

12F011

3 ECTS

Investments

Overview and Objectives

This course deals with the theory and practice of portfolio management. The course approaches the problem of asset allocation with a focus on the challenges of taking the theory of portfolio optimisation to practice, including topics such as the violation of the assumptions supporting the traditional mean-variance paradigm, downside risk and estimation error. The scope of the course is general enough to be applicable to common stock portfolios as well as portfolios involving complex strategies, such as those employed by hedge fund managers. The course pays special attention to state-of-the-art developments in performance measurement, hedge fund portfolio management, and common active portfolio management strategies. The analytical tools employed in the course are a blend of financial theory, statistics, and financial econometrics.

Course Outline

Chapter 1: Some extensions of traditional portfolio choice

1. Introduction.
2. Limitations of the mean-variance framework of portfolio optimisation.
3. Downside risk and portfolio choice.
4. Portfolio optimisation with shortfall constraints.
5. Portfolio optimisation with mental accounts.
6. Strategic asset allocation.

Appendix

- A1. Efficient frontiers.
- A2. Portfolio optimisation under mean-variance framework.

Chapter 2: Bayesian analysis and portfolio choice

1. Estimation error.
2. Portfolio resampling.
3. Introduction to Bayesian analysis.
4. Black-Litterman model.

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Chapter 3: Portfolio performance measures

1. Traditional measures: Sharpe ratio, Treynor ratio, Jensen alfa, etc.
2. Downside risk measures: Sortino ratio and RoVaR.
3. The statistics of Sharpe ratios.
4. Dangers of Sharpe ratio performance for Hedge Funds.
5. Omega performance measure for Hedge Funds.

Chapter 4: Style analysis, Performance attribution and Market timing

1. Style analysis.
2. Rolling-period style analysis.
3. Confidence intervals for style weights.
4. Performance attribution.
5. Market timing and security selection. An example.

Chapter 5: Active management

1. Introduction.
2. AP decomposition.
3. Mean reversion and momentum strategies.
4. Stop-loss policy.
5. Contrarian trading strategy.
6. Portable alpha.

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. Required Activities

TO BE DETERMINED BY PROFESSOR

Evaluation

Students will be evaluated through their grades on problem sets (40% of the final grade) and the final exam (60%). Students will work in groups on the problem sets. The final exam will contain both exercises and theoretical questions. It is not an open-book exam, although students will be provided with a sheet of formulae.

Materials

Cabral, L. (2000), *Introduction to Industrial Organization*, The MIT Press.

Church, J and R. Ware (2000, 1st edition), *Industrial Organization: A Strategic Approach*, Irwin McGraw-Hill.

Barberis (2000): "Investing for the long run when returns are predictable", *Journal of Finance*, 55:1, p. 225-264.

Bodie, Kane and Marcus (2011): *Investments*, 9TH edition, McGraw-Hill.

Brandt (2009): "Portfolio choice problems", in *Handbook of Financial Econometrics*, Edited by Y. Ait-Sahalia and L.P. Hansen. North-Holland.

Campbell, J., and L. Viceira (2000): *Strategic Asset Allocation: Portfolio Choice for Long-Term Investors*, Oxford University Press.

Cascon, A., Keating, C., Shadwick, W. (2002): "The Mathematics of the Omega Measure", The Finance Development Centre, London.

Chopra and Ziemba (1993): "The effect of errors in means, variances, and covariances on optimal portfolio choice", *Journal of Portfolio Management*, Winter, p. 6-11.

Das, S., Markowitz, H., Scheid, J. and Statman, M. (2010): "Portfolio optimization with mental accounts", *Journal of Financial and Quantitative Analysis*, vol. 45, 311-334.

DeMiguel, Victor, Lorenzo Garlappi, and Raman Uppal (2009): "Optimal versus Naïve Diversification: How Inefficient Is the 1/N Portfolio Strategy?" *Review of Financial Studies*, vol. 22, no. 5 (May):1915-1953.

Fung, Xu and Yan (2002): "Global hedge funds: risk, return and market timing", *Financial Analysts journal*, 58:6, p. 19-30.

Harlow (1991): "Asset allocation under a downside-risk framework", *Financial Analysts Journal*.

He and Litterman (1999): "The intuition behind Black-Litterman model portfolios", *Goldman Sachs Investments Management Series*.

Huang and Litzenberger (1998): *Foundations for Financial Economics*, North-Holland.

Jackson and Staunton (2002): *Advanced modelling in finance using Excel and VBA*, Wiley.

Jondeau and Rockinger (2006): "Optimal portfolio allocation under higher moments", *European Financial Management*, 12:1, p. 29-55.

Keating, C. and Shadwick, W. (2002): "An introduction to Omega", *AIMA Newsletter*.

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Kritzman, Page and Turkington (2010): "In Defense of Optimization: The Fallacy of $1/N$ ", *Financial Analysts Journal*, March/April.

Leibowitz and Henriksson (1989): "Portfolio optimisation with shortfall constraints: a confidence-limit approach to managing downside risk", *Financial Analysts Journal*, 45:2, p. 34-41.

LHabitant (2004): *Hedge Funds. Quantitative insights*, Wiley.

LHabitant (2002): *Hedge Funds. Myths and Limits*, Wiley.

Lo (2008): *Hedge Funds. An analytic perspective*, Princeton.

Lo (2007): "Where do alphas come from?: A new measure of the value of active investment management", *Journal of Investment Management* (forthcoming).

Lo (2002): "The statistics of Sharpe ratios", *Financial Analysts Journal*, 58:4, p. 36-52.

Lobosco and DiBartolomeo (1997): "Approximating the confidence intervals for Sharpe style weights", *Financial Analysts Journal*, July/August, p- 80-85.

Scherer (2004): *Portfolio construction and risk budgeting*, Risk Books.

Wai Lee (2000): *Theory and methodology of Tactical Asset Allocation*, Wiley.