EDHEC-Risk Institute

London - Nice - Singapore

EDHEC-Risk Institute: Key Figures, 2010-2011

Number of permanent staff	80
Number of research associates	19
Number of affiliate professors	26
Overall budget	€11,200,000
External financing	€6,215,000
Number of conference delegates	1,850
Number of participants at EDHEC-Risk Indices & Benchmarks seminars	391
Number of participants at EDHEC-Risk Institute Risk Management seminars	419
Number of participants at EDHEC-Risk Institute Executive Education seminars	356

A Message from the Dean of EDHEC Business School

"EDHEC-Risk Institute produces high quality research by high quality staff. It is a highly respected institute that can think both literally and figuratively across boundaries. It not only produces sound theoretical frameworks for identifying and analysing risks but is also able to come up with pragmatic solutions for direct implementation by the investment industry, be it pension funds, banks or insurance companies. And on top of this they are really fun to work with."

Jaap Maassen, *Former Senior Vice President,* ***APG International*** *and Chairman,* ***European Federation for Retirement Provision (EFRP)***

Research for Business

Olivier Oger,
Dean of EDHEC Business School

Since 2001, EDHEC has been pursuing an ambitious policy in terms of international research. This policy, known as "Research for Business", aims to make EDHEC an academic institution of reference for the industry in a small number of areas in which the school has reached critical mass in terms of expertise and research results.

Among these areas, asset and risk management have occupied privileged positions, leading to the creation in 2001 of a major European research facility: EDHEC-Risk Institute. EDHEC-Risk plays a noted role in furthering applied financial research and systematically highlighting its practical uses. As part of its "research for business" philosophy, the research centre maintains a dialogue with professionals which benefits the industry as a whole. At the same time, its proprietary R&D provides sponsors with an edge over competition and joint ventures allow selected partners to develop new business opportunities.

EDHEC-Risk Institute now boasts a team of 80 permanent professors, engineers and support staff, and counts 45 research associates from the financial industry and affiliate professors. The year 2011 has been a pivotal one for the institute with the official openings of research centres in London and Singapore and the establishment of a research team in the United States. The opening of the Singapore campus goes hand in hand with the creation of the London campus. All in all, EDHEC has hosted more than 5,000 City professionals at its research seminars and conferences in London since 2003. The London and Singapore campuses are also at the heart of an ambitious executive education policy that saw EDHEC train 10,000 senior executives and business leaders of 29 different nationalities in Africa, Asia, Europe and the US in 2011.

To ensure that its activities meet the highest academic standards and truly benefit the industry, EDHEC-Risk Institute subjects its activities to strict validation processes. The scientific quality and operational relevance of the centre's research programmes are guaranteed by the centre's dual management structure and the oversight exercised by the leading experts serving on its international advisory board.

The following pages will provide you with a brief introduction to the activities carried out by EDHEC-Risk Institute. The centre's team is available to analyse with you the ways in which you could tap into the centre's expertise for the benefit of your organisation.

The Choice of Asset Allocation and Risk Management

"Over the years, EDHEC-Risk has demonstrated an unrivalled capacity to reconcile academic research and the pragmatism and sense of reality of financial industry practitioners. The research chair sponsored by BNP Paribas Investment Partners attests to our determination to provide advanced asset management solutions developed in accordance with the latest academic research. In this respect, this chair is already making good on its promises."

Philippe Marchessaux, *Chief Executive Officer,*
BNP Paribas Investment Partners

The Choice of Asset Allocation and Risk Management

Lionel Martellini, PhD
Scientific Director,
EDHEC-Risk Institute

Asset management is justified as an industry by the capacity of adding value through the design of investment solutions that match investors' needs. For more than fifty years, the industry has in fact focused mostly on security selection as a single source of added value. This focus has somewhat distracted the industry from another key source of added value, namely, portfolio construction and asset allocation decisions. In the face of recent crises, and given the intrinsic difficulty of delivering added value through security selection decisions alone, the relevance of the old paradigm has been questioned with heightened intensity, and a new paradigm is starting to emerge.

In a nutshell, the new paradigm recognises that the art and science of portfolio management consists of constructing dedicated portfolio *solutions*, as opposed to one-size-fits-all investment *products*, so as to reach the return objectives defined by the investor, while respecting the investor's constraints expressed in terms of (absolute or relative) risk budgets. In this broader context, asset allocation and portfolio construction decisions appear as the main source of added value by the investment industry, with security selection being a third-order problem.

Academic research has provided very useful guidance to the ways asset allocation and portfolio construction decisions should be analysed so as to best improve investors' welfare. In brief, the "fund separation theorems" that lie at the core of modern portfolio theory advocate separate management of performance and risk-control objectives. In the context of asset allocation decisions with consumption/liability objectives, it can be shown that the suitable expression of the fund separation theorem provides rational support for *liability-driven investment* (LDI) techniques that have recently been promoted by a number of investment banks and asset management firms. These solutions involve, on the one hand, the design of a *customised liability-hedging portfolio* (LHP), the sole purpose of which is to hedge away as effectively as possible the impact of unexpected changes in risk factors affecting liability values (most notably interest rate and inflation risks), and, on the other hand, the design of a *performance-seeking portfolio* (PSP), whose *raison d'être* is to provide investors an optimal risk/return trade-off.

One of the implications of this LDI paradigm is that one should distinguish two different levels of asset allocation decisions: allocation decisions involved in the design of the performance-seeking or the liability-hedging portfolio (design of better building blocks, or BBBs), and asset allocation decisions involved in the optimal split between the PSP and the LHP (design of advanced asset allocation decisions, or AAAs). Each level of analysis involves its own challenges and difficulties, and while the LDI paradigm is now widely adopted in the institutional world, very few market participants adopt an implementation approach of the paradigm that is fully consistent with the state-of-the-art in academic research.

The Choice of Asset Allocation and Risk Management

Asset allocation and portfolio construction decisions are intimately related to risk management. In the end, the quintessence of investment management is essentially about finding optimal ways to spend risk budgets that investors are reluctantly willing to set, with a focus on allowing the greatest possible access to performance potential while respecting such risk budgets. Risk diversification (a key ingredient in the design of better benchmarks for performance-seeking portfolios), risk hedging (a key ingredient in the design of better benchmarks for hedging portfolios), and risk insurance (a key ingredient in the design of better dynamic asset allocation benchmarks for long-term investors facing short-term constraints) are shown to be three useful approaches to optimal spending of investors' risk budgets, each of which represents a hitherto largely unexplored potential source of added value for the asset management industry.

Risk *management* is often mistaken for risk *measurement*. This is a problem since the ability to measure risk properly is at best a necessary but not sufficient condition to ensure proper risk management. Another misconception is that risk management is about risk reduction. In fact, it is at least as much about return enhancement as it is about risk reduction. Indeed, risk *management* is about maximising the probability of achieving investors' long-term objectives while respecting the short-term constraints they face.

In the end, the traditional (asset management or asset-liability management) static strategies without a dynamic risk-controlled ingredient inevitably lead to under-spending investors' risk budgets in normal market conditions (with a high opportunity cost), and over-spending their risk budgets in extreme market conditions. This idea was intuitively discussed in Bernstein (1996): "The word risk derives from the Latin *risicare*, which means *to dare*. In this sense, risk is a choice rather than a fate. The actions we dare to take, which depend on how free we are to make choices, are what the story of risk is all about."

Academic Excellence and Industry Relevance

Bringing Research Insights to Investors

Noël Amenc, PhD
Director, EDHEC-Risk Institute

EDHEC-Risk Institute was set up to conduct world-class academic research and highlight its applications to the industry. In keeping with this mission, the Institute systematically seeks to validate the academic quality of its research through publications in leading scholarly journals, implements a multifaceted communications policy to inform investors and asset managers on state-of-the-art concepts and techniques, and develops business partnerships to launch innovative products.

High quality academic output with professional relevance

The results of the research work performed by the Institute have been published by such foremost specialised scientific publications as the *Journal of Economic Literature*, *Journal of Financial Economics*, *Management Science*, the *Review of Financial Studies*, the *Journal of Portfolio Management*, and the *Financial Analysts Journal.*

Recognition of the academic quality and professional relevance of the centre's output is also evidenced by the integration of a number of articles into the required readings of professional designations, invitations to participate in curriculum design or authoring of programme material, and the decision by CFA Institute to designate EDHEC as an Approved Provider under the CFA Institute Continuing Education (CE) Programme.

International academic journals in which EDHEC-Risk staff have published include:

- *Applied Financial Economics*
- *Canadian Journal of Economics*
- *Economic Inquiry*
- *European Financial Management*
- *Finance and Stochastics*
- *Financial Analysts Journal*
- *Journal of Alternative Investments*
- *Journal of Asset Management*
- *Journal of Banking and Finance*
- *Journal of Business*
- *Journal of Business and Economic Statistics*
- *Journal of Business Finance and Accounting*
- *Journal of Econometrics*
- *Journal of Economic Dynamics & Control*
- *Journal of Economic Growth*
- *Journal of Economic Literature*
- *Journal of Empirical Finance*
- *Journal of Finance*
- *Journal of Financial and Quantitative Analysis*
- *Journal of Financial Economics*
- *Journal of Fixed Income*
- *Journal of Futures Markets*
- *Journal of International Money and Finance*
- *Journal of Investment Management*
- *Journal of Mathematical Economics*
- *Journal of Political Economy*
- *Journal of Portfolio Management*
- *Journal of Wealth Management*
- *Management Science*
- *Quarterly Journal of Economics*
- *Review of Finance*
- *Review of Financial Studies*

Constant dialogue with the industry

To maximise exchanges between the academic and business worlds, EDHEC-Risk maintains a website devoted to asset and risk management research for the industry: **www.edhec-risk.com**, circulates a monthly newsletter to over 1,000,000 practitioners, conducts regular industry surveys and consultations, and organises annual conferences for the benefit of institutional investors and asset managers.

Outstanding Faculty and Research Team

125 members strong, and representing 22 nationalities, the EDHEC-Risk Institute team is one of the largest risk and investment management research teams worldwide.

For its scientific part, the team is made up of permanent professors from EDHEC Business School and full-time researchers, and also of affiliate professors and research associates.

Faculty members of EDHEC-Risk Institute include a core team of 16 full professors of finance at EDHEC Business School, some of whom have important responsibilities within the Institute.

Professor **Noël Amenc** is Director of EDHEC-Risk Institute. A specialist in portfolio management, risk management and alternative investments, Noël is associate editor of the *Journal of Alternative Investments*, member of the editorial board of the *Journal of Portfolio Management*, member of the advisory board of the *Journal of Index Investing*, member of the scientific board of the French financial market authority (AMF) and member of the advisory board of Euronext.

Professor **Ekkehart Boehmer** is Deputy Academic Director of the EDHEC-Risk Institute PhD in Finance programme. A specialist in equity market micro-structure and the economics of trading, he was previously Director of Research at the New York Stock Exchange (NYSE) and Senior Economist at the U.S. Securities and Exchange Commission (SEC).

Professor **Frank Fabozzi** is Senior Scientific Adviser at EDHEC-Risk Institute and co-head of the fixed-income research programme. He was previously Professor in the Practice of Finance and Becton Fellow at the Yale School of Management. He has been the editor of the *Journal of Portfolio Management* since 1986.

Professor **René Garcia** is the Academic Director of the EDHEC-Risk Institute PhD in Finance programme. A specialist in asset-pricing theory, portfolio and risk management, and financial econometrics, he is a co-founder of the *Journal of Financial Econometrics*.

Professor **Abraham Lioui** is Deputy Academic Director of the EDHEC-Risk Institute PhD in Finance programme. A specialist in portfolio and asset pricing theory, derivatives and risk management, Abraham was previously at the department of economics at Bar Ilan University where he held the Vice Chair position.

Professor **Florencio López-de-Silanes** is Senior Scientific Adviser at EDHEC-Risk Institute, where he heads the corporate and mutual fund governance research programme. A specialist in international corporate finance and financial markets, legal reform, and privatisation, he has previously held faculty positions at the University of Amsterdam, Yale, Harvard, and ITAM.

Professor **Lionel Martellini** is Scientific Director of EDHEC-Risk Institute. A specialist in asset allocation, derivatives, fixed-income modelling, and alternative investment, he was previously on the faculty of the University of Southern California and has held a visiting position at Princeton University. He sits on the editorial boards of various journals, including the *Journal of Alternative Investments* and the *Journal of Portfolio Management*.

Professor **Joëlle Miffre** is Member of EDHEC-Risk Institute and is in charge of research on commodities. A specialist in asset management, with emphasis on commodities, equities, active strategies and asset pricing, she has published in numerous academic journals.

Professor **Stoyan Stoyanov** is Head of Research at EDHEC Risk Institute–Asia. A specialist in probability theory, extreme risk modelling, and optimal portfolio theory, he has ten years of experience in the field of risk and investment management, having worked for over six years as head of quantitative research for FinAnalytica.

Professor **Raman Uppal** is Senior Scientific Adviser at EDHEC-Risk Institute, with responsibility for regulation. 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. He was previously editor for the *Review of Financial Studies* and is currently editorial board member of *Mathematics and Financial Economics*, associate editor of the *Review of Asset Pricing Studies* and the *Critical Finance Review*, and a director of the American Finance Association.

The 26 affiliate faculty members of the EDHEC-Risk Institute PhD in Finance programme include world-class researchers and professors from the most prestigious academic institutions worldwide, including Princeton University, Johns Hopkins University, Duke University, the London School of Economics, Columbia University, the California Institute of Technology (Caltech), Boston University, the Wharton School at the University of Pennsylvania, the University of Chicago, Oxford University, and the University of Southern California.

EDHEC-Risk Institute's team of 12 permanent researchers are an essential component of EDHEC-Risk Institute, whether it involves academic research or applied research. The applied research team is led by Dr **Felix Goltz**, Head of Applied Research. Felix oversees the institute's industry surveys and applied research projects on portfolio construction, performance measurement and reporting, and passive investing. His research focuses on asset allocation and on indexing and passive investments across traditional and alternative investments.

The team of research engineers is closely involved in the Institute's research chairs and includes Deputy Scientific Director, Dr **Vincent Milhau**. Vincent is advisor for research projects related to portfolio optimisation and asset-and-liability management and is also in charge of validating the quantitative models and algorithms developed at EDHEC-Risk Institute. His research focuses on portfolio choice for institutional or private investors and asset-and-liability management.

The 19 research associates of EDHEC-Risk Institute provide direct links to the industry through their professional activities. Many of these research associates contribute to EDHEC-Risk Institute's position paper and working paper series and participate in seminars and conferences while playing leading roles within the industry.

Strong Partnerships with the Industry

EDHEC-Risk Institute is proud that its research activities are supported by some of the leading names in the global financial industry.

- ABERDEEN
- ALLIANZ GLOBAL INVESTORS
- AMUNDI
- AVIVA INVESTORS
- AXA INVESTMENT MANAGERS
- BNP PARIBAS INVESTMENT PARTNERS
- BNY MELLON ASSET MANAGEMENT
- CACEIS INVESTOR SERVICES
- CITIGROUP
- CME GROUP
- DEUTSCHE BANK
- DOW JONES INDEXES
- EFA
- EUREX
- F&C MANAGEMENT
- FINANALYTICA
- FITCH RATINGS
- FTSE
- HSBC
- INVESCO ASSET MANAGEMENT
- INVESDEX
- ISHARES
- LOMBARD ODIER DARIER HENTSCH
- LYXOR
- MARKOV PROCESSES INTERNATIONAL
- MOODY'S INVESTOR SERVICE
- MORGAN STANLEY INVESTMENT MANAGEMENT
- MTS
- NATIXIS ASSET MANAGEMENT
- NEWEDGE PRIME BROKERAGE
- NEWFINANCE CAPITAL
- NYSE EURONEXT GROUP
- ODDO ASSET MANAGEMENT
- ONTARIO TEACHERS' PENSION PLAN
- ORTEC FINANCE
- PICTET
- PRICEWATERHOUSE COOPERS
- RISKDATA
- RISKMETRICS
- ROBECO
- ROTHSCHILD & CIE
- RUSSELL INVESTMENTS
- SOCIETE GENERALE CORPORATE & INVESTMENT BANKING
- STANDARD & POOR'S
- STATE STREET GLOBAL ADVISORS
- STOXX
- SUNGARD
- SWISS EXCHANGE
- THREADNEEDLE
- UBS GLOBAL ASSET MANAGEMENT
- UNIGESTION
- VANGUARD INVESTMENTS
- WELLINGTON MANAGEMENT

"The financial industry is constantly evolving - new investment opportunities are constantly being uncovered and new products are constantly being introduced. Academic research can play a useful role in developing the analytical tools to help us better understand the risks and to make better investment decisions. Academic research can also help to provide important insights on the unique challenges faced by Sovereign Wealth Funds like the GIC and help to design solutions."

Dr Tai Tee Chia, *Chief Risk Officer,* ***GIC (Government of Singapore Investment Corporation),*** *Member of EDHEC-Risk Institute's International Advisory Board*

Six Research Programmes

EDHEC-Risk's six research programmes explore interrelated aspects of asset allocation and risk management to advance the frontiers of knowledge and foster industry innovation.

Asset Allocation and Alternative Diversification

The research carried out focuses on the benefits, risks, and integration methods of the alternative classes in asset allocation and makes significant contributions to the field of multi-style/multi-class portfolio construction. In particular, EDHEC-Risk research has advanced non-parametric risk estimation methods and extended the Bayesian approach to portfolio construction in the presence of preferences about higher moments of return distributions. The programme includes the "Advanced Modelling for Alternative Investments" research chair, in partnership with Newedge Prime Brokerage.

Performance and Style Analysis

This programme aims to adapt the portfolio performance and style analysis models and methods to tactical allocation and to new forms of investments. Research looks at performance evaluation in traditional classes–investigating socially responsible investing or analysing rating methods for long-only funds–and at performance evaluation in the hedge fund universe (implementing dynamic factor models). The programme has led to a business partnership with SIX Telekurs and to the offering of the EuroPerformance-EDHEC style ratings, a service measuring the quality of active management in the European fund management industry.

Indices and Benchmarking

This programme involves two aspects of research into indices and benchmarks in traditional and alternative investment. The first aspect looks at the quality of indices, the criteria institutions use to select them, and revisits modern portfolio theory to develop innovative approaches to constructing new forms of indices in the traditional and alternative universes. As such, EDHEC-Risk has proposed a proprietary method of style index construction for the alternative universe and launched the first composite hedge fund strategy indices in 2003. In 2010, EDHEC-Risk Institute, on the basis of its research results in the area of index and benchmark construction, set up a spin-off, EDHEC-Risk Indices & Benchmarks, the goal of which is to make available to investment industry professionals new forms of indices and benchmarks that genuinely add value in terms of both being efficient and representative of risks. The second aspect of this research programme examines the use of index products in the core-satellite approach to investment management. This programme includes the "Core-Satellite and ETF Investment" research chair, in partnership with Amundi ETF.

ALM and Asset Management

This programme concentrates on the application of recent research in asset-liability management (ALM) for institutional, high net worth, and retail investors. The research centre is working on the idea that improving asset-management and strategic allocation techniques has a positive impact on the performance of ALM programmes. It devotes particular attention to the institutional context of ALM and to the impact of International Financial Reporting Standards and the Solvency II directive project on European pension funds and insurance companies. It also aims to extend the realm of ALM approaches to address the particular needs, constraints and objectives of sovereign wealth funds, the private banking clientele, and mass-affluent investors. This programme includes the "Regulation and Institutional Investment" research chair, in partnership with AXA Investment Managers, the "Asset Liability Management and Institutional Investment Management" research chair, in partnership with BNP Paribas Investment Partners, the "Asset- Liability Management Techniques for Sovereign Wealth Fund Management" research chair, in partnership with Deutsche Bank, the "The Case for Inflation-Linked Bonds: Issuers' and Investors' Perspectives" research chair, in partnership with Rothschild & Cie, the "Advanced Investment Solutions for Liability Hedging for Inflation Risk" research chair, in partnership with Ontario Teachers' Pension Plan, and the Solvency II Benchmarks research chair, in partnership with Russell Investments.

Asset Allocation and Derivative Instruments

This research programme focuses on the use of derivative instruments for portfolio management and on dynamic asset allocation methods in asset management and asset-liability management. Key themes include the optimal design of structured products, the role of structured products and derivatives in asset allocation, "passive" replication of "active" hedge fund indices through portfolios of derivatives, and structured products and derivatives on underlying instruments that are illiquid or lack liquidity. This programme includes the "Structured Products and Derivatives Instruments" research chair, sponsored by the French Banking Federation. This programme also led EDHEC-Risk Institute to promote a new approach to measuring current volatility on the equity markets which no longer relies on the options market.

Operational Risks and Performance

The financial crisis has been synonymous with a transfer of a portion of investor risk towards the providers of investment and related services. The difficulties that third-party fund management has experienced in the areas of asset security, pricing and compliance with regulation, suggest that this shift in the responsibilities of those involved in fund management will have a significant impact on the profit and loss accounts not only of the fund management firms but also of all the service providers who are associated with them. Against this backdrop, this research programme aims to identify the operational risks parties to the fund management industry bear as a result of their practices and of regulations, assess the importance of these risks and their impact on the parties' solvency and business models, and propose means of mitigating these risks. The programme includes the "Risk and Regulation in the European Fund Management Industry" research chair, in partnership with CACEIS.

EDHEC-Risk Research Chairs and Strategic Research Projects

The EDHEC-Risk research chairs involve a close partnership with a sponsor and a commitment from EDHEC-Risk over three years leading to international academic publications and position papers aimed at professionals, institutional investors and regulators. In addition to these research chairs, EDHEC-Risk also has close partnerships with major industry leaders on strategic research projects.

Seven illustrations of major strategic research projects conducted with the industry:

Exploring the Commodity Futures Risk Premium: Implications for Asset Allocation and Regulation
In partnership with CME Group

Assessing the Quality of Stock Market Indices: Requirements for Asset Allocation and Performance Measurement
In partnership with UBS Global Asset Management and BNP Paribas Asset Management

Financial Engineering and Global Alternative Portfolios for Institutional Investors
Alternative Investments for Institutional Investors: Risk Budgeting Techniques in Asset Management and Asset- Liability Management
In partnership with Morgan Stanley Investment Management

MiFID and Best Execution
Transaction Cost Analysis A-Z: A Step towards Best Execution in the Post-MiFID Landscape
In partnership with NYSE Euronext, SunGard and CACEIS

EDHEC European Real Estate Investment and Risk Management Survey
In partnership with Aberdeen Property Investors

Structured Forms of Investment Strategies in Institutional Investors' Portfolios
Benefits of Dynamic Asset Allocation Through Buy-and-Hold Investment in Derivatives
Structured Equity Investment Strategies for Long-Term Asian Investors
In partnership with Societe Generale Corporate & Investment Banking

Using Index Options to Improve the Performance of Dynamic Asset Allocation Strategies
The Benefits of Volatility Derivatives in Equity Portfolio Management
In partnership with Eurex

"In 2008, Deutsche Bank began discussing with EDHEC-Risk Institute the theme of asset-liability management techniques for SWFs, with the goal of engaging leading independent minds to conduct research on what is essentially green-field subject matter. A research chair was set up in January 2009 to run for three years, with the design of a dynamic asset allocation model for sovereign wealth fund management being the first work stream for the chair to focus on. Given our strong presence in Singapore, we are pleased that EDHEC has established a local research centre to conduct research for global dissemination."

Boon-Chye Loh, *Head of the Corporate and Investment Bank, Asia Pacific,* ***Deutsche Bank***

Research Chairs

Research chairs involve close partnerships with their financial sponsors and a commitment from EDHEC-Risk to publishing related articles in international academic journals as well as to releasing the research results to the investment management profession through wide distribution of practitioner-oriented publications and presentations at industry conferences.

Core-Satellite and ETF Investment

In partnership with Amundi ETF

The chair analyses the developments in the use of exchange-traded funds as part of the asset allocation process and looks at advanced forms of risk budgeting within the framework of a core-satellite approach.

Regulation and Institutional Investment

In partnership with AXA Investment Managers

The chair investigates the interaction between regulation and institutional investment management and highlights the challenges of regulatory developments for institutional investment managers.

Asset-Liability Management and Institutional Investment Management

In partnership with BNP Paribas Investment Partners

The chair examines advanced ALM topics such as dynamic allocation strategies, rational pricing of liability schemes, and formulation of an ALM model integrating the financial circumstances of pension plan sponsors.

Risk and Regulation in the European Fund Management Industry

In partnership with CACEIS

The chair deals with the issue of operational risk and performance in a changing regulatory framework for the European fund management industry. It analyses the major risks those in the industry face as a result of regulation and of their practices, assesses their importance and impact in terms of solvency and business models, and proposes methods to mitigate them.

ALM and Sovereign Wealth Fund Management

In partnership with Deutsche Bank

The chair involves formalising a dynamic asset allocation model that incorporates the most salient factors in sovereign wealth fund management, analysing the risk factors impacting the inflows and outflows of cash of sovereign funds, and exploring the design of solutions for optimal financial management of sovereign wealth funds.

Structured Products and Derivative Instruments

Sponsored by the French Banking Federation (FBF)

The chair investigates the optimal design of structured products in an ALM context and studies structured products and derivatives on relatively illiquid underlying instruments.

Advanced Modelling for Alternative Investments

In partnership with Newedge Prime Brokerage

The purpose of the chair is to expand the frontiers in alternative investment modelling techniques by enhancing the understanding of the dynamic and non-linear relationship between alternative investment returns and the returns on underlying fundamental systematic factors, and analysing the implications for managing portfolios that include alternative investments.

Advanced Investment Solutions for Liability Hedging for Inflation Risk

In partnership with Ontario Teachers' Pension Plan

This chair analyses the design of novel forms of inflation-hedging portfolios that do not solely rely on inflation-linked securities but instead involve substantial investment in traditional asset classes. Overall these novel forms of inflation hedging solutions should be engineered to generate higher expected performance for a given inflation hedging level, which in turn will allow for a decrease in the cost of inflation hedging.

The Case for Inflation-Linked Corporate Bonds: Issuers' and Investors' Perspectives

In partnership with Rothschild & Cie

The purpose of this research chair is to support research undertaken at EDHEC-Risk on the benefits of inflation-linked bonds from the issuers' perspective as well as from the investors' perspective. The research chair also focuses on comparing and contrasting issuers' and investors' perceptions of inflation-linked bonds.

Solvency II Benchmarks

In partnership with Russell Investments

The aim of this research chair is to enable European insurance companies that do not have a full internal risk mitigation model to be able to avail of an objective academic reference in order to manage the risk of their equity investments. As the EDHEC-Risk Solvency II Benchmarks in cooperation with Russell Investments are based on dynamic allocation of sources of risk (equity and cash) and a rules-based approach, they constitute an easily-replicable independent external reference, which facilitates the implementation of a partial internal model to assess equity risk, and its internal and external control.

EDHEC Risk Institute—Asia

"Research plays a key role in driving knowledge creation, knowledge dissemination, and innovation to meet the needs of the financial industry. We are pleased that EDHEC-Risk has chosen to base their Asian research chapter in Singapore. The presence of EDHEC-Risk will certainly add to the financial research landscape and to the development of risk management solutions for the investment community."

Mr Chong Tee Ong, *Deputy Managing Director,* ***Monetary Authority of Singapore****, Member of EDHEC-Risk Institute's International Advisory Board*

EDHEC Risk Institute—Asia

Frédéric Ducoulombier
Director, EDHEC Risk Institute—Asia

EDHEC-Risk Institute—Asia is the Singapore home base of EDHEC-Risk Institute for its operations in the Asia-Pacific region. Asia is a key growth area for the global investment industry and the development of the financial sector and, as elsewhere, the region needs to be supported by industry-oriented research and professional education.

The mission of EDHEC-Risk Institute—Asia is to serve as a platform for generating academic insight into important global investment issues, with particular relevance to investors and institutions in the Asia-Pacific region. Working with the support of the investment industry, EDHEC-Risk Institute—Asia aims to foster innovation and high, professional standards in the region and worldwide.

EDHEC-Risk Institute—Asia already has fifteen research and marketing staff in Singapore. The ten researchers conduct Asia-focused work in the context of the Institute's pre-existing research programmes, new thematic programmes and the Asian Research and Advocacy Centre. Work conducted in the context of the Institute's six research programmes is being extended and adapted to regional characteristics. The two thematic programmes address issues of global importance and of particular regional relevance, with one looking at the optimal management of sovereign reserves and investment vehicles and the other looking at infrastructure investment in Asia. Last but not least, the Asian Research and Advocacy Centre for Best Investment Practices will keep tabs on investment practices across the region, promoting academic advances and best industry practices. While the bulk of our research will concentrate on the region, the Asian team will also be leading or contributing to theoretical work of general application. In particular, EDHEC Risk Institute–Asia has committed to a new multi-year initiative looking at "Novel Approaches for Hedging Tail Risk and Investigating the Potential of Volatility and Higher Moments as Asset Classes" and EDHEC Risk Institute–Asia Head of Research Professor Stoyan Stoyanov leads the global research efforts of EDHEC-Risk Institute into volatility. EDHEC Risk Institute–Asia will not only put forward volatility indicators for Asian markets but also establish itself as a centre for expertise in the area of volatility.

Marketing staff play an important role in the dissemination of the research results towards end-users. This is done via a number of channels that include direct distribution to professionals in the region, organisation of research events in Asia and Australasia and by maintaining media relations.

The Institute offers the whole range of its executive education programmes in Asia – from short courses that present our research advances to risk and investment officers to the EDHEC-Risk Institute PhD in Finance, which allows high-level practitioners in full-time jobs to acquire the background and skills to put academic research to use in their organisations, generate new knowledge and advance practices.

EDHEC-Risk Institute—Asia has been awarded a six-year licence by the Singapore Council for Private Education for short course and degree programme activities and has also been invited to join the country's Global Schoolhouse initiative as an institution representing the best in the field of finance.

EDHEC-Risk Institute Research Projects in Asia – completed as of March 2012

Title	Supported by	Publication / Presentation	Date
Asset-Liability Management Techniques for Sovereign Wealth Fund Management	Deutsche Bank	Asset-Liability Management Decisions for Sovereign Wealth Funds	October 2010
		An Integrated Approach to Sovereign Wealth Risk Management	June 2011
		What Asset-Liability Management Strategy for Sovereign Wealth Funds?	February 2012
Novel Approaches for Hedging Tail Risk and Investigating the Potential of Volatility and Higher Moments as Asset Classes		Extreme Hedge Fund Risk Diversification with Volatility	April 2011
ALM and Asset Management		A Post-crisis Perspective on Diversification for Risk Management	May 2011
Structured Equity Investment Strategies for Long-Term Asian Investors	Société Générale Corporate and Investment Banking	Structured Equity Investment Strategies for Long-Term Asian Investors	August 2011
Exploring the Commodity Futures Risk Premium: Implications for Asset Allocation and Regulation	CME Group	Long-Short Commodity Investing: Implications for Portfolio Risk and Market Regulation	August 2011
Indices and Passive Management from the Asian Investor's Perspective	Amundi ETF	EDHEC-Risk Asia Indexing Survey EDHEC-Risk Asia ETF Survey	August 2011
Infrastructure Investment in Asia		Pension Fund Investment in Social Infrastructure	February 2012
The Benefits of Volatility Derivatives in Equity Portfolio Management	Eurex	The Benefits of Volatility Derivatives in Equity Portfolio Management	March 2012

EDHEC-Risk Position Papers, Publications and Industry Surveys

EDHEC-Risk Position Papers, Publications and Industry Surveys

Position papers – the EDHEC-Risk stance on issues of relevance to the financial industry

EDHEC-Risk has innovated with the concept of the EDHEC-Risk Position Paper. This is a collective commitment not only on the part of the research team but also the whole institution to research results that are brought to the attention of companies and society at large.

As such, EDHEC-Risk has taken a position on, amongst many other issues, the risks of Exchange-Traded Funds (ETFs); the inadvisability of a financial transaction, or "Tobin," tax; the ground to be covered for optimal implementation of the Solvency II directive, the solvency requirements for banks and the nature of asset management regulations following the credit crisis, the "fair value" accounting standards, the undesirable effects of banning short sales, the absence of excessive speculation on the US oil futures markets and the performance of socially responsible investing.

EDHEC-Risk publications – financial research that corresponds to the needs of the corporate world

EDHEC-Risk's publication strategy is to break away from a purely academic vision of research, whereby any research carried out has only been evaluated by academics and disseminated primarily to other scholars, to favour an approach where business is at the heart of the researcher's concerns.

To ensure that our financial research corresponds to the needs of the corporate world, we present our publications in such a way as to render the research conclusions as accessible as possible to finance professionals, by including clearly delineated introductions, conclusions and an executive summary.

Recent EDHEC-Risk publications include studies on the optimal design of corporate market debt, the impact of regulations on the asset-liability management of European pension funds, asset-liability management decisions for sovereign wealth funds, the design of improved forms of target date funds, and non-financial risks in the European fund management industry.

Industry surveys – confronting research advances with industry best practices

EDHEC-Risk regularly conducts surveys on the state of the international institutional investment and asset management industry. These surveys look specifically at the application of recent research advances within investment management companies and at best practices in the industry.

The surveys cover both the traditional investment universe and alternative investments. Survey results receive considerable attention from professionals and are extensively reported by the international financial media.

Recent Industry Surveys conducted by EDHEC-Risk
The EDHEC-Risk European ETF Survey 2011 sponsored by Amundi ETF
The EDHEC-Risk European Survey of Non-Financial Risks in partnership with CACEIS, 2012
The EDHEC-Risk European Index Survey 2011

EDHEC-Risk Conferences

"Highly appreciate receiving academic and practical input from very qualified and competent people."

Isaia D'Amelio, *Regulator,* ***Swiss Federal Banking Commission***

EDHEC-Risk Conferences

Gwen Wilcox,
Senior Manager - Business Relations and Events, EDHEC-Risk Institute

Since 2004, EDHEC-Risk Institute has been organising annual conferences devoted to the buy-side industry across Europe. By setting up the EDHEC Hedge Fund Days in May 2004, EDHEC-Risk created a new type of conference that aimed to provide professionals with the state of the art in financial research in the various fields of risk and asset management. In view of our academic background, this was not about organising sales conferences where the speakers in turn deliver excessively brief messages that they do not have the time to discuss thoroughly, but about genuinely transmitting expertise on and debating current themes proposed by the EDHEC-Risk research team.

As such, the EDHEC-Risk conferences allow research results to be compared with the practices and needs of institutional investment and asset management professionals. EDHEC-Risk's independence, the original approach—which leaves time for instruction and discussion during the sessions—and the highly selective speaker panel, make the EDHEC-Risk conferences the must-attend annual events for institutional investors and asset managers who are concerned about maintaining best level practices in both technical and conceptual terms.

The EDHEC-Risk Alternative Investment Days are recognised as the most relevant and worthwhile industry conference dedicated to alternative investments. The inaugural event, then called EDHEC Hedge Fund Day, was attended by over 400 senior professionals from private and institutional investors to both hedge fund and fund of hedge fund managers from 20 countries. The fourth edition, which was held at the ExCeL Centre in Canary Wharf on December 9-10, 2008, was attended by over 1,200 delegates in the midst of the financial crisis, confirming that this event has become the most prestigious and well-attended academic and professional conference on alternative investments in Europe. In 2011, the EDHEC-Risk Alternative Investment Days were held in The Guoman Tower in London.

The first EDHEC-Risk Institutional Days ran in Paris in November 2006 and were attended by over 800 senior industry professionals in order to better understand how state-of-the-art asset management techniques could address their current and foreseeable needs. The 2008 event, in Paris on June 12-13, and the 2009 event, in Paris on May 26-27 attracted more than 2,100 institutional investors, asset managers and private bankers. In 2010, EDHEC-Risk's partnership with IPE enabled the EDHEC-Risk Institutional Days to be held on the two days following the IPE Pension Fund Awards in Monaco.

In 2012, in order to better satisfy the requirements of institutional investors, EDHEC-Risk Institute decided to merge its two annual conferences into a unique three-day event in Europe, the **EDHEC-Risk Days Europe**, held at the Brewery in London on March 27-29, 2012. The year 2012 also sees the inaugural **EDHEC-Risk Days Asia** conference in Singapore at the Marina Bay Sands Conference Centre on May 9-10. This event, which aims to bring research insights to Asian investment professionals, features two exclusive forums co-organised with *CNBC* and the *Wall Street Journal* and two days of sessions and workshops exploring state-of-the-art investment and risk management techniques.

www.edhec-risk.com

www.edhec-risk.com

The EDHEC-Risk web site is based on a simple idea but one which provides a structure for all of EDHEC-Risk's financial research activities: "How to enable professionals to get the most out of asset management research?" As a consequence, EDHEC-Risk does not aspire to be the best academic research site nor the one that offers the most exhaustive information on the asset management industry. EDHEC-Risk, with its joint academic and professional expertise, is endeavouring to be the most useful site for practitioners who are keen to take advantage of research results to improve their investment and risk management processes.

Faced with increasing amounts of information, announcements that are made for publicity purposes and innovations in the asset management industry, the academic background of the EDHEC-Risk editorial team allows you to take a step back from the facts and to select and summarise the required information. Today, the real challenge is not to give more information but to give the best information, and this is why we consider that EDHEC-Risk has its place on the web.

Newsletter

The electronic newsletter containing news from all the main sections of the EDHEC-Risk web site (editorial, feature, interview, research news, EDHEC-Risk publications, index returns, etc.) is sent out once a month to more than 1,000,000 readers worldwide.

Site Layout

edhec-risk.com is structured around three types of section:

- News sections
- Sections linked to the centre's research chairs and research programmes
- Sections relating to research that is of relevance to the asset management industry.

Research News

EDHEC-Risk selects, summarises and situates the major academic papers on asset management. The selection is made in relation to themes that correspond to the centre's research programmes. In this way, as with all the information and documents available on the site, the Research News contributions are referenced using key words which are common to the other sections on the site. Furthermore, this section gives access to overviews of the main international academic reviews.

Industry Analysis

edhec-risk.com provides a reasoned analysis of asset management industry news. Topics are chosen according to two criteria: firstly, the extent of the number of references made in the international specialised press; secondly, the pertinence of the information in relation to the EDHEC-Risk research programme themes.

Features

Presents topics of particular interest to the asset management industry.

Interviews

Every month, a researcher or a practitioner from the asset management industry is interviewed by the edhec-risk.com team.

Events

edhec-risk.com provides access to events organised by EDHEC-Risk, as well as asset management industry events involving EDHEC-Risk's participation.

EDHEC-Risk Institute in the Press and Media

"EDHEC-Risk has a well-deserved reputation for providing key insight into risk-related aspects of the fund industry. We have given extensive support to EDHEC-Risk's research projects as we find the combination of high quality academic research and our extensive operational knowledge and wide-ranging industry expertise, provides practicable solutions to industry issues. We are then able to use to the results to refine the services we provide, ensuring our clients remain at the cutting edge in terms of controlling risk."

François Marion, *Chief Executive Officer,* ***CACEIS***

EDHEC-Risk Institute in the Press and Media

Peter O'Kelly,
Marketing Manager,
EDHEC-Risk Institute

EDHEC-Risk Institute has been cited in more than 2,000 articles in the industry press.

Highlights of the research centre's involvement with the press include:

• Regular articles covering the research centre's work in *Financial Times fund management*;

• Partnership with *CNBC* and the *Wall Street Journal Europe* on the Asia Investment Forum;

• Partnership with *Investment & Pensions Europe (IPE)* on the IPE Pension Fund Awards, and the EDHEC-Risk Institutional Days.

EDHEC-Risk Institute *Research Insights* Supplement in association with *Investment & Pensions Europe (IPE)*

Since the inaugural issue in Winter 2010, EDHEC-Risk Institute has been producing a quarterly *Research Insights* supplement that is distributed to European institutional investment professionals with the leading publication *Investment & Pensions Europe (IPE)*. The aim of the supplement is to provide information on research-based solutions to the key challenges facing institutional investors and to make a genuine contribution to improving institutional investment practices.

A non-exhaustive list of professional publications in which the work of the EDHEC-Risk Institute has been quoted can be found below:

> Absolute Return
> Alternative Investment Quarterly
> Asia Asset Management
> Asian Investor
> Australian Financial Review
> Business Week
> Cinco Dias
> Commodities Now
> Daily Telegraph
> Deutsche Pensions & Investment Nachrichten
> Die Welt
> European Pensions News
> Evening Standard
> Financial News
> Financial Times
> Financial Times China
> Financial Times Deutschland
> FT Mandate
> Fund Futures Journal
> Funds Europe
> Futures Magazine
> Global Alternatives
> Global Investor
> Global Pensions
> Hard Assets Investor
> Hedge Funds Review
> Hedge Pensions Review
> Hedgeweek
> Hong Kong Economic Journal
> International Herald Tribune
> InvestHedge
> Investment & Pensions Asia
> Investment & Pensions Europe
> Investment Adviser
> Investment Magazine (Australia)
> L'Agéfi
> L'Agéfi Suisse
> Le Temps
> Les Echos
> Life & Pensions
> Life Insurance International
> MAR Hedge
> Milano Finanza
> Operational Risk
> Pensions Management
> Pensions Week
> Portfolio International
> Professional Pensions
> PWM
> Risk
> The Desk
> The Economist
> The Guardian
> The Hedge Fund Journal
> Wall Street Journal
> Wall Street Journal Europe

EDHEC-Risk Institute Executive Education

"This is one of the best seminars I have attended on asset allocation. A must for all portfolio managers, and client advisors working on either asset allocation or LDI implementation. In this time of resource constraints, it is critical to understand where to focus your research efforts and this seminar is instrumental in understanding how to take the advancements in available technology and improve upon portfolio construction and risk management."

Anwiti Bahuguna, *Director,* ***Bank of America*** *and Senior Portfolio Manager,* ***Columbia Management***

EDHEC-Risk Institute Executive Education

Mélanie Ruiz,
Manager, Executive Education, EDHEC-Risk Institute

The executive education seminars offered by EDHEC-Risk Institute help professionals to upgrade their skills with advanced asset allocation and risk management training across traditional and alternative classes.

Building on the latest research advances engineered by EDHEC-Risk Institute, we offer a range of executive courses in investment management and joint seminars with CFA Institute.

State-of-the-art investment management series

The EDHEC-Risk Institute investment management series seminars bring research advances and state-of-the-art practices into the practitioner's portfolio of skills.

Designed and delivered by some of the most respected practitioners and academics in the area, these executive courses provide participants with a workable knowledge of the techniques that any investment professional should adopt. Presented in a highly accessible manner and drawing upon the latest research results, these executive courses appeal to senior officers, investment specialists and administrators working for buy- and sell-side institutions, and to consultants and key account representatives advising high net worth individuals and institutional investors.

Spanning traditional and alternative investments, our offering includes such courses as:
- Commodities Investing Seminar
- Equity Portfolio Construction Seminar
- Alternative Investments Seminar
- Investment Risk Management Seminar

Courses are offered in London, New York and Singapore and carry CFA Institute Continuing Education credits.

CFA Institute – EDHEC-Risk Institute joint seminars

CFA Institute and EDHEC-Risk Institute organise events which present the latest research advances in asset allocation and alternative investment and clarify the distinction between true innovation and mere marketing claims in emerging industry trends. These exclusive seminars offer senior investment professionals a unique opportunity to gain an in-depth appreciation of the concepts and techniques that are shaping the future of investment management. In addition, they provide practical tools and novel investment approaches to improve investment and risk management processes and design new products.

The partnership between EDHEC-Risk Institute and CFA Institute provides the CFA Institute community with privileged access to EDHEC-Risk Institute's expertise and allows EDHEC Business School to be part of the select club of global institutions—such as Harvard Business School and Wharton—which offer joint executive programmes with the world's leading association of investment professionals.

CFA Institute/EDHEC-Risk Institute Seminars:
- Advances in Asset Allocation Seminar – London, New York, San Francisco, Singapore
- Alternative Asset Allocation Seminar – London, New York, Singapore

Participants in the executive education programmes offered by EDHEC-Risk Institute represent the leading names in investment banking, traditional and alternative asset management, private banking and wealth management, advisory services and technology as well as foremost end-investors such as pension funds and foundations, sovereign funds, insurance companies, and family offices.

ABU DHABI INVESTMENT AUTHORITY	LOMBARD ODIER DARIER HENTSCH & CIE
AMUNDI ASSET MANAGEMENT	LYXOR AM
AUSTRALIAN PRUDENTIAL REGULATION AUTHORITY	MAN INVESTMENTS
AHV FONDS / FONDS DE COMPENSATION AVS	MARSHALL WACE
ALBERTA INVESTMENT MANAGEMENT CORPORATION	MERRILL LYNCH
APG INVESTMENTS	MORGAN STANLEY
ALLIANZ	MOURANT
ASPECT CAPITAL	NESTLE PENSION FUND
AVIVA INVESTORS	OLD MUTUAL ASSET MANAGERS
AXA	ONTARIO TEACHERS' PENSION PLAN
BAE SYSTEMS PENSION FUND	PICTET & CIE
BARCLAYS	PIONEER GLOBAL INVESTMENTS
BEARING POINT	PRICEWATERHOUSECOOPERS
BLACKROCK	PRUDENTIAL
BNP PARIBAS	RUSSELL INVESTMENT GROUP
CALPERS	SAUDI ARABIAN MONETARY AGENCY
CITIGROUP	SCHRODERS
CREDIT SUISSE	SOCIETE GENERALE
DEUTSCHE BANK	STATE STREET GLOBAL ADVISORS
EDF	TIAA-CREF
EUROPEAN CENTRAL BANK	THAMES RIVER CAPITAL
FINANCIAL SERVICES AUTHORITY	THREADNEEDLE ASSET MANAGEMENT
FRANKLIN TEMPLETON INVESTMENTS	UBP
GAM	UBS
GIC	UNIVERSITIES SUPERANNUATION SCHEME
GROSVENOR CAPITAL MANAGEMENT	VANGUARD
HSBC	VEGA CAPITAL PARTNERS
IRISH NATIONAL PENSION RESERVE FUND	WATSON WYATT
JP MORGAN	ZURICH FINANCIAL SERVICES
KPMG	

"Addresses the right questions with brilliant academic precision."

Kjetil Houg, *CIO and CFO,* ***Oslo Pensjonsforsikring***

"This was an excellent overview of portfolio theory and recent developments on practical implementation of theory. Very useful."

Gary Smith, *Chief Economist,* ***Alberta Investment Management Corporation***

For further information about EDHEC-Risk Institute executive education seminars, please log on to http://www.edhec-risk.com or contact Ms Mélanie Ruiz at EXECeducation@edhec-risk.com or on +33 493 187 819

The EDHEC-Risk Institute PhD in Finance

The Ultimate Degree for Finance Executives

René Garcia, PhD
Academic Director,
EDHEC-Risk Institute PhD in Finance

The EDHEC-Risk Institute PhD in Finance programme is designed for professionals who aspire to higher intellectual levels and aim to redefine the investment banking and asset management industries.

The programme has two tracks: a 'residential track' for high-potential graduate students who hold part-time positions at EDHEC-Risk, and an 'executive track' for high-level practitioners who keep their full-time jobs.

Drawing its faculty from the world's best universities and enjoying the support of a leader in applied financial research, the EDHEC-Risk Institute PhD in Finance creates an extraordinary platform for professional development and industry innovation.

Rationale

Advancing the frontiers of knowledge and practices in such competitive environments demands professionals who are able to combine well-honed critical thinking, extensive field expertise, and outstanding analytical and research skills to exert thought-leadership and introduce radical innovation.

Since undergraduate degrees, professional experience and the MBA may develop this set of competencies only partially, those who aspire to higher intellectual levels should consider pursuing the foremost academic and professional qualification, the Doctorate of Philosophy (PhD).

Programme objectives

The EDHEC-Risk Institute PhD in Finance is a research-oriented programme which trains participants to serve as the architects of the asset management and investment banking industries. The programme is designed to prepare talented and hard-working individuals for careers requiring an integrated view of the inner-workings of financial markets and institutions, a thorough understanding of financial decision-making and its modelling, and the ability to autonomously identify, analyse, and research questions to propose and implement creative solutions.

One programme, two tracks

The programme has two tracks: a residential track for high-potential graduate students and young professionals who hold part-time research positions at EDHEC-Risk Institute, and an executive track for high-level practitioners who keep their full-time jobs.

Executive track participants undertake the PhD in Finance as a critical development step towards senior positions in the financial industry, while residential track participants generally complete doctoral studies to access academic careers in leading research and educational institutions.

A well-structured and rigorous curriculum

The EDHEC-Risk Institute PhD in Finance implies an intense personal commitment and is designed to be completed over three years. Its structure includes core courses, electives, research workshops, and the dissertation. Core courses equip participants with sound training in financial theory and state-of-the-art analytical and research methods. Elective seminars and workshops expose PhD candidates to the latest advances in specific fields of their choice. The dissertation allows participants to work individually with programme faculty on topics selected for their academic and industry relevance and according to each candidate's research interests and professional goals.

The EDHEC-Risk Institute PhD in Finance

The Ultimate Degree for Finance Executives

Outstanding faculty

Programme faculty consists of world-class specialists in finance, asset management, and economic and financial modelling; it brings together EDHEC Business School's senior economics and finance scholars and affiliate professors from top research institutions around the world. Faculty members have an outstanding track record of publications in and editing for the most respected scientific journals in financial economics. Their experience in PhD candidate supervision, senior-level engagements with large corporations, international institutions and governments, as well as their teaching awards and prestigious appointments with leading universities worldwide, are an equally outstanding record of achievement.

Research for professional development and industry innovation

Following a stimulating scientific curriculum and working individually with leading specialists on research issues of particular relevance to their organisations, practitioners on the programme's executive track learn to leverage their expertise and insights to deliver original contributions at the frontiers of financial knowledge and practices. Challenging professionals to step back, reflect, and generate radical innovations, the EDHEC PhD in Finance is the ultimate degree for finance executives.

"The programme is very well designed and has a potential for a rapid increase in visibility and appeal to high quality students. I was attracted to its mix of theoretical and practical aspects and expected that the experience of teaching in the programme would be both useful and pleasant for me. I was impressed by the quality and focus of the students."

Jakša Cvitanic, *Professor of Mathematical Finance, Division of the Humanities and Social Sciences,* ***California Institute of Technology and Affiliate Faculty, EDHEC-Risk Institute PhD in Finance***

"My expectations were exceeded. I knew of the research credentials of the faculty, but their pedagogical skills are extraordinary. The core courses give you very useful tools to look at problems; every single angle is reviewed with professors identifying what is available and what the areas for further research are. It is eye-opening. The learning conditions could not be better: the ability to watch courses again over the Internet is extremely useful and relieves you of classroom stress."

Mario Schlener, *Associate Director, Navigant Consulting, and PhD in Finance candidate,* ***EDHEC-Risk Institute***

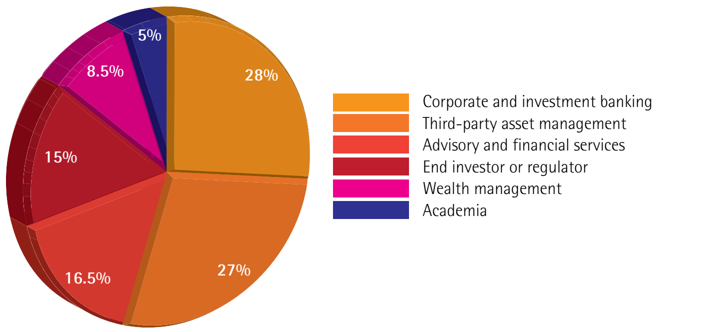
The EDHEC-Risk Institute PhD in Finance

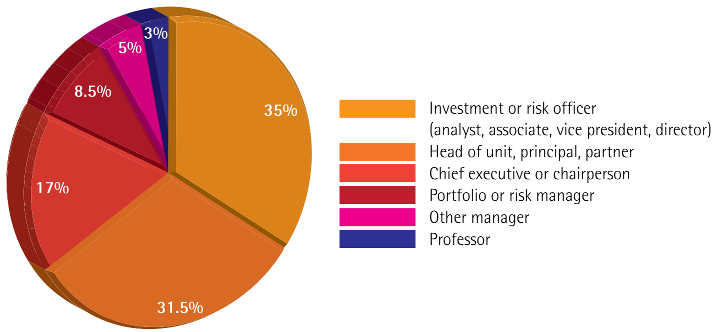
The Ultimate Degree for Finance Executives

Demographics	
Number of participants enrolled (as of last matriculation date):	66
Countries represented (different citizenships held):	31
International participants, i.e. participants with sole citizenship other than French/Singaporean	94% non-French, 93% non-Singaporean
Average/median age of executive track participants at matriculation	38
Average/median age of residential track participants at matriculation	29
Average/median professional experience of executive track participants:	14.5 years

Regions of residence (executive track participants)	
Asia (incl. Middle-East 8.5%)	36.5%
Europe	35%
Americas	25%
Australasia	3.5%

Professional Background
(executive track participants only)





For further information about the EDHEC-Risk Institute PhD in Finance programme, please log on to http://phd.edhec.edu or contact Ms Brigitte Bogaerts at phd@edhec.edu or +33 493 183 267.

EDHEC-Risk Indices & Benchmarks

“EDHEC-Risk are well known as a leading global centre for research and as a world renowned business school, however, they are also very focussed and business friendly. By partnering with EDHEC-Risk, we are seeking to combine the best in academic thinking with practical solutions for advancing the design of benchmarks.”

Mark Makepeace, *Chief Executive Officer,* ***FTSE Group***

EDHEC-Risk Indices & Benchmarks

Felix Goltz,
Head of Applied Research,
EDHEC-Risk Institute

While EDHEC-Risk makes important public contributions to the advancement of applied financial research and the improvement of industry practices, it also employs its expertise to conduct proprietary research for clients and develop new products with business partners. The insights drawn from EDHEC-Risk's "Indices & Benchmarking", "ALM and Asset Management" and "Derivatives and Asset Management" research programmes over the past several years have led to a series of products that provide more efficient or academic-based solutions to investors' needs than the indices and benchmarks currently available on the market. In order to clearly identify this type of activity and distinguish it from the fundamental research activities, EDHEC-Risk Institute created a spin-off in 2010, EDHEC-Risk Indices & Benchmarks, which aims to be one of the leading beta designers for the investment industry. The goal of EDHEC-Risk Indices & Benchmarks is not to market and sell indices directly but to participate in a movement of innovation that is important for the investment industry. This movement aims on the one hand to provide access to the real risk premia of the main asset classes, and on the other, to promote the adoption of dynamic global allocation models. This applied research strategy has led EDHEC-Risk Indices & Benchmarks to set up partnerships with actors in the industry in order to favour innovation and accelerate the adoption of techniques that it finds promising. Finally, whenever possible, EDHEC-Risk Indices & Benchmarks makes indices available free of charge.

EDHEC-RISK
Indices & Benchmarks

FTSE EDHEC-Risk Efficient Index Series

FTSE Group, the award winning global index provider, has been marketing and selling the first set of FTSE EDHEC-Risk Efficient Indices since 2010. The index series aims to capture equity market returns with an improved risk/reward efficiency compared to cap-weighted indices. The weighting of the portfolio of constituents achieves the highest possible return-to-risk efficiency by maximising the Sharpe ratio (the reward of an investment per unit of risk). In order to maximise the Sharpe ratio, the methodology seeks to reliably estimate two essential inputs needed for portfolio optimisation: the expected returns of each stock which are calculated indirectly by the riskiness of each stock; and the covariance matrix of returns for all stocks which is calculated using statistical factor models that describe the co-movement of stock prices through their exposure to common risk factors.

EDHEC-Risk Alternative Indexes

The different hedge fund indexes available on the market are computed from different data, according to diverse fund selection criteria and index construction methods; they unsurprisingly tell very different stories. Challenged by this heterogeneity, investors cannot rely on competing hedge fund indexes to obtain a "true and fair" view of performance and are at a loss when selecting benchmarks. To address this issue, EDHEC-Risk was the first to launch composite hedge fund strategy indexes as early as 2003. Using factor analysis techniques, the EDHEC Alternative Indexes are built as the best one dimensional summaries of the information conveyed by competing indexes for a given style. The EDHEC composites are thus able to capture a very large fraction of the information contained in the competing indexes while implicitly minimising their various biases. Consequently, the EDHEC Alternative Indexes tend to be very stable over time and thus are easily replicable. The 13 EDHEC Alternative Indexes are published monthly and are freely available to managers and investors.

The EDHEC IEIF Commercial Property (France) Index

Real estate indexing has proven challenging because real estate features such characteristics—rarely found in other asset classes—as high unit values and indivisibility, limited liquidity, great heterogeneity; active property management is also required. As a consequence, existing indices based on direct or indirect investment have several drawbacks. Indices based on direct investment are generally not investable and rely on subjective appraisals, so they show smoothed and lagged returns and the transparency of their components is wanting. Indirect investment indices usually rely on listed real estate investment vehicles and consequently have great exposure to equity market risk.

The EDHEC IEIF Commercial Property (France) Index addresses these issues by using unlisted property funds under the French SCPI scheme as the index underlying, given a certain liquidity threshold. The index has very attractive diversification properties and is representative of the real estate market; at the same time it is fully transparent and investable and has little exposure to financial market risk.

The EDHEC Solvency II Benchmarks

As part of the research chair supported by Russell Investments, EDHEC-Risk Institute has designed allocation models to optimise equity investment while taking the investment horizon into account (Life-Cycle Investing) and at the same time integrating a short-term risk budget constraint (Risk-Controlled Investing). This approach is based on dynamic portfolio allocation, which serves as a foundation for the EDHEC Solvency II benchmarks.

These benchmarks constitute a transparent and freely replicable reference for dynamic allocation to equities that enables the cost of the regulatory (pillar 1) and economic (pillar 2) capital to be limited.

This series of benchmarks, which corresponds to various investment horizons and maximal drawdown budgets to be respected, is published monthly and is freely available to managers and investors.

International Advisory Board

"What makes EDHEC-Risk unique is its determined effort to keep on the cutting edge of research that is of operational relevance to investors, particularly those with heavy involvement in alternatives.
The quality of the dialogue at the EDHEC-Risk Advisory Board provides very useful insights into what is a rapidly changing industry and a unique opportunity to take stock of commonly accepted practices. The debate on how to implement technically superior approaches to old problems will continue for many years to come, and it is critical to have thought-leaders like EDHEC-Risk help investors and the industry re-evaluate the frameworks in which we operate."

Gumersindo Oliveros, *CEO & CIO,*
KAUST Investment Management Company

Upholding High Standards of Corporate Governance

Theo Jeurissen,
Chairman of EDHEC-Risk Institute's International Advisory Board, Chief Investment Officer, PMT

EDHEC-Risk Institute has adopted a strict corporate governance structure and rigorous processes which guarantee both the scientific quality and the operational relevance of its activities. The centre's dual management and its international advisory board enforce strict validation and evaluation processes to ensure that all efforts remain focused on issues which are central to the development of the profession.

Dual management structure

EDHEC-Risk Institute is headed by a director and a scientific director. The scientific director is the academic authority responsible for the quality of the centre's research. A renowned scholar, Professor Lionel Martellini manages the research team and supervises all programmes and projects. The director of the centre is in charge of business policy and overall management. With considerable experience in asset management as both an academic and a practitioner, Professor Noël Amenc decides upon strategic partnerships and reviews research proposals from a business viewpoint. Directors screen proposals and oversee work in progress to ensure that all research carried out within the centre contributes to programmes which have been endorsed by the advisory board.

External validation and evaluation by international experts

In line with best practices of corporate governance, EDHEC-Risk Institute has set up an advisory board which brings together distinguished scholars, representatives of regulatory bodies as well as senior executives from business partners and other leading institutions. These international experts advise on the relevance and goals of the research programme proposals presented by the centre's management and evaluate research outcomes with respect to their potential impact on industry practices. The board also advises on the objectives and contents of projects deriving from the expertise of the research centre, thereby ensuring that graduate and executive programmes remain at the forefront of developments in the marketplace.

Rigorous validation and evaluation processes throughout the life-cycle of research programmes

Phase	Opportunity Study	Incubation	Development
Nature of work carried out	Academic review – state of the art. Assessment of industry expectations.	"Founding" research and modelling. Initiation of a business partnership.	Development of applied research. Test of the results in a business context.
Validation	Validation by the advisory board.	Validation of the research by an international academic publication. Validation of the business plan by the management.	Validation of the work and evaluation of the results by the advisory board.

Members of EDHEC-Risk Institute's International Advisory Board as of January 1, 2012

Chairman:

• **Mr Theo Jeurissen,** Chief Investment Officer, PMT and Chairman of the Investors' Committee, Dutch Association of Industry-wide Pension Funds.

• **Mr Christopher Ailman,** Chief Investment Officer, CalSTRS.

• **Mr Noël Amenc,** Professor of Finance, Director of EDHEC-Risk Institute.

• **Mr Mark Anson,** Managing Director and Chief Investment Officer, Oak Hill Investments.

• **Mr Philippe Aurain,** Chief Investment Officer, Fonds de Réserve pour les Retraites.

• **Mr Stefan Bichsel,** Executive Board Member and Head of the Asset Management & Trading Division, BCV, and former Chairman, EFAMA.

• **Mr David Blackwood,** Group Finance Director, Yule Catto & Co.

• **Mr Tai Tee Chia,** Chief Risk Officer, Government of Singapore Investment Corporation.

• **Mr James C. Davis,** Vice President, Investment Planning & Economics Asset Mix & Risk, Ontario Teachers' Pension Plan.

• **Mr Philippe Desfossés,** Chief Executive Officer, ERAFP.

• **Mr Alain Dubois,** Chairman, Lyxor Asset Management.

• **Mr Mark Fawcett,** Chief Investment Officer, NEST Corporation.

• **Mr Patrick Fenal,** Chief Executive Officer, Unigestion.

• **Mr Tomas Franzén,** Chief Investment Strategist, AP2 - Andra AP-fonden.

• **Mr Peter Gunning,** Global Chief Investment Officer, Russell Investments.

• **Mr Alain Hindié,** Member of the Investment Committee, ADDAX Asset Management.

• **Mr Fathi Jerfel,** Chief Executive Officer, Amundi Investment Solutions.

• **Mr Gérard de Lambilly,** Secretary General, Newedge.

• **Mr Jean-Louis Laurens,** Managing Partner and CEO, Rothschild & Cie Gestion.

• **Mr Xavier Lépine,** Chairman, La Française AM.

• **Mr Stuart Lewis,** Chief Credit Officer and Deputy Chief Risk Officer, Deutsche Bank.

• **Mr François-Serge Lhabitant,** Associate Professor, EDHEC Business School, Chief Investment Officer, Kedge Capital.

• **Mr Mark Makepeace,** Chief Executive, FTSE.

• **Mr Philippe Marchessaux,** Head of BNP Paribas Investment Partners and CEO of BNP Paribas Asset Management.

• **Mr François Marion,** Chief Executive Officer, CACEIS.

• **Mr Lionel Martellini,** Professor of Finance, Scientific Director of EDHEC-Risk Institute.

• **Mr Joseph Masri,** Head of Risk Management, Qatar Investment Authority.

• **Mr Gumersindo Oliveros,** Chief Executive Officer, KAUST Investment Management Company.

• **Mr Chong Tee Ong,** Deputy Managing Director, Monetary Authority of Singapore.

• **Mr Bruno de Pampelonne,** President EDHEC Alumni Association, President, Tikehau Investment Management.

• **Mr Peter Reitz,** Member of the Executive Board, Eurex.

• **Mr Lars Rohde,** Chief Executive Officer, ATP.

• **Mr Günther Schiendl,** Director and Chief Investment Officer, VBV-Pensionskasse.

• **Mr Laurent Seyer,** Global Head of Investment Solutions, AXA Investment Managers.

• **Mr Philippe Teilhard de Chardin,** Managing Partner, Advisors & Partners.

• **Mr Jaap van Dam,** Managing Director Investment Strategy, PGGM.

• **Mr Cees Vermaas,** CEO and Chairman, NYSE Euronext Amsterdam, Member of the Management Committee.

• **Mr Jean-Paul Villain,** Director, Strategy Unit, Managing Director's Office, Abu Dhabi Investment Authority.

• **Mr Dan Waters,** Managing Director, ICI Global.

Since 2001, EDHEC-Risk Institute has been a premier centre for industry-relevant financial research"

Chandra Mallika, *Chief Operating Officer,* ***Global Markets – Asia, Deutsche Bank***

EDHEC-Risk Institute, 2001-2011, Key Dates

August 1, 2001: The EDHEC Risk and Asset Management Research Centre is officially set up within EDHEC Business School with the support of the Misys Group.

November 4, 2002: The first Asset Management Awards (*Grands Prix de la Gestion d'Actifs*) presented in Paris by the financial daily *L'Agefi* on the basis of a methodology created by the research centre in partnership with EuroPerformance.

March 6, 2003: Official launch of the EDHEC Alternative Indexes, with the support of Alteram.

May 13, 2004: The first EDHEC Hedge Fund Day Conference in London, attended by over 400 senior professionals from 20 countries. This event was renamed the EDHEC-Risk Alternative Investment Days in 2007 in order to cover all investment issues in alternative asset classes.

September 3, 2004: The EDHEC Risk and Asset Management Research Centre enters into an agreement with the Chartered Alternative Investment Analyst Association^{SM} to become its exclusive official provider of CAIA^{SM} exam preparatory courses for Europe. EDHEC conducted CAIA^{SM} preparatory programmes until September 2009.

April 21-22, 2005: The first EDHEC Asset Management Days conference in Geneva, with the participation of around 600 European asset managers and private bankers. The event was repeated in March 2007 with more than 700 participants.

November 21-22, 2006: The first EDHEC Institutional Days ran in Paris and were attended by over 800 senior industry professionals.

October 8, 2007: In partnership with BNP Paribas Asset Management, the EDHEC Risk and Asset Management Research Centre sets up its first research chair, in "Asset-Liability Management and Institutional Investment Management."

March 17-19, 2008: The first Advances in Asset Allocation Seminar organised in London in partnership with CFA Institute. The EDHEC Risk and Asset Management Research Centre becomes a member of the exclusive club of academic institutions chosen for their expertise in finance to co-organise professional development courses for CFA members with CFA Institute (other institutions include Harvard Business School, London Business School, Oxford University, the Wharton School of the University of Pennsylvania and INSEAD.)

June 12-13, 2008: Merger of the EDHEC Asset Management Days and EDHEC Institutional Days into a new edition of the EDHEC Institutional Days, held in Paris.

October 15, 2008: Inaugural class of the PhD in Finance programme, with the creation of a residential track to enable the best young talent in finance worldwide to participate in EDHEC-Risk's research programmes. The inaugural class includes seventeen doctoral students from fourteen countries.

January 6, 2010: In order to take account of its extended range of activities, notably in the area of executive education, the EDHEC Risk and Asset Management Research Centre is officially renamed "EDHEC-Risk Institute."

April 27, 2010: Introduction of EDHEC Risk Institute—Asia, set up in Singapore with the support of the Monetary Authority of Singapore (MAS), at a seminar entitled "The Future of Investment Management."

March 7, 2011: Creation of EDHEC-Risk Indices & Benchmarks, which, in addition to its presence in London, Nice and Singapore, anticipates the arrival of EDHEC-Risk Institute in the United States by opening an office in New York.

April 6, 2011: Grand opening of EDHEC Risk Institute–Europe in the heart of the City in London.

EDHEC Business School, founded in 1906 and among the select few institutions to have garnered international recognition through the triple crown of EQUIS, AACSB and Association of MBAs accreditations, offers management education at undergraduate, graduate, post-graduate and executive levels designed to meet the needs of companies. Its large range of international graduate programmes draws students from the world over. With its five campuses in Lille, Nice, Paris, London and Singapore, its 6,000 students, and its 134 full-time faculty and researchers, EDHEC has been ranked among the top international business schools for several years.

For the last five years, as part of its strategy for international excellence, EDHEC Business School has espoused an innovative research policy that takes into account the needs of companies and the market. Research at EDHEC is organised into four centres built on the expertise of the faculty:

- EDHEC-Risk Institute - Asset allocation and risk management;
- EDHEC Financial Analysis and Accounting Research Centre – International accounting standards and new approaches to valuation;
- EDHEC Legal Performance Research Centre - Legal performance and company competitiveness;
- EDHEC Economics Research Centre - Evaluation of public policy and State reform.

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