



Press Release

London, Nice, Singapore, November 4, 2010

EDHEC Risk Institute research finds that enhanced parameter estimates can lead to significant improvements in hedge fund portfolios

A new study by Lionel Martellini, Scientific Director of EDHEC-Risk Institute, with Giovanni Zambruno and Asmerilda Hitaj of the University of Milano – Bicocca, entitled “**Optimal Hedge Fund Allocation with Improved Estimates for Coskewness and Cokurtosis Parameters,**” supported by Newedge Prime Brokerage as part of the research chair on “Advanced Modelling for Alternative Investments,” aims to enhance understanding of the dynamic and non-linear relationship between hedge fund returns and the returns on underlying fundamental systematic factors, and to analyse the implications for managing portfolios that include hedge funds.

Since hedge fund returns are not normally distributed, **mean-variance optimisation techniques, which would lead to substantial welfare losses from the investor’s perspective, need to be replaced by optimisation procedures incorporating higher-order moments and comoments.** In this context, optimal portfolio decisions involving hedge fund style allocation require not only estimates for covariance parameters but also estimates for coskewness and cokurtosis parameters.

This is a formidable challenge that severely exacerbates the dimensionality problem already present with mean-variance analysis. The paper presents an application of the improved estimators for higher order co-moment parameters, recently introduced by Martellini and Ziemann (2010), in the context of hedge fund portfolio optimisation. The authors find that the use of these enhanced estimates generates a significant improvement for investors in hedge funds. They also find that it is only when improved estimators are used that portfolio selection with higher order moments consistently dominates mean-variance analysis from an out-of-sample perspective. **The results have important potential implications for hedge fund investors and hedge fund of funds managers who routinely use portfolio optimisation procedures incorporating higher moments.**

A copy of the EDHEC-Risk Publication “Optimal Hedge Fund Allocation with Improved Estimates for Coskewness and Cokurtosis Parameters” can be downloaded via the following link:

[EDHEC-Risk Publication Optimal Hedge Fund Allocation with Improved Estimates for Coskewness and Cokurtosis Parameters](#)

A copy of the working paper “Improved Estimates of Higher-Order Comoments and Implications for Portfolio Selection” can be downloaded via the following link:

[EDHEC-Risk Working Paper Improved Estimates of Higher-Order Comoments and Implications for Portfolio Selection](#)

This research was supported by Newedge Prime Brokerage as part of the “Advanced Modelling for Alternative Investments” research chair at EDHEC Risk Institute.

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About EDHEC Risk Institute

EDHEC Risk Institute is part of EDHEC Business School, one of Europe's leading business schools and a member of the select group of academic institutions worldwide to have earned the triple crown of international accreditations (AACSB, EQUIS, Association of MBAs). Established in 2001, EDHEC Risk Institute has become the premier European centre for financial research and its applications to the industry. In partnership with large financial institutions, its team of 47 permanent professors, engineers and support staff implements six research programmes and ten research chairs focusing on asset allocation and risk management in the traditional and alternative investment universes. The results of the research programmes and chairs are disseminated through the three EDHEC Risk Institute locations in London, Nice and Singapore.

EDHEC Risk Institute validates the academic quality of its output 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 forms business partnerships to launch innovative products. Its executive education arm helps professionals to upgrade their skills with advanced risk and investment management seminars and degree courses, including the EDHEC Risk Institute PhD in Finance and the EDHEC Risk Institute Executive MSc in Risk and Investment Management.

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