UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Investment Strategies

2425-1-F1601M055

Learning objectives

The objective of the course is to review and analyze recent theoretical and empirical developments in portfolio management, focusing in particular on the issue of tactical asset allocation, the main quantitative models of stock selection, performance evaluation and investment strategies.

The course is an intermediate/advanced asset management course, oriented towards the practical application of investment strategies previously investigated from a theoretical point of view. In this perspective, part of the lessons will be applicative/informatic, based on the use of Matlab® software.

Contents

The course has three main subject areas. A first part that studies the most advanced models of portfolio theory, then Strategic Asset Allocation models. The second part focuses on Equity Portfolio Management, analyzing economic, fundamental and screening models. A third part that then focuses on the current "Trends" in the asset management industry and therefore on more specific investment strategies.

Detailed program

Strategic Asset Allocation

Course Introduction. The framework for Asset Management
The framework for Asset Management, Strategic Asset Allocation (Markowitz, CAPM)
Improving Strategic Asset Allocation: constrained efficient frontier
Improving Strategic Asset Allocation: resampled efficient frontier

Improving Strategic Asset Allocation: the Black and Littermann (BL) model

Quantitative Equity Portfolio Management

Introduction to Quantitative Equity Portfolio Management (QEPM)
The link between Efficient market Hypothesis (EMH) and QEPM
The APT and Multifactoer models
Economic Models a la Fama French
Fundamental Models
A special case of fundamental models: Stock Screening Models

One-off topics in Portfolio Management

Dynamic allocation models, Buy and Hold, Constant Mix and CPPI
Exchange Rate Models Basics
Alternative asset classes: currency investring
Performance Measurement: stock selection ability, market timing and portfolio polarization
Performance Measurement: performance attribution, style analisys

Matlab programming basics and models/strategies implementations

introduction to Matlab programming
The GUI, import/export of data, matrix algebra, logical statements, loops, basic plotting
Implementing a CPPI strategy
Resampling the efficient frontier
The application of the BL model
Building a simultaneus screening model
Implementing a Risk Attribution Model

Prerequisites

There are no formal prerequisites to be met for the course, but basic concepts of financial theory such as CAPM, or market efficiency, as well as basic principles of valuation of equities and bonds will be taken for granted.

Students are also expected to know the basic concepts of statistics and in particular those related to models of multiple linear regression. The basic concepts of matrix algebra will also be taken for granted.

Teaching methods

The course is taught maynly in a traditional way, based on frontal teaching. In addition it entails the development of applications and models interactively with the aid of the Matlab® programming language. The development of models, of which some examples are the Black and Littermann model, efficient frontier Resampling, CPPI, etc., is prodromic to the Assignment that is given at the end of the course and that represents a concrete opportunity for the students to make use of and consolidate the knowledge developed throughout the course.
Specifically, the course includes:
14 lectures of 3 hours delivered in face-to-face mode;
5 exercises/programming of 3 hours delivered in face-to-face mode;

Assessment methods

The proficiency assessment distinguishes between students who are considered Attending and Non-Attending.

Attending Students are those students who will choose to complete the Assigment that will be given to students at the end of the course, working in groups of 3-4 students. Those who choose not to do the group work will be considered Non-Attending students. The Assignment consists of three exercises that require students to write matlab programs testing asset allocation strategies or specific investment strategies, and can be completed during the summer with delivery due by September.

For attending students, the final grade will be the simple average between the grade their group will earn in the assignment (the score of which has a scale from 0 to 35), and the grade obtained in the exam.

For Non-Attending students, the final grade depends only on the grade obtained in the exam.

The exam includes a first part on the Online platform, based on 15 Multiple Choice (MCs) in 20 minutes, with penalties for wrong answers, and a subsequent oral examination, the assessment of which will start, as a reference, from the score obtained in the MCs. At the end of the MCs, students may decide to withdraw, but will not be allowed to do so after the oral assessment. Although the syllabus is the same for Attending and Non-Attending students, the oral assessment will be different; in the case of Non-Attending students, the oral assessment will be more in-depth and detailed.

Textbooks and Reading Materials

The course material is based in part on the text:

- Ludwig B Chincarini, Daehwan Kim, 2006, Quantitative Equity Portfolio Management, McGraw-Hill Library of Investment and Finance.

The relevant chapters of the text range from chapter 1 to chapter 7.

The manual will cover approximately 30% of the topics discussed during the course. The remaining topics will be through sets of slides used during the course and made available to students and articles from scientific journals as listed below:

Deutsche bank (2006), Currency: pensions saviors? Global Market Rersearch.
Drobetz, W., 2001, How to Avoid the Pitfalls in Portfolio Optimization? Putting the Black-Litterman Approach at Work, Swiss Society for Financial Market Research, 15(1), pp. 59-75.
Harvey C., D. Achour, G. Hopkins and C. Lang, 1999, Stock Selection in Mexico, Emerging Markets Quarterly 3, Fall, pp. 38-75.
Ibbotson, R. and P. Chen, 2003, Long-Run Stock Returns: Participating in the Real Economy, Financial Analysts Journal, 59(1), pp. 89-98.
Idzorek, T., 2006, Strategic Asset Allocation and Commodities, PIMCO Research Paper.
Lazzari, V. and M. Navone, 2004, The Selection Ability of Italian Mutual Fund Managers, SDA WP N° 100.
McKinsey & Co. 2006, The Asset Management Industry in 2010, mimeo.
Miller, K., 2005a, S&P 500 Industry Group Rotation Model, Citigroup Smith Barney Quantitative Research.
Miller, K., 2005b, The Smith Barney U.S. Equity Risk Attribute Model (RAM), Citigroup Smith Barney Quantitative Research.
Pain, D. and J. Rand, 2008, Recent Developments in Portfolio Insurance, Bank of England Quarterly Bulletin.
Scherer, B., 2002, Portfolio Resampling: Review and Critique, Financial Analysts Journal, 58(6), pp. 98-109

Semester

Second semester

Teaching language

Italian

Sustainable Development Goals