UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Financial Markets Analytics

2122-1-F9101Q053

Learning objectives

The objective of the course is to deepen and analyze some theoretical and empirical developments in portfolio management, focusing in particular on tactical asset allocation and the main quantitative models of stock selection.

Contents

The course focuses on two macro areas of topics. A first part focused on more advanced portfolio theory models, i.e. Strategic/Tactical Asset Allocation models. The focus in this first part will be more on the empirical applications of the models and the more technical data issues involved in the development of the models. In the second part the course focuses on Equity Portfolio Management issues, introducing Economic, Fundamental and Screening factor models, clarifying the relationship with the market efficiency hypothesis and the relevance of data and its quality for building investment strategies.

Detailed program

Topic	References/Readings

Strategic Asset Allocation

Topic	References/Readings
The framework for Asset Management, Strategic Asset Allocation	QEPM and Slides (Markowitz, CAPM, APT
Improving Strategic Asset Allocation (1)	Scherer (2002)
Introduction to Quantitative Equity Portfolio Management	QEPM Slides
Improving SAA (R application), Resampling	

Quantitative Equity Portfolio Management

Topic	References/Readings
Introduction to Quantitative Equity Portfolio Management (QEPM)	QEPM Slides
Fundamental Models	QEPM Slides
Economic Models	QEPM / Miller (2005b) Liodakis (2005)
Screening and fundamental models	Slides
Economic Models Estimation	Slides
Stock Screening Models	QEPM / Harvey at al. (1999) Miller (2005a

One-off topics in Portfolio Management

Topic	References/Readings
Dynamic portfolio strategies (focus on CPPI)	Pain and Rand (2008)
Constant proportion portfolio insurance (CPPI) with R	
Arbitrage based strategies (Pairs Trading)	
Pairs Trading with R	Coding

Momentum investing, Cross sectional vs Time series

Momentum investing with R   Coding

Prerequisites

There are no formal prerequisites for the course, but basic knowledge of financial theory will be useful.

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Teaching methods

The course is taught in a traditional way, therefore based on frontal teaching. It provides for the development of applications and models in the computer lab with the help of the R programming language. The development of models, of which some examples are the Black and Littermann model, the efficient frontier resampling, the CPPI etc... is prodromic to the Assignment that is delivered during the course and represents a concrete opportunity for students to exploit and consolidate the knowledge developed during the laboratory.

Assessment methods

The learning will be tested through:

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Textbooks and Reading Materials

The course content is based in part on the book:

- Libby/R./Emanuel, Rachael (3rd. 2005). Quantitative Equity Portfolio Management: McGraw-Hill library of investment and finance. The Library of Chapters of the New range. Part 2/1 to 7.

- The textbook covers approximately 50% of the topics covered in the course. The remaining topics will be based on sets of slides used through out the course of study available to students, and articles from the following journals.

- Strong G. R. (Editor), E. Edgerton and Y. Leung, 1994. Micro-Markets in Nature, Emerging Markets Quarterly II (Fall), pp. 49-57.

- Miller, K. (2016a). R&D Portfolio Diversity. Emerging Markets, Edging and Wealth Markets, Quantitative Research.

- Miller, K. (2016b). The Wealth Market. L.A. Equity Risk, Ashford Markets (2008). Edging to Wealth Markets, Quantitative Research.

- Sortino, H. (2013). Portfolio Benchmarking, Variance and Pricing, Financial Analysts Journal (Mar), pp. 56-69.

- Treynor, M. and J. Brown (2014). Return Measurement of a Portfolio Investment, Value & Rangevol, Academy Modeler.

Semester

Second semester

Teaching language

Italian