EDHEC BUSINESS SCHOOL

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Vincent Milhau is a Research Director at EDHEC-Risk Institute. He is in charge of several research projects conducted at the Institute in the fields of portfolio optimization and asset allocation for institutional or individual investors. Most of these projects are funded by large industry players interested in the latest advances in risk management and asset allocation. Vincent's main research focus is on the application of stochastic calculus and asset pricing theory to optimal portfolio choice, and on the design and the implementation of *investment solutions* that reach investors' objectives.

EDUCATION

2006 – 2009 **PhD in Business Studies**, University of Nice, Finance.

2003 – 2006 **Master of Science**, ENSAE (Paris), Statistics, Finance, Actuarial Science.

2005 – 2006 **Master of Science**, Université Paris VII, Stochastic Modeling, Finance.

2003 – 2005 **Bachelor of Science**, Université Paris VI, Mathematics.

2000 – 2003 **Classe Préparatoire aux Grandes Écoles** (preparatory course for competitive exams for entrance to French Grandes Écoles), Lycée Montaigne (Bordeaux), Mathematics and Physics.

PROFESSIONAL NON-TEACHING EXPERIENCE

2015 – Present **Research Director,** EDHEC-Risk Institute (Nice).

- Research on factor investing strategies and their applications to asset-liability management;
- Research on the design of "goal-based retirement strategies" that secure a replacement income while being scalable within a population of investors;
- Participation in the development of a reporting tool for goal-based retirement strategies.

2011 – 2015	**Deputy Scientific Director,** EDHEC-Risk Institute (Nice). Contributions to the Institute's activities include mathematical and numerical computations for the research projects and article writing. This research has been published in the form of EDHEC-Risk publications and articles in academic journals. - Research on goal-based investing in private wealth management; - Research on portfolio selection with long horizon and short-term constraints; - Analysis of the asset-liability management practices at European pension funds; - Research on the construction of efficient bond portfolios; - Research on the benefits of factor investing in equity, bond and commodity portfolios; - Research on the decomposition of the value added by new assets in an investment universe; - Research on the hedge of real interest rate risk without inflation-linked bonds; - Advisory role for projects managed by EDHEC-Risk Institute or ERI Scientific Beta in the area of asset allocation or portfolio construction.
2009 – 2011	**Senior Research Engineer**, EDHEC-Risk Institute (Nice). - Research on life-cycle investing for individual investors; - Research on ALM for pension funds in the presence of sponsor risk; - Research on option hedging with futures contracts.
2006 – 2009	**Research Engineer**, EDHEC-Risk and Asset Management Research Centre (Nice). - Research on portfolio optimization for pension funds subject to constraints on funding ratio; - Research on debt structure optimization for corporate issuers with default risk

TEACHING EXPERIENCE

Academic years	Course
2020/21	*Introduction to R*, MSc in Data Analytics, EDHEC Online.
2014/15 2013/14 2012/13 2010/11 2009/10	*Financial Modeling with Matlab* (graduate level), MSc in Financial Economics, EDHEC Business School.

PUBLICATIONS

Published and Forthcoming Papers

- "Does Factor Investing Improve Investor Welfare? A Multi-Asset Perspective", with Lionel Martellini. ***Journal of Portfolio Management*** 46(6), 2020.

- "Securing Replacement Income with Goal-Based Investing Strategies", with Lionel Martellini and John Mulvey. ***Journal of Retirement*** 7(4), Spring 2020.

- "'Flexicure' Retirement Solutions: A Part of the Answer to the Pension Crisis?", with Lionel Martellini and John Mulvey. ***Journal of Portfolio Management*** 45(5), Jul. 2019.

- "A Reinterpretation of the Optimal Demand for Risky Assets in Fund Separation Theorems", with Romain Deguest and Lionel Martellini. ***Management Science*** 64(9), Sep. 2018.

- "Bond Portfolio Optimization in the Presence of Duration Constraints", with Romain Deguest, Frank Fabozzi and Lionel Martellini. ***Journal of Fixed Income*** 28(1), Summer 2018.

- "Capital Structure Choices and the Optimal Design of Corporate Market Debt Programs", with Lionel Martellini and Andrea Tarelli. ***Journal of Corporate Finance*** 49, 2018.

- "Proverbial Baskets are Uncorrelated Risk Factors! A Factor-Based Framework for Measuring and Managing Diversification in Multi-Asset Solutions", with Lionel Martellini. ***Journal of Portfolio Management*** 44(2), Winter 2018. **This paper was awarded the 20th Annual Bernstein Fabozzi/Jacobs Levy Award for Outstanding Article**.

- "Equity Portfolios with Improved Liability-Hedging Benefits", with Guillaume Coqueret and Lionel Martellini. ***Journal of Portfolio Management*** 43(2), Winter 2017.

- "Mass Customization in Life-Cycle Investing Strategies with Income Risk", with Romain Deguest and Lionel Martellini. ***Bankers, Markets and Investors*** 139, Nov.-Dec. 2015.

- "Towards Conditional Risk Parity – Improving Risk Budgeting Techniques in Changing Economic Environments", with Lionel Martellini and Andrea Tarelli. ***Journal of Alternative Investments*** 18(1), Summer 2015.

- "Hedging Inflation-Linked Liabilities without Inflation-Linked Instruments through Long/Short Investments in Nominal Bonds", with Lionel Martellini and Andrea Tarelli. ***Journal of Fixed Income*** 24(3), Winter 2015.

- "Estimation Risk versus Optimality Risk: An Ex-Ante Efficiency Analysis of Heuristic and Scientific Equity Portfolio Diversification Strategies", with Lionel Martellini and Andrea Tarelli. ***Bankers, Markets and Investors*** 132, Sep.-Oct. 2014.

- "Analyzing and Decomposing the Sources of Added-Value of Corporate Bonds within Institutional Investors' Portfolios", with Lionel Martellini. ***Bankers, Markets and Investors*** Special Issue EDHEC-Risk Days Europe 2014, Mar.-Apr. 2014.

- "Hedging versus Insurance: Long-Term Investing with Short-Term Constraints", with Romain Deguest and Lionel Martellini. ***Bankers, Markets and Investors*** Special Issue EDHEC-Risk Days Europe 2014, Mar.-Apr. 2014.

- "An Empirical Analysis of the Benefits of Inflation-Linked Bonds, Real Estate and Commodities for Long-Term Investors with Inflation-Linked Liabilities", with Lionel Martellini. ***Bankers, Markets and Investors*** 124, May-Jun. 2013.

- "Dynamic Allocation Decisions in the Presence of Funding Ratio Constraints", with Lionel Martellini. ***Journal of Pension Economics and Finance*** 11(4), Sep. 2012. **This paper was awarded the First Prize 2009/2010 from the Quantitative Investment Research (Inquire) Europe.**

- "Option Pricing and Hedging in the Presence of Cross-Hedge Risk", with Lionel Martellini. ***Bankers, Markets and Investors*** 119, Jul.-Aug. 2012.

- "Towards the Design of Improved Forms of Target-Date Funds", with Lionel Martellini. ***Bankers, Markets and Investors*** 109, Nov.-Dec. 2010.

- "Asset-Liability Management in Private Wealth Management", with Noël Amenc, Lionel Martellini and Volker Ziemann. ***Journal of Portfolio Management*** 36(1), Fall 2009.

Books and Book Chapters

- *Advances in Retirement Investing*, with Lionel Martellini. Cambridge Elements in Quantitative Finance.

- "Asset Allocation and Portfolio Construction", with Noël Amenc, Felix Goltz and Lionel Martellini. Chapter in *The Theory and Practice of Investment Management*, edited by Frank Fabozzi and Harry Markowitz. John Wiley, 2011.

- "Exploiting Asset-Liability Management Concepts in Private Wealth Management", with Noël Amenc, Lionel Martellini and Volker Ziemann. Chapter in *Asset and Liability Management Handbook*, edited by Gautam Mitra and Katharina Schwaiger. Palgrave Macmillan, 2011.

Working Papers

- "Mass Customization versus Mass Production in Retirement Investment Management: Addressing a 'Tough Engineering Problem'", with Lionel Martellini.

- "Estimating Covariance Matrices for Portfolio Optimization", with Guillaume Coqueret.

❖ "Long-Term Investing for Individual Investors – When Wall Street Meets Main Street", with Romain Deguest and Lionel Martellini.

❖ "Option Pricing and Hedging in the Presence of Basis Risk", with Lionel Martellini.

❖ "Capital Structure Choices, Pension Fund Allocation Decisions and the Rational Pricing of Liability Streams", with Lionel Martellini.

❖ "Optimal Decisions in (Asset and) Liability Management", with Lionel Martellini.

Featured in the Press

❖ "Factor Investing", with Lionel Martellini, *Hedge Fund Journal* (107), September 2015.

❖ "Improving Life-Cycle Funds", with Lionel Martellini, *Financial Times*, September 28, 2009.

❖ "Short-Term Constraints in a Long-Run Horizon", with Lionel Martellini, *Financial Times*, April 20, 2009.

CONFERENCE PRESENTATIONS

❖ "Multi-Dimensional Risk and Performance Analysis for Equity Portfolios", EDHEC-Risk Days, *London* (March 2016).

❖ "Hedging Long-Term Inflation-Linked Liabilities without Inflation-Linked Instruments", ERI Days Europe, *London* (March 2013).

RESEARCH INTERESTS

- Optimal portfolio choice in continuous time
- Portfolio optimization with performance constraints
- Asset pricing theory and factor models
- Asset and liability management
- Stochastic calculus applied to asset pricing and portfolio optimization
- Estimation of continuous-time models

TOOLS

Matlab, R, Python, LaTeX.

LANGUAGES

French (native), English, German (basic).

REFEREE ACTIVITIES

Referee for *Automatica*, *Finance Research Letters* and *Journal of Portfolio Management*.