



Yale SCHOOL OF
MANAGEMENT
Executive Education



EDHEC-RISK
Institute

Yale School of Management – EDHEC-Risk Institute
Harvesting Risk Premia in Equity and Bond Markets

July 11-13, 2017, Yale Campus (New Haven, CT) - USA

Yale SOM – EDHEC–Risk Harvesting Risk Premia in Equity and Bond Markets Seminar

Seminar Description

A new approach known as factor investing has recently emerged in investment practice which recommends that allocation decisions be expressed in terms of risk factors, as opposed to standard asset class decompositions. While risk factors have been commonly used for risk and performance evaluation of actively managed portfolios for a long time, the current focus is on identifying the proper framework under which factor investing and risk allocation is expected to generate welfare gains for asset owners. In particular, the emergence of so-called smart beta investment solutions, which is blurring the traditional clear-cut split between active versus passive equity portfolio management, puts the emphasis on efficient harvesting of risk premia across and within asset classes.

This seminar has been designed to offer participants an in-depth discussion of modern factor investing approaches in equity and bond markets. The first day of the seminar is dedicated to an in-depth analysis of rewarded risk premia in equity markets. The second day of the seminar presents recent advances in portfolio construction that can be used to form the best diversified, and therefore the best rewarded, portfolio along whatever rewarded factor tilt an investor may decide to be exposed to. The third and last day of the seminar brings a focus on risk premia harvesting in fixed-income markets, with a discussion that encompasses both the identification of rewarded risk factors in the fixed-income space and the portfolio construction techniques required to most efficiently harvest such time-varying risk premia.

Key Learning Objectives

- > Understand the limits of various portfolio construction tools; find out about the dangers of naively optimized portfolios and the benefits of robust optimization.
- > Examine the challenges in estimating expected return parameters and learn about new approaches for estimating expected returns using parametric portfolios and risk-based estimation.
- > Study the limits of traditional equity indices; find out about the minimum-variance benchmark, equally-weighted benchmark, and other forms of benchmarks; evaluate the objectives and assumptions underlying alternative indices and learn about model selection and hidden risks entailed in the choice of a particular benchmark.
- > Learn about how to use current models and empirical evidence about global capital markets to construct asset portfolios based on the principles of factor investing.
- > Understand how to use "big-data" methodology to optimally exploit the hundreds of anomalies identified by financial economists.
- > Discover the many dimensions of putting factor investing into practice through the case-study approach (The Norway Model).
- > Discover how to address the challenges in implementing optimized portfolios, in particular, how to manage portfolio liquidity and turnover.
- > Investigate relative risk concerns when deviating from market-cap weights.
- > Get a comprehensive understanding of smart beta strategies: the motivation for these strategies, their risks, and how best to integrate them.
- > Find out about smart beta and factor investing in fixed income markets.

Detailed Outline

Day 1 – Professor William N. Goetzmann

Factor Investing in Practice: Applications to Portfolio Management

Expected Returns in Exchange for Factor Risk

Investment portfolios are based on the idea that risk must be taken in order to increase expected returns. However, there are intelligent ways to take risk. On the first day participants will learn about how to use current models and empirical evidence about global capital markets to construct asset portfolios based on the principles of factor investing.

There have been many recent developments in the practice of factor investing. This day will focus on the challenges of identifying and implementing factors in practice

The morning session discusses the historical evidence of the existence of "smart beta" portfolios based on equity, debt and real asset factors in global markets. The theory behind factor portfolios is explored and applied to the question of why they have historically provided higher returns. What are the risks the factor portfolios are exposed to and when do they manifest themselves? Will factor risk premia continue in the future? Can factors be accessed through alternative investments like hedge funds or non-marketable investments like private equity? How do factors behave during financial crises? How costly are they to implement? How are factor exposures combined into a portfolio? Some common methodologies used in practice are introduced, including risk parity and factor timing.

The morning session provides a framework to think more broadly about factors, to address contradictions and uncertainties about factor investing, to examine a few applications in detail and to consider the future of factor investing. The format of the morning session is conversational and will allow discussion with the instructor about issues of interest to participants as well as the prepared presentation topics.

The Norway Model and Factor Investing

There are many issues to consider in the implementation of a factor investing strategy. There is more to managing a factor portfolio than understanding risk and return. In the afternoon session, participants will discuss the many dimensions of putting factor investing into practice through the case-study approach. The Norwegian Government Pension Fund Global is a pioneer in the large-scale implementation of factor investing. Its recent and ongoing process of reviewing how best to implement its strategic allocation policy provides an instructive example of putting factor investing into practice.

Issues in this rich, innovative online case about the Fund include direct versus delegated factor management, appropriate benchmarks for performance, managing risk expectations, addressing appropriateness of various factor exposures, the role of alternative investments in a factor strategy, building and incentivizing managerial teams and implementing ongoing financial research and development. The case approach engages all session participants in thinking critically about the benefits, costs, challenges, possibilities and appropriateness of factor investing. The diversity of views and experiences among participants makes for a powerful learning experience.

Day 2 – Professor Raman Uppal

Harvesting Risk Premia in Equity Markets: Recent Advances in Equity Portfolio Management

On the second day, we will look at classical portfolio optimization theory that ignores estimation error and more recent theory that incorporates estimation error. We will then study the evidence on out-of-sample performance of optimal portfolio selection models and different benchmark indexes. Finally, we will examine different methods to improve the out-of-sample performance of portfolios.

Modern portfolios that ignore estimation error

- > Overview of theory of mean-variance optimal portfolio choice and asset allocation, including the work of Nobel-prize winners Markowitz, Tobin, Sharpe, Samuelson, and Merton
- > Effects of constraints, transactions costs, and taxes.
- > Implications of theory of mean-variance efficient optimal portfolio
- > Understanding the naïve equally-weighted (1/N) portfolio
- > Performance metrics and empirical evidence on implications of mean-variance portfolio theory

Post-modern portfolios that adjust for estimation error

- > Motivation for models dealing with estimation error
- > Theoretical models of portfolio choice that adjust for estimation error (Bayesian models, Black-Litterman, etc.)
- > Empirical evidence on performance of portfolio models that adjust for estimation error

Smart beta portfolios

- > Understanding smart beta portfolios
- > The systematic risks of smart beta portfolios
- > Empirical evidence on the performance of smart beta portfolios

Factor-based portfolios that adjust for estimation error

- > The Arbitrage Portfolio Theory (APT)
- > The generalized APT that captures the errors arising from missing and/or mismeasured factors
- > Mitigating estimation error in the generalized APT model
- > Empirical evidence on performance of portfolios based on the generalized APT

Characteristic-based portfolios that adjust for estimation error

- > The parametric portfolio policy of Brandt, Santa-Clara, and Valkanov
- > Extending the parametric portfolio policy with a LASSO constraint from the "big-data" approach
- > Identifying, from the hundreds of variables that claim to predict the cross section of stock returns, which ones actually matter for portfolio selection
- > Empirical evidence of performance of these models compared to the four-factor Fama-French-Carhart model, the five-factor Fama and French model, and the four-factor Hou, Xue, and Zhang model.

Day 3 – Professor Riccardo Rebonato

Risk Premia in Fixed Income: Time Series and Cross-Sectional Results

On the third day, we will look in detail at risk premia and factors in the fixed-income markets (Treasury and Corporate, nominal and real).

We will study both time-series risk premia and return-predicting factors (that give an indication of whether 'today' it is a good strategy to be 'overweight duration'); and cross-sectional 'factors' (that give an indication about the extra return offered by some securities with respect to others).

For time-series factors we will look at the most recent evidence (i.e., to the literature spawned by the 2005 Cochrane and Piazzesi findings). We will discuss in detail the robustness and replicability of these results.

The treatment will give special emphasis to the exceptional monetary conditions of the last decade and to the implications of a near-zero lower bound. We will understand carefully whether statistical and model-based approaches can provide useful timing information in the present monetary conditions; and we will discuss to what extent the cross-sectional information embedded in no-arbitrage models enriches the pure statistical estimation of risk factors. The output of some of the models used by the Fed as auxiliary tools in the conduct of monetary policy will be examined in detail.

As for cross-sectional factors, we will distinguish carefully between true factors, behavioral effects and 'anomalies', and we will explain why the distinction matters in practice. We will then present a critical survey of the latest statistical evidence on fixed income factors (including corporate bonds), assess the robustness of this evidence, and discuss the problem of 'proxies'. This part of the course covers the factor identification carried out for 'smart beta in fixed income' purposes.

For both strands of the course, we will comment on the most recent and best-quality literature results, and also present original findings.

Morning Session 1:

- > Overview of the course
- > Where true risk premia 'come from'
- > Time-series vs cross-sectional risk premia
- > Time series risk premia for bonds: the 'common wisdom' results (Fama, Campbell and Shiller)
- > Challenges to the common wisdom: Cochrane and Piazzesi (CP)

Morning Session 2:

- > The economic content of the CP results
- > Beyond CP: the role of macro variables: Ludvigsson and Ng, Radwanski, Cieslak and Povala
- > Robustness, stability, replicability: can the results be believed (and used)?
- > Dealing with the zero bound and exceptional monetary conditions – the 'Fed models'
- > Original results on the estimation of time-varying risk premia in fixed income.

Afternoon Session 1:

- > Cross-sectional factors: anomalies, factors, and behavioral effects
- > Review of the recent literature on 'smart beta in fixed income': which results are robust, which are statistically and economically meaningful
- > The problem of proxies

Afternoon Session 2:

- Original results on:
- > The value factors in (Treasury) bonds
 - > The liquidity factor for TIPS and less liquid fixed-income securities
 - > Downside-Risk CAPM applied to fixed income: how to understand some of the fixed-income anomalies

Seminar Instructors

Will Goetzmann,

Edwin J. Beinecke Professor of Finance and Management Studies, Director of the International Center for Finance, Yale School of Management
PhD Yale University



> William N. Goetzmann is an expert on a diverse range of investments, including stocks, mutual funds, real estate, and paintings. His research topics include forecasting stock markets, selecting mutual fund managers, housing as investment, and the risk and return of art. Professor Goetzmann's work has been featured in *The Wall Street Journal*, *The New York Times*, *Business Week*, *The Economist*, *Forbes*, and *Art and Auction*. Professor Goetzmann has a background in arts and media management. As a documentary filmmaker, he has written and coproduced programmes for Nova and the American Masters series, including a profile of artist Thomas Eakins. A former director of Denver's Museum of Western Art, Professor Goetzmann co-authored *The Origins of Value: The Financial Innovations that Created Modern Capital Markets*.

Raman Uppal,

Professor of Finance,
EDHEC Business School
PhD Wharton School, University of Pennsylvania



> Raman Uppal is a specialist in portfolio selection, asset pricing, risk management, and exchange rates. He was formerly Professor of Finance and Chair of the Finance Subject Area at the London Business School, having previously worked at the University of British Columbia. He has held visiting positions at KU Leuven, the MIT Sloan School of Management, the London School of Economics, and has served as co-director of the Financial Economics Programme of the Centre for Economic Policy Research. His research focuses on optimal portfolio selection and asset allocation in dynamic environments, valuation of securities in capital markets, risk management, and exchange rates. He has published widely in leading journals such as *Journal of Economic Theory*, *Journal of Finance*, *Journal of Financial and Quantitative Analysis*, *Management Science* and *Review of Financial Studies*, and has received numerous grants and awards for his research work and teaching.

Riccardo Rebonato,

Professor in Finance, EDHEC Business School
PhD in Science of Materials (Condensed Matter Physics,
Stony Brook University, NY).
Doctorate in Nuclear Engineering (Universita' di Milano)



> Professor Rebonato was previously Global Head of Rates and FX Research at PIMCO. He also served as Head of Front Office Risk Management and Head of Clients Analytics, Global Head of Market Risk and Global Head of Quantitative Research at Royal Bank of Scotland (RBS). Prior joining RBS, he was Head of Complex IR Derivatives Trading and Head of Derivatives Research at Barclays Capital. Riccardo Rebonato has served on the Board of ISDA (2002-2011), and has been on the Board of GARP since 2001. He was a visiting lecturer in Mathematical Finance at Oxford University (2001-2015). He is the author of several books, in particular having published extensively on interest rate modelling, risk management, and most notably books on SABR/LIBOR Market Model pricing of interest rate derivatives, as well as on the use of Bayesian nets for stress testing and asset allocation. He has published articles in international academic journals such as *Quantitative Finance*, the *Journal of Derivatives* and the *Journal of Investment Management*, and has made frequent presentations at academic and practitioner conferences.

Yale SOM–EDHEC–Risk Certificate in Risk and Investment Management



Participants can complete all three seminars and receive the prestigious joint Yale School of Management-EDHEC-Risk Certificate in Risk and Investment Management, or attend a single session which provides more focused study.

For further information on the Yale SOM–EDHEC–Risk Certificate in Risk and Investment Management, please refer to the **certificate brochure**.

Remote-Learning Option

To offer you more flexibility, we offer the option of distance-learning, which will allow the instructor to interact live with remote participants.

Please be advised that in order to obtain the certificate, only one distance-learning session is permitted within the whole series.

For more information, please contact us at yalesom-eri@edhec-risk.com

Fees, Billing and Further Information

Fees

Standard rate: USD 6,000 (EUR 5,200)

Fees include instruction, documentation, refreshments at breaks, and lunch.

Accommodation is not included.

Billing and payment

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

Transfer or cancellation

Transfer of registration to a colleague, upon written notice, is allowed and is free of charge. Transfer of registration fees to another Yale SOM - EDHEC-Risk program 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.

Schedule

A typical program 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

EDHEC-Risk Institute is registered with CFA Institute as an approved provider of continuing education programs.

Registration

For further information, please contact:

David Pramer, Yale School of Management at: david.pramer@yale.edu or on: +1 203 432 6268

Caroline Prévost, EDHEC-Risk Institute at: yalesom-eri@edhec-risk.com or on: +33 493 183 496

To register, please visit: https://www.regonline.co.uk/S2_LDN_Juin_21-23_2017.



EDHEC-RISK
Institute

Yale School of Management
Edward P. Evans Hall
165 Whitney Avenue, New Haven,
Connecticut
Tel.: +1 203.432.5932



Yale SCHOOL OF
MANAGEMENT
Executive Education

EDHEC-Risk Institute
393 promenade des Anglais
BP 3116 - 06202 Nice Cedex 3
France
Tel: +33 (0)4 93 18 78 24

EDHEC Risk Institute—Europe
10 Fleet Place, Ludgate
London EC4M 7RB
United Kingdom
Tel: +44 207 871 6740

EDHEC Risk Institute—Asia
1 George Street
#07-02
Singapore 049145
Tel: +65 6438 0030

EDHEC Risk Institute—France
16-18 rue du 4 septembre
75002 Paris
France
Tel: +33 (0)1 53 32 76 30

www.edhec-risk.com