Portfolio Management

Professor: Massimo Guidolin
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Learning Objectives:

This course covers the fundamentals of applied portfolio theory and management with particular emphasis on the interaction between key theoretical concepts and ideas and their practical applications. The course starts from the essentials represented by mean-variance portfolio selection and state-preference theory through the basics of utility theory. It subsequently progresses to cover the differences between active and passive portfolio management, the role of predictable investment opportunities in the former case and benchmarking in the latter, to conclude with a treatment of recent trends in the asset management industry, such "smart beta" and ESG (Environmental, Social, and Governance) objectives. Some applied elements of performance evaluations are also covered.

A. Theoretical and conceptual knowledge

We aim to provide students with the opportunity to learn and understand:

a. How commonly held perception of predicted mean returns, risk, and correlations may be combined to yield optimal portfolio weights for macro-asset classes.
b. How investor preferences for the risk-return trade-off may be represented in practice to inform portfolio decisions.
c. The difference between active and passive asset management and how the former may exploit any predictability in asset returns.
d. How can outperforming portfolio managers be told apart from sub- or normally- performing ones.

B. Practical knowledge and applications

Students will be exposed to realistic numerical examples to learn how the general concepts and methodologies find practical applications and are expected to learn:

a. How to compute and use a mean-variance efficient frontier to inform portfolio decisions using Excel/VBA tools.
b. How to optimize a general expected utility objective subject to constraints to reach portfolio decisions using Excel/VBA tools.
c. How to use simple statistical methods to detect and measure normal/abnormal portfolio performances using Excel/VBA tools.

C. Critical thinking and analytical problem solving skills

Students will be exposed to specific data sets that are relevant to real-life situations, especially in the strategic asset allocation domain, adapted to suit the pedagogical purpose of the course:

a. Analyses of data combined with theoretical knowledge, application of problem solving and iterative approaches in order to progress toward conclusions/solutions;

b. Combining results from different valuation techniques and methodologies to think through results, exercise critical thinking and judgement, draw conclusions by taking a view/ forming an opinion/ developing a recommendation and be ready and able to defend it.

Course Contents:

1. Mean-Variance Analysis
2. Optimal Portfolio Selection in Practice
3. Single and Multi-Index (Factor) Models; Factor ("Smart Beta") Investing
4. State-Preference and Utility Based Portfolio Choice
5. Performance Measurement and Attribution
6. Active vs. passive portfolio choice: modelling and exploiting stochastic investment opportunities
7. Environmental, Society, and Governance Criteria in Asset Management
8. Smart beta in modern asset management

Course Methodology:

The course is based primarily on lectures and hands-on tutorial in Microsoft Excel and VBA (one Excel tool), but shall be integrated with speeches and contributions of professionals of the asset management and investment advisory industry. The mix enables students to apply concepts to real-life situations and get a "feeling" for the portfolio management profession through exposure to practioners', hands-on sessions. In particular, Manuela Pedio a former quant in a major Italian banking group will conduct 2 joint (i.e., I will also be in the room to foster discussion and make sure we exploit her talents as much as possible) tutorials will take place to explore how methods are used in practice.

Course Etiquette:

In your own interest and in the interest of your colleagues, you are expected to observe the following courtesy rules:

1. Arrive in class on time; do not leave early.

2. Keep your mobiles and laptops off; do not use wireless network emailing in class.

3. Minimize wandering in and out of the classroom.

4. Participate fully in class.

Suggested Readings:

Guidolin, M., and M., Pedio, 2016, *Essentials of Applied Portfolio Management*, EGEA and Bocconi University Press.

Course Evaluation:

The course final evaluation will be based on individual contributions during the course through class attendance, participation, and overall attitude towards the course and performance in one individual assignment.

About The Instructors – Professor Massimo Guidolin

Massimo Guidolin is a full professor of Finance with the Department of Finance at Bocconi University where he teaches Asset Pricing and Financial Econometrics and Research Fellow of IGIER and CAREFIN-BAFFI, Bocconi's research Center in Applied Finance. He is also the Academic Director of FT-Ranked (9th in 2015) MSc. Finance at Bocconi University since 2012. He holds a Ph. D. degree from the University of California, San Diego (2000). Prior to his

European academic tenures, he has held academic positions at the University of Virginia (2000 - 2004), and he was junior vice-president in the Federal Reserve system (St. Louis, 2004 - 2010) in the United States. Massimo's research concerns derivative pricing, quantitative methods and forecasting in applied portfolio management, and the empirical modelling of real estate valuations. His research has been published in leading international journals such as the *American Economic Review*, the *Journal of Financial Economics*, the *Review of Financial Studies*, the *Journal of Financial and Quantitative Analysis*, the *Journal of Econometrics*, and the *Journal of Portfolio Management*. He is the author of about 80 scientific articles, of three books, and of a number of book chapter contributions. Massimo Guidolin currently seats on the board of a range of international academic journals such as the *International Journal of Forecasting* (Elsevier), and the *Journal of Economic Dynamics and Control* (Elsevier). Massimo has spent periods as a visiting scholar with numerous academic institutions and central banks around the world, including Banque de France, Federal Reserve Banks in the U.S., Norges Bank, Vienna's IHS, and the Universite' de Montreal.

Syllabus

Sessions 1-3 **3 July 2019** **9.30 – 11.00** **11.30 -13.00** **14.00 – 15.30**	**Introduction to the course and syllabus presentation** **The Opportunity Set and the Efficient Frontier** **Efficient Frontier under Short-Selling Constraints.** **READINGS:** • Lecture Slide Set 1, "Fundamentals of mean-variance analysis" • Guidolin, M., and M., Pedio, 2016, *Essentials of Applied Portfolio Management*, EGEA and Bocconi University Press, chapters 1 and 3.
Session 4 **3 July 2019** **16.00 – 17.30**	**Tutorial on mean-variance portfolio selection methods in Excel and VBA** • Handout and Excel samples and VBA codes made available by the instructors
Session 5 **4 July 2019** **9.30 – 11.00**	**Introduction to the State-Preference Approach** **Representing Preferences and Risk Aversion Attitudes with Utility Functions** **READINGS:** • Lecture Slide Set 2, "Utility-Based Portfolio Choice" • Guidolin, M., and M., Pedio, 2016, *Essentials of Applied Portfolio Management*, EGEA and Bocconi University Press, chapters 3-4 (pp. 99- 119).
Sessions 6-7 **4 July 2019** **11.30 -13.00** **14.00 – 15.30**	**Performance Measurement and Attribution Decomposing Performance** **Active vs. Passive Portfolio Management** (Instructor: Massimo Guidolin) **READINGS:** • Lecture Slide Set 3, "Performance Measurement and Attribution" • Guidolin, M., and M., Pedio, 2016, *Essentials of Applied Portfolio Management*, EGEA and Bocconi University Press, chapter 7. • Goyal, A., Ilmanen, A., and D., Kabille (2015). Bad habits and good practices. *Journal of Portfolio Management*, 41, 97-107.

Sessions 8-9 **4 July 2019** **16.00 – 17.30** **5 July 2019** **9.30 – 11.00**	**"Smart Beta" Factor Investing: Mapping Factor Exposures into Asset Allocations** (Instructor: Massimo Guidolin) **READINGS:** • Lecture Slide Set 4, "Smart Beta and Factor Investing" • Kahn, R. N., and M., Lemmon (2015). Smart Beta: the owner's manual. *Journal of Portfolio Management*, 41, 76-83. • Kahn, R. N., and M., Lemmon (2016). The asset manager's dilemma: How smart beta is disrupting the investment management industry. *Financial Analysts Journal*, 72, 15-20. • Dimson, E., Marsh, P., and M., Staunton (2017). Factor-based investing: the long-term evidence. *Journal of Portfolio Management*, 43, 15-37.
Session 10 **5 July 2019** **11.30 – 13.00**	**Using Sentiment Indicators in Asset Management: the Window to Big Data, Deep Learning, and Artificial Intelligence** (Instructor: Massimo Guidolin) **READINGS:** • Lecture Slide Set 5, "The Role of Sentiment in Modern Portfolio Choice" • Heston, S. L., and N., R., Sinha (2017). News vs. sentiment: Predicting stock returns from news stories. *Financial Analysts Journal*, 73, 67-83. • Beckers, S. (2018). Do social media trump news? The relative importance of social media and news based sentiment for market timing. *Journal of Portfolio Management*, 45, 58-67.
Session 11 **5 July 2019** **14.30 – 16.00**	**The Role of ESG Criteria and Constraints in the Asset Management Industry** (Instructor: Massimo Guidolin) **READINGS:** • Lecture Slide Set 6, "ESG in Asset Management" • Amel-Zadeh, A., and G., Serafeim (2018). Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, 74, 1-17.
Session 12 **9 July 2019** **16.00 – 17.30**	**Tutorial on Performance Measurement in Excel** (Instructor: Massimo Guidolin)
31 July 2019 **11:59 pm**	**ASSIGNMENT DUE (e-mail: massimo.guidolin@unibocconi.it)**