addresses the intelligent financial planning for life by comparing the results of such a goal-based fully dynamic strategy with representative current best practices of the financial advisory industry. Considered current best practices use Markowitz mean-variance optimization based on the very general goal of minimizing portfolio volatility for a specific portfolio expected return over a finite horizon. The performance of the adaptive dynamic goal-based portfolio strategy is found to be far superior to all the industry's Markowitz-based approaches. These empirical results should put paid to the commonly held view amongst finance professionals that the extra complexity of holistic dynamic stochastic models is not worth the marginal extra value obtained from their employment. We hope that such approaches implemented in currently available technologies will rapidly find acceptance by individuals, financial advisors, and pension funds to the genuine benefit of individual investors.

| **SESSION 3** | **DAY 1** | **13:30 – 14:10** |

JOHN M. MULVEY

- Professor,
  Department of Operations Research and Financial Engineering,
  Princeton University
- Founding Member, Bendheim Center for Financial Research

BIO

John M. Mulvey is a professor at the department of operations research and financial engineering, Princeton University, and a founding member of the Bendheim Center for Financial Research. Professor Mulvey is a leading expert in large-scale optimization models and algorithms, especially financial applications. He has implemented integrated risk management for many large financial companies, including American Express, Towers Perrin - Tillinghast, Pacific Mutual, and St. Paul Insurance. The ALM systems link the key risks within the organization and assist the company in making high-level decisions. His recent work involves the area of alternative investments (hedge funds, private equity, venture capital, commodities), their relationship to traditional assets, and dynamic investment strategies to enhance performance. In addition, he has built significant planning systems for government agencies, including the Office of Tax Analysis for the Treasury Department, and the Joint Chiefs of Staff in the Defense Department. He has edited five books and published over 160 scholarly papers.

TITLE

A Regime Aware Asset-Liability Management Framework

ABSTRACT

Regime switching can provide a realistic approach for modeling asset performance over long time periods. These concepts are based on the premise that crash periods display differential patterns than normal periods, for example, high volatility and correlation – contagion. Likewise, we show that factor investing methods can be improved by reference to multiple regimes. There is a challenge when adapting these ideas to asset-liability management for individual and institutional investors. Liability cash flows change slowly in comparison to the market price of the assets. To address this discrepancy, we present a regime aware ALM framework and discuss applications to goal based investment systems for individuals.

SESSION 4	DAY 1	14:10 – 14:50

GIORGIO CONSIGLI

- Professor of Applied Mathematics,
  School of Economics and Social Science, University of Bergamo

BIO

Dr Consigli holds a Ph.D. in Mathematics from the University of Essex (UK) and from 1995 to 1997 he was PostDoc at the University of Cambridge (UK) under the supervision of Professor Michael Dempster, one of the Pioneers of stochastic programming. Giorgio is currently Professor of Applied Mathematics in Economics and Social Sciences at the University of Bergamo (Italy). Giorgio's main scientific interests are on financial modeling and decision theory under uncertainty with a strong commitment to real world applications and stochastic optimization methodologies. He is an editor of IMA J of Management Mathematics, International Journal of Financial Engineering and Risk Management and Computational Management Science. He is currently Scientific advisor for ALM methodologies of Allianz Headquarter.

TITLE

**Asset-Liability Management and Goal-Based Investing
for Retail Business in the Robo-Advisory Era**

ABSTRACT

The industry of online personal financial services is expected over the next years to absorb an increasing share of households' and individuals' savings and investment decisions with a parallel expansion of tailored decision tools and underlying methodological developments. In this paper we extend our previous work on long-term retirement planning and present a dynamic stochastic optimization model formulated to tackle an optimal wealth management problem based explicitly on the introduction of consumption and investment goals with a terminal inflation-adjusted retirement target over a long-term horizon. By embedding a goal-based investing philosophy in a dynamic framework we extend our previous results and provide a reference modeling approach for increasingly popular households asset-liability management services. In a discrete setting we show that a dynamic stochastic programming formulation will lead to a highly realistic representation and solution of an otherwise hardly manageable optimization problem and it is consistent with the operational requirements of robo-advisory services.

SESSION 5	DAY 1	15:10 – 15:50

LIONEL MARTELLINI

- Professor, EDHEC Business School
- Director, EDHEC-Risk Institute

BIO

Lionel Martellini is Professor of Finance at EDHEC Business School and Director of EDHEC-Risk Institute. Professor Martellini is a member of the editorial board of The Journal of Portfolio Management, The Journal of Alternative Investments, and The Journal of Retirement. He conducts active research in a broad range of topics related to investment solutions for individual and institutional investors, equity and fixed-income portfolio construction, risk management and derivatives valuation. His work has been published in leading academic and practitioner journals and has been featured in major European and global dailies such as The Financial Times and The Wall Street Journal. He has co-authored reference textbooks on topics related to Alternative Investment Strategies, Fixed-Income Securities, and is preparing a new textbook on Investment Solutions. Professor Martellini has served as a consultant for large institutional investors, investments banks and asset management firms on a number of questions related to risk and asset allocation decisions, and is a regular speaker in seminars and conferences on these subjects.
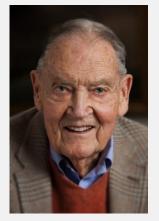
TITLE

Mass-production, Mass-customization, and Mass-distribution of Welfare-improving Retirement Solutions with Digital Technology

ABSTRACT

With the need to supplement retirement savings via voluntary contributions, individuals are increasingly responsible for their own retirement saving and investment decisions. This global trend raises a serious concern since individual investors not only suffer from behavioral limitations but also typically lack the expertise needed to make educated investment decisions. We argue that the retirement investing challenge can be adequately addressed with the timely convergence of powerful forces, including (1) mass-production of smart factor indices as attractive alternatives to active managers for efficient risk premia harvesting, (2) mass-customization of goal-based investing solutions as attractive alternatives to existing retirement products for efficient life-cycle investment decisions, and (3) mass distribution with digital wealth management systems as attractive alternatives to traditional wealth management platforms. We also outline the outstanding challenges that remain associated with these recent trends, and discuss how risk management is expected to play a central role in what should be regarded as nothing short of an industrial revolution that is about to impact asset and wealth management.

John C. Bogle

- Founder, Vanguard Group

BIO

John C. Bogle is Founder of The Vanguard Group, Inc., and President of the Bogle Financial Markets Research Center. He created Vanguard in 1974 and served as Chairman and Chief Executive Officer until 1996 and Senior Chairman until 2000. He had been associated with a predecessor company since 1951, immediately following his graduation from Princeton University, magna cum laude in Economics. In 2004, TIME magazine named Mr. Bogle as one of the world's 100 most powerful and influential people, and Institutional Investor presented him with its Lifetime Achievement Award. In 1999, Fortune designated him as one of the investment industry's four "Giants of the 20th Century." In the same year, he received the Woodrow Wilson Award from Princeton University for "distinguished achievement in the Nation's service." In 1997, he was named one of the "Financial Leaders of the 20th Century" in Leadership in Financial Services (Macmillan Press Ltd., 1997). In 1998, Mr. Bogle was presented the Award for Professional Excellence from the Association for Investment Management and Research (now the CFA Institute), and in 1999 he was inducted into the Hall of Fame of the Fixed Income Analysts Society, Inc. Mr. Bogle served as Chairman of the Board of Governors of the Investment Company Institute in 1969-1970, and as a member of the Board in 1969-1974. In 1997, he was appointed by then-U.S. Securities and Exchange Commission Chairman Arthur Levitt to serve on the Independence Standards Board. In 2000, he was named by the Commonwealth's Chamber of Commerce as Pennsylvania's Business Leader of the Year.

TITLE

Occam's Razor Redux: Establishing Reasonable Expectations for Financial Market Returns

ABSTRACT

In a series of articles in the early 1990s, John Bogle presented two methods for forecasting long-run stock and bond returns. Two decades' worth of out-of-sample data validates the virtues of the simplicity and the forward-looking nature of the original models. The low prospective returns on mixed stock/bond portfolios are likely to refocus investors' attention on the costs of mutual fund investments.

SESSION 1	**DAY 2**	**09:30 – 10:10**

HEAYOUNG SUNG

- Deputy Research Fellow, National Pension Research Institute

BIO

- Ph.D., SungKyunKwan University(Seoul, South Korea), 2005
- Deputy Research Fellow,
  National Pension Research Institute, 2012-08 ~ Present
- Foreign Research Fellow,
  Na-ra Women's University (Japan), 2011-04~2012-03
- International Vising Scholar,
  Miami University (U.S.), 2017-01~2017-12

TITLE

Retirement preparation service in NPS

ABSTRACT

National Pension Service (NPS) in South Korea has launched 'Retirement Preparation Service' in 2008. The purpose of this service is to develop and improve the ability of individual and family to prepare for lives after retirement. Through enhanced understanding of personal issues related to retirement, people can have confidence about their later lives. NPS provides three kinds of services: education, counseling and on-line. The contents of the service consist of four areas: personal finance, human relationships, health and leisure. Service providers are employees of NPS trained as educators or counselors. Some studies have shown significant changes in awareness and behaviors for retirement preparation after receiving education and counseling.

SESSION 2	DAY 2	10:10 – 10:50

JANG HO KIM

- Assistant Professor, Kyung Hee University
- Member, KAIST Center for Wealth Management Technologies

BIO

Dr. Jang Ho Kim is an assistant professor of industrial and management systems engineering at Kyung Hee University and a member of KAIST Center for Wealth Management Technology. He is on the editorial advisory board of the Journal of Portfolio Management. Dr. Kim received a doctorate in industrial and systems engineering from KAIST where he gained research interest in portfolio management, especially in robust portfolio optimization. He recently coauthored a book on robust portfolio optimization with Professors Woo Chang Kim and Frank J. Fabozzi. Prior to earning his doctorate, he worked in the electronic trading unit of Bank of America Merrill Lynch in New York City. He holds an M.Eng. and a B.S. in computer science, both from Cornell University.

YONGJAE LEE

- BK Assistant Professor, Seoul National University
- Member, KAIST Center for Wealth Management Technologies

BIO

Dr. Yongjae Lee is a BK assistant professor of transdisciplinary studies at Seoul National University and a member of KAIST Center for Wealth Management Technology. His research is mainly focused on making optimal investment decisions via portfolio optimization, machine learning, and metaheuristic algorithms. Dr. Lee received the best Ph.D. thesis award from KORMS in 2016. He has earned his doctorate degree in industrial and systems engineering at KAIST, and Bachelor's degree in computer science and mathematical sciences at KAIST.

TITLE

Multi-stage stochastic goal programming explained:
Holistic approach for goal-based investing

ABSTRACT

Personalized wealth management is becoming more important and a critical component of financial planning for non-high-net-worth individuals is their consumption goals. Therefore, wealth management for average investors should be modeled based on the asset-liability management framework. We propose a goal-based investing model that is suitable for personalized wealth management, which only requires a few intuitive inputs from individuals such as wealth, investment, and consumption goals. In particular, priority levels can be assigned to consumption goals and our model assures maximum probability of achieving higher priority goals in a holistic approach. Furthermore, our model, which combines multi-stage stochastic programming and goal programming, is formulated as a linear programming problem that efficiently finds the theoretical optimal investment decision. With its simplicity, flexibility, and computational efficiency, the proposed goal-based investing model provides a new framework for automated investment management services.

JUNG-HWAN LEE

- Head of ETF Solutions, Samsung Asset Management

BIO

Education
- M.S. in Financial Engineering, KAIST
- B.S. in Management, Sogang University

Career
- Head of Passive Management Division, Samsung Asset Management
- Head of ETF Management Team, Samsung Asset Management
- Head of Index Management Team, Samsung Asset Management
- Head of AI Team, Dongbu Asset Management
- Derivative Research, Kiwoom Securities

TITLE

**The Current Status and Future Prospects of the Korean Robo-Advisor Industry:
GBI, Driving Changes in the Asset Management Industry**

ABSTRACT

Korean asset management market has undergone a variety of changes starting from the financial crisis in 2008 and has recently undergone a rapid paradigm shift due to the emergence of robo-advisors and artificial intelligence. In particular, although robo-advisor has emerged as a new trend in the market, growth has been delayed due to domestic institutional constraints and structural uniqueness. In this market situation, we introduce how Samsung Asset Management interprets asset management services, and directions for implementation and commercialization of GBI service, which is a total asset management solution.

CHANGLE LIN (林常乐)

- Assistant Professor, Tsinghua University

BIO

Prof. Changle Lin got his bachelor's in mathematics from Tsinghua University in 2007, and his PhD degree in Operations Research from Princeton University in 2015. He was the chief architect of investment engine system in Merrill Lynch, and was on both strategic asset allocation and dynamic asset allocation committee. He came back to Tsinghua in 2016 to help Prof. Yao set up FinTech joint lab and founded Wealth Engine Technologies to become a leading AI firm in wealth & asset management industry. His research areas include asset allocation & portfolio theory, stochastic control & optimization and artificial intelligence applied in state-of-art client profiling, asset management, asset & liability management and risk management systems.

TITLE

Client Profiling via AI

ABSTRACT

Behavior finance researchers always come up with theories and economic insights to explain investor behaviors. But seldom can they get massive micro-level real data for empirical studies. IT infrastructure development, big data technology and artificial intelligence has just made it possible to collect, analyze and model investor behaviors with micro-level information. Like Lucas critique on macroeconomics, micro-level empirical studies on investor behaviors may as well have ground-breaking influence on behavior finance. This talk draw results from collaborative research done by Tsinghua and several securities firms, to illustrate several promising directions for investor behavior studies.

WONJONG RHEE

- Associate Professor, Seoul National University

- IEEE Fellow

BIO

Dr. Wonjong Rhee is an associate professor of Graduate School of Convergence Science and Technology at Seoul National University (SNU). He is an expert of data science, deep learning, optimization, information theory, and signal processing. Before joining SNU in 2013, he was a founding member of a silicon-valley start-up company, ASSIA, Inc. that was started by a renowned Stanford professor. During Dr. Rhee's 10 years at ASSIA, he played key roles for inventing, developing, and deploying a SaaS (Software as a Service) product for network data collection, data analysis, and optimization. As of today, the company is managing broadband networks of 100 million households including customers of AT&T, Verizon, Telefonica, BSkyB, and Orange. He is an IEEE Fellow (elevated in his 30's; one of the youngest records) and an ASSIA Fellow, and holds 300 pending/granted international patents. He received his Ph.D. and MS from Stanford University, and BS from SNU.

TITLE

On the Current Status of AI Technology

ABSTRACT

There are strong hopes on applying AI technology to a variety of industry sectors, and the hopes are quickly or slowly being confirmed or disproved. Financial industry is no exception, and numerous attempts are being made on the basis of numeric and prediction-oriented nature of the industry. In this talk, we address the advantages and limitations of the current technology, and speculate on how the technology will be utilized.

SESSION 6	DAY 2	15:20 – 16:00

Youngsuh Cho

- Head of Digital Strategy Team, Shinhan Financial Group

BIO

- Head of Digital Strategy Team, Shinhan Financial Group ('17.4~)

- Partner and Head of Financial Services and Public Sector Practices, Bain & Company Korea ('10.8~'17.3)

- Consultant, Mckinsey & Company ('00~'10)

- Columbia MBA ('00)

- Deputy Director, Ministry of Finance and Economy ('95~'00)

- B.A. in Economics, Seoul National University ('94)

TITLE

Advanced Retirement Planning of Shinhan Financial Group via Digital Transformation

ABSTRACT

1. Importance of Future Retirees as Customers

2. Customer Analysis

3. Shinhan's Approach to Retirement Market

  - Customer and asset management via digital services

  - Retirement planning via robo-advising

PANEL DISCUSSION	DAY 2	16:00 – 17:00

TITLE
Financial services to enhance social security

MODERATOR

JAE HYOUNG JEONG	Head of International Department, ChosunBiz

PANELISTS

JONG HYUN WON	Legislative Investigator, National Assembly Research Service
KYOUNGSEOK MUN	Managing Director, Samsung Asset Management
KYUNG IL CHOI	Head of National Pension Finance Division, Ministry of Health and Welfare
GYUN JEON	Director, Samsung Securities
JIN SOO LEE	CEO, iRobo Investment Advisory

Participating Institutions

KAIST, a research university established in 1971, has served as the gateway to advanced science, technology, and innovation for Korea. To meet the growing demand for young, competent global leaders, KAIST has developed itself as a global arena for interdisciplinary education and research opportunities.

KAIST focuses on creating an atmosphere for interdisciplinary communication and collaboration for its academic units in all of its four campuses in Daejeon and Seoul to stimulate the innovative leadership and entrepreneurship needed to develop technology for the advancement of the world and for sustainable economic growth. KAIST also endeavors to strengthen its network to provide its constituents with collaboration opportunities with prominent partners from academia and industry. KAIST will continue to foster innovation and creativity for the future generation of global leaders; students who are no longer bound by the limits of specific disciplines, departments or the national borders and are dedicated to research excellence for the betterment of all mankind.

The KAIST Center for Wealth Management Technologies (KAIST WMT Center) was founded in 2016, to foster the interdisciplinary research for wealth management technologies. Under the core agenda of "enabling customized wealth management service for everyone", the center is conducting various researches to provide innovative technologies which can ultimately shift the high cost service structure of wealth management industry into scalable and affordable one. Currently, the center has 11 members from academia, industry, and regulatory agencies.

ORFE is the intersection of five core disciplines: financial mathematics, operations research, optimization, probability theory, and statistics. Research in the Department ranges from the mathematical foundations of these fields to the development of state-of-the-art methodology for solving complex problems that arise in important real-world applications in finance, engineering and the sciences. ORFE students obtain a strong quantitative and interdisciplinary training, and acquire the skills to become leaders in academia and industry.

The Bendheim Center for Finance was established in 1998 to encourage interdisciplinary research in finance, primarily from a quantitative or mathematical perspective. The research activities of the center are directed toward the study of financial markets and asset prices, the financial structure of firms, banks and other financial intermediaries, and the linkages between financial economics and other fields, such as engineering, operations research, mathematics, computer science, psychology and public policy

Founded in 1906, EDHEC Business School offers management education at undergraduate, graduate, post-graduate and executive levels. Holding the AACSB, AMBA and EQUIS accreditations and regularly ranked among Europe's leading institutions, EDHEC Business School delivers degree courses to over 6,500 students from the world over and trains 10,000 professionals yearly through executive courses and research events. The School's 'Research for Business' policy focuses on issues that correspond to genuine industry and community expectations.

Part of EDHEC Business School and established in 2001, EDHEC-Risk Institute has become the premier academic centre for industry-relevant financial research. In partnership with large financial institutions, its team of close to 50 permanent professors, engineers, and support staff, and 38 research associates and affiliate professors, implements 6 research programmes and 10 research chairs focusing on asset allocation and risk management and has developed an ambitious portfolio of research and educational initiatives in the domain of investment solutions for institutional and individual investors.

EDHEC-Risk Institute also has highly significant executive education activities for professionals. In partnership with CFA Institute, it has developed advanced seminars based on its research which are available to CFA charterholders and have been taking place since 2008 in New York, Singapore and London.

In 2012, EDHEC-Risk Institute signed two strategic partnership agreements, with the Operations Research and Financial Engineering department of Princeton University to set up a joint research programme in the area of asset-liability management for institutions and individuals, and with Yale School of Management to set up joint certified executive training courses in North America and Europe in the area of risk and investment management.

Advancing a tradition of academic excellence, Tsinghua University is a pacesetter for innovation in China. It has become a leading world university in just over 100 years. Tsinghua University excels in its fundamental task of high-level personnel training, and also serves as an indispensable base for China's scientific and technological innovation. It is among the most selective universities in the Asia-Pacific region, and a trusted global partner for researchers and academics.

Institute for Interdisciplinary Information Sciences (IIIS) was established at Tsinghua University in 2010. The Institute aims to become one of the leading research centers on interdisciplinary information sciences in the world, as well as to offer an attractive environment for top quality research and education in computer science and quantum information science in China. Its special undergraduate program, nicknamed by its students as the Yao Class, has become an international brand for excellence in undergraduate computer science education.

Official Sponsors

Established in 1998, Samsung Asset Management ("SAM" or the "Company") is Korea's leading investment management company, providing investment trust & mutual fund management, advisory and related services, with over US$177.6 billion* in asset under management.

Through its headquarter in Seoul as well as subsidiaries in Hong Kong, New York, London and Beijing, the Company provides both domestic and overseas investors with high-quality investment products and services based on professional and rigorous investment research.
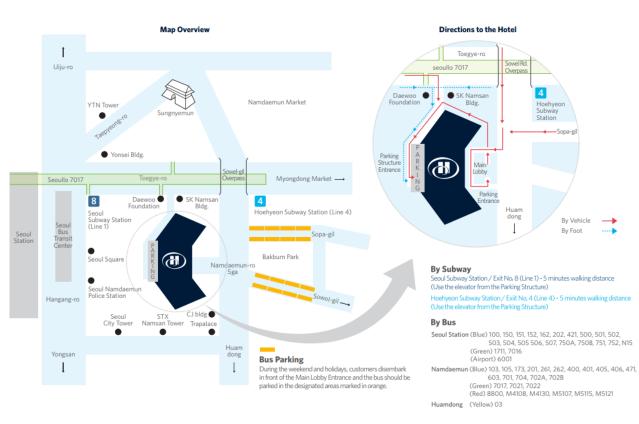
As a full service investment manager, SAM offers investment advisory and management services in all segments from equities, fixed income to alternative assets. It is particularly strong in ETFs, Fixed Income and Hedge Funds and leads the domestic market in their respective fields. Especially in ETF, SAM has maintained its unmatched market dominance with over 50% of the domestic market.

In January 2017, the Company spun-off its active Investment and hedge-fund divisions into separate subsidiaries Samsung Active Asset Management and Samsung Hedge Asset Management, respectively, with views to better serve its clients by enhancing asset management efficiency and specialties.

The company is an affiliate of the Samsung Group.

*Combined AUM of Samsung Asset Management, Samsung Active Asset Management and Samsung Hedge Asset Management. (As of Jan 2017)

DIRECTIONS

Millennium Seoul Hilton

Map Overview

Directions to the Hotel

By Vehicle →
By Foot ⇢

By Subway
Seoul Subway Station / Exit No. 8 (Line 1) - 5 minutes walking distance
(Use the elevator from the Parking Structure)
Hoehyeon Subway Station / Exiit No. 4 (Line 4) - 5 minutes walking distance
(Use the elevator from the Parking Structure)

By Bus
Seoul Station (Blue) 100, 150, 151, 152, 162, 202, 421, 500, 501, 502, 503, 504, 505 506, 507, 750A, 750B, 751, 752, N15
(Green) 1711, 7016
(Airport) 6001
Namdaemun (Blue) 103, 105, 173, 201, 261, 262, 400, 401, 405, 406, 471, 603, 701, 704, 702A, 702B
(Green) 7017, 7021, 7022
(Red) 8800, M4108, M4130, M5107, M5115, M5121
Huamdong (Yellow) 03

Bus Parking
During the weekend and holidays, customers disembark in front of the Main Lobby Entrance and the bus should be parked in the designated areas marked in orange.

CONTACT

KAIST CENTER FOR WEALTH MANAGEMENT TECHNOLOGIES

Homepage   http://wmt.kaist.ac.kr

E-mail   Fintech@kaist.ac.kr