Yale SOM-EDHEC-Risk Asset Allocation and Investment Solutions Seminar

Seminar Description

Over the last 15 years or so, the investment industry has experienced a series of profound structural changes, and an increasing number of serious new challenges are being faced by both institutional and individual investors as a result of these changes.

On the institutional side, pension funds have been particularly impacted by the shift in most accounting standards towards the valuation of pension liabilities at market rates, instead of fixed discount rates, which has resulted in an increase in the volatility of pension liability portfolios. This new constraint has been reinforced in parallel by stricter solvency requirements that followed the 2000–2003 pension fund crisis, while ever stricter solvency requirements are also increasingly being imposed on insurance companies in the US, Europe and Asia.

These evolutions in accounting and prudential regulations have subsequently led a large number of corporations closing their defined-benefit pension schemes so as to reduce the impact of pension liability risk on their balance sheets and income statements. A massive shift from defined-benefit to defined-contribution pension schemes is thus taking place globally. Consequently, individuals are becoming increasingly responsible for making investment decisions related to their retirement financing needs, investment decisions that they are not equipped to deal with given the low levels of financial literacy within the general population and the reported inability of financial education to significantly improve upon the current situation.

In such a fast-changing environment and an increasingly challenging context, the need for the investment industry to evolve beyond standard product-based market-centred approaches and to start providing both institutions and individuals with meaningful investor-centric investment solutions has become more obvious than ever. Against this backdrop, the aim of this 2-day seminar is to equip participants with practical tools to improve asset allocation and risk management decision processes, and to implement novel investment management approaches.

The first day of the course, led by Professors Justin Murfin and Frank Zhang, starts with a brief review of classical portfolio optimisation theory that ignores estimation error and moves on to cover more recent theory that incorporates estimation error. Participants will then study the evidence of out-of-sample performance of optimal portfolio selection models. The course will also propose a summary of different methods to improve the out-of-sample performance of portfolios using more general constraints. It will then go on to discuss the challenges related to forecasting returns and risk in the construction of diversification strategies in delegated asset management. It finally explains how to shift the emphasis from strategic asset allocation decisions to strategic risk and factor allocation decisions.

The second day of the seminar, led by Professor Lionel Martellini, shall focus on the efficient use of the three forms of risk management (hedging, diversification and insurance) for the production and distribution of improved investment solutions for institutional and individual asset owners. The seminar will present disciplined approaches to liability-driven investing strategies and goal-based investing strategies, and explain how asset managers may help investors maximise the probability of reaching their objectives subject to dollar and risk budget constraints, with applications in institutional or individual money management.
Key Learning Objectives

- Learn how to perform factor investing and risk allocation
- Develop an understanding of strategic asset allocation in the presence of liability constraints
- Assess how to overcome effect of estimation error by imposing better constraints
- Understand how to implement liability-driven investment solutions with cash and derivatives instruments
- Learn about goal-based investing strategies in institutional and private wealth management
- Identify affordability conditions for essential and aspirational goals
- Discuss implementation and mass customisation challenges for individual investment solutions
- Explore novel welfare-improving forms of investment solutions
- Discuss an application to the design of efficient retirement solutions

Detailed Outline

The first day of the course, led by Professors Justin Murfin and Frank Zhang, starts with a brief review of classical portfolio optimisation theory, and explores practical issues in implementation through examples and cases. Participants will learn two workhorse models of active management that separately delegate active management from the core benchmark portfolio and suggest efficient levels of active tilts across managers. The course also explores portfolio sensitivity to estimation error with respect to model inputs and how to mitigate associated risks.

Day 1 — Professors Justin Murfin and Frank Zhang

Asset allocation policy is a critical determining factor in portfolio performance. Day 1 of the programme tackles the fundamental trade-offs facing institutional and individual investors in financial assets, and delivers strategies for optimising those trade-offs.

Morning Session: Fundamentals of Asset Allocation — Professor Frank Zhang

Optimal asset allocation begins with the fundamental question of what features define the “optimal” portfolio? We explore the assumptions behind the classical mean variance framework and generate insights about the exact nature of the risk-return relationship in markets. These relationships provide the basis for factor models of security returns.

In addition to classical mean-variance geometry, we cover constant weighting strategies, strategic asset allocation, dynamic asset allocation, and insured allocation strategies. So-called “risk parity” portfolios are also examined in this context. The Yale investment office provides a natural case on practical implementation. In particular, the case details the complications of portfolio choice against a backdrop of spending constraints and liquidity limitations.

Over the course of both sessions, we investigate practical issues in the implementation of portfolio choice. Through simple Excel templates designed to identify efficient portfolios, we work through the mechanics of portfolio optimisation in various applied contexts. We also demonstrate in practice how linear factor models of expected returns, such as the capital asset pricing model and its extensions, derive from applied portfolio optimisation. Examples will be used to preview issues raised in Day 2 relating to real-world investment constraints facing managers and the impact of these constraints on expected portfolio outcomes.
The topics discussed will include:

> Asset allocation theory
> Risk-return trade-offs
> Diversification
> Asset allocation strategies
> The Yale model as an example to illustrate the power of asset allocation

**Afternoon Session: Asset Allocation Strategies — Professor Justin Murfin**

Using the tools and insights developed in the morning session, the afternoon session explores the limitations of the classical presentation of portfolio theory and develops two frameworks for active portfolio management.

Two practical issues are of particular importance. First, model inputs are subject to estimation error. This is particularly problematic for large portfolios requiring inputs at the level of individual assets. Second, in a delegated asset management setting, individual managers may only be a small part of the clients’ portfolios. We explore how two workhorse models of active asset allocation take these factors into account.

On one hand, Treynor-Black’s model of active management justifies the separation of active and passive portfolio strategies and suggests strategies for their efficient combination. The model minimises the need for manager views on all assets and gives guidance on the trade-offs facing managers choosing active tilts. Finally, it suggests levels of appropriate active exposure in different environments and how to allocate capital across active managers. We learn how the objective of active managers varies relative to that of the classical portfolio result. In particular, maximising Sharpe ratios leaves money on the table. This generates implications for performance evaluation and compensation of active managers.

Following the observation that quantitative asset allocation models are sensitive to estimation error in the central model inputs, we also derive active management strategies that accommodate imprecise “views” of managers who are subject to estimation error. In particular, we introduce the Black-Litterman model as a Bayesian updating approach for efficiently blending the manager’s active view with the benchmark allocation.

**Day 2 – Professor Lionel Martellini**

**Broad description**

In the face of a changing regulatory landscape, investment management needs to redefine itself as the art and science of efficiently spending investors’ dollar and risk budgets through a disciplined use of the three forms of risk management, namely (1) risk-hedging for efficiently controlling the risk factors in investors’ liabilities, (2) risk diversification for efficiently harvesting risk premia across and within asset classes, and (3) risk insurance for efficiently controlling downside while generating the kind of upside potential needed for investors to achieve their goals. The second day of the seminar builds on the fundamental material on asset allocation decisions covered during the first day of the seminar, which it extends to account for the presence of liability constraints of investment goals.

**Morning Session: Liability-Driven Investing in Institutional Money Management**

The morning session focuses on the design of optimal allocation strategies for investors endowed with long-term liabilities. It presents the state of the art in asset-liability management (ALM), with a specific emphasis on the liability-driven investment (LDI) paradigm in institutional money management.

This paradigm formalises the recognition that investment decisions should not be framed in terms of one all-encompassing reference policy portfolio, but instead in terms of two distinct reference portfolios, namely...
a liability-hedging portfolio and a performance-seeking portfolio. This dual portfolio approach, consistent with the "fund separation theorems", which advocate a separate management of performance and risk control objectives, has led to an increased focus on liability risk management, which is precisely a first step towards properly accounting for an institutional investor's meaningful objective, and the risk factors that impact the probability of the objective being achieved.

Finally, we will also explore the interaction between the performance-seeking and liability-hedging portfolios, with implications for the design of improved equity and bond benchmarks. In particular, we will analyse equity portfolios with enhanced liability-hedging properties, as well as the benefits of duration matching bond portfolios with improved diversification benefits.

The topics discussed will include:

> A brief history of ALM: cash flow matching, immunisation, surplus optimisation; fund separation theorem and LDI strategies; performance seeking portfolio vs. liability-matching portfolio; using derivatives to implement the liability-matching portfolio.

> Beyond LDI: from fund separation theorems to fund interaction theorems; performance-seeking portfolios with attractive liability-hedging properties and liability-hedging portfolios with attractive performance properties; inflation hedging portfolios with enhanced performance; reducing the required allocation to the performance-seeking portfolio by enhancing the liability-hedging portfolio; selecting asset classes on the basis of their portfolio properties versus standalone properties; trading-off diversification benefits versus hedging benefits.

> Case studies of LDI strategies: constructing better bond benchmarks from an ALM perspective; bond portfolios with duration constraints and improved Sharpe ratios; constructing performance benchmarks with improved hedging benefits; liability-friendly equity benchmarks based on selection and/or optimisation procedures.

**Afternoon Session: Goal-Based Investing in Individual Money Management**

The afternoon session transports the concept of investment solutions to the context of individual money management, where the massive shift of retirement risks onto individuals is laying great responsibility with the investment management industry, in terms of how to provide households with suitable retirement solutions.

Just as in institutional money management, we will define an asset allocation solution as a function of the kinds of particular risks to which the investor is exposed, or needs to be exposed to meet liabilities or fulfil goals, as opposed to purely focusing on the risks impacting the market as a whole. This recognition is leading to a new investment paradigm, which has been labelled goals-based investing (GBI) in individual money management, and which involves disaggregation of investor preferences into a hierarchical list of goals and the mapping of these groups to hedging portfolios possessing corresponding risk characteristics.

Drawing from liability-driven investment practices in institutional money management, one natural benchmark strategy consists in first securing all essential goals, and investing the available liquid wealth in a performance portfolio allowing for the most efficient harvesting of market risk premia. This strategy, which is appealing since it secures essential goals with probability 1 and generates some upside potential required for the achievement of important and aspirational goals, is in fact a specific case of a wider class of (in general) dynamic goals-based investing strategies.

The topics discussed will include:

> Designing improved forms of long-term investment for individual investors: capturing the benefits of mean-reversion in equity returns; including maximum drawdown constraints; introducing goal-oriented strategies; reducing the opportunity cost of downside risk hedging; using improved asset class benchmarks within long-term investment strategies.
Designing dedicated ALM solutions for private wealth management: taking into account a private client’s full profile; including consumption/bequest objectives and short-term performance constraints.

Designing improved forms of retirement solutions: defining retirement goals in terms of replacement income throughout the decumulation phase; estimating the maximum amount of replacement income given initial wealth and future contributions; securing a minimum level of replacement income while generating high probabilities of achieving higher target levels; managing longevity risk in the decumulation phase; meeting the challenges of mass customisation and scalability.

Seminar Instructors

Lionel Martellini,  
Professor of Finance,  
EDHEC Business School  
Director, EDHEC Risk Institute  
Senior Scientific Advisor, ERI Scientific Beta  
PhD U.C. Berkeley

> Lionel Martellini is a specialist in fixed income modelling, derivatives, asset allocation and retirement solutions. He was previously on the faculty of the Marshall School of Business at the University of Southern California and has also held a visiting position at Princeton University. He has served as a consultant to various institutional investors, investment banks, and asset management firms on questions related to risk management, asset allocation decisions and investment solutions. His research on asset management, portfolio theory, derivatives valuation, fixed income products, and alternative investment has appeared in leading academic and practitioners’ journals. He was awarded the Inquire Europe First Prize in 2009/2010 for his work on dynamic liability-driven investing strategies. He sits on the editorial boards of various journals including the Journal of Alternative Investments and the Journal of Portfolio Management.

Justin Murfin,  
Associate Professor of Finance,  
Yale School of Management  
PhD Duke University

> Professor’s Murfin research interests include banking, financial intermediation and financial contracting. His current work is focused on how the allocation of control rights in loan contracts varies based on lenders’ recent experience. Prior to Yale SOM, he worked for Barclays Capital in New York, Miami and Bogotá, Colombia, as well as the Federal Reserve Bank of Dallas.

X. Frank Zhang,  
Professor of Accounting,  
Yale School of Management  
PhD University of Chicago

> Professor Zhang’s research focuses on empirical capital market researches, including stock anomalies, fundamental analysis, investor and analyst behaviour, management incentives, and corporate financial reporting. He is interested in both rational and behavioural approaches in studying stock anomalies and cross-sectional variations in stock returns.
Yale SOM–EDHEC-Risk Certificate in Risk and Investment Management

Participants in the seminar series can acquire the joint Yale School of Management – EDHEC-Risk Certificate in Risk and Investment Management.

For further Information on the Yale SOM-EDHEC-Risk Certificate in Risk and Investment Management, please refer to the Certificate brochure.

Fees, Billing and Further Information

Fees
Standard rate: USD 3,900 (EUR 3,500)
Group discounts available.

Billing and payment
The fee is billed upon registration and must be settled before the seminar begins. Payment can be made by credit card or wire transfer. Invoicing will be in Euros.

Transfer or cancellation
Transfer of registration to a colleague, upon written notice, is allowed and free of charge. Transfer of registration fees to another EDHEC-Risk Institute programme must be requested in writing and is subject to the following charges: 45 to 30 days' notice: 15% of the tuition fee; 29 to 11 days' notice: 30% of the tuition fee; 10 days' notice or less: 50% of the tuition fee.

Cancellations of confirmed seats must be received in writing and are subject to the following charges: 45 to 30 days’ notice: 25% of the tuition fee; 29 to 11 days’ notice: 50% of the tuition fee; 10 days’ notice or less: 100% of the tuition fee.

Fees for the Certificate Seminar Series
Registrants for the Certificate Seminar Series will benefit from a 15% discount on the total cost of the programme. Fees include instruction, documentation, refreshments at breaks, and lunch. Accommodation is not included.

Schedule
A typical programme day lasts from 9:00 am to 5:00 pm and is usually divided into lectures and application cases. The two class sessions in each half-day period are separated by 30 minute refreshment breaks. Lunch is included.

Venue
Yale School of Management
165 Whitney Avenue
New Haven, CT 06511-3729
Continuing Professional Education Credits

Further information and registration
Please contact:

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> To register, please visit: https://www.regonline.co.uk/S1_NH_Feb_2016