

## **Plan de cours**

### **ADM9971 SÉMINAIRE SUR LES THÉORIES EN FINANCE**

**Professeur :**

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## **DESCRIPTION ET OBJECTIF DU COURS**

L'objectif de ce séminaire est d'entreprendre une étude rigoureuse de la théorie financière moderne et de ses fondements économiques. Le séminaire couvre les principaux thèmes de la finance moderne, y compris la théorie de l'utilité, les décisions d'investissement individuelles en situation d'incertitude, la dominance stochastique, et l'application éventuelle de ces thèmes pour la construction de portefeuille, l'analyse du risque, l'évaluation de la performance, les fonds de couverture, etc. À la fin de ce cours, les étudiants devraient acquérir une compréhension claire des principaux résultats théoriques concernant les décisions financières en matière de portefeuille et de leurs implications pour la construction de portefeuille, la répartition d'actifs, la construction d'indices et l'évaluation de la performance.

## **MÉTHODOLOGIE**

Le séminaire comporte des exposés magistraux sur la matière et des discussions en classe. Chaque étudiant aura également à présenter 4 ou 5 articles selon la taille de la classe. Les articles à lire pour chaque séance seront définis en classe.

## **MATÉRIEL ET VOLUME OBLIGATOIRES**

Le cours étant basé principalement sur les articles, aucun livre en particulier n'est recommandé. Les livres suivants sont néanmoins suggérés et couvrent certaines parties du cours.

- S. F. LeRoy and J. Werner, Principles of Financial Economics, Cambridge University Press, 2001
- J. Cochrane, Asset Pricing, Princeton University Press; Revised edition (2005)
- J. Cvitanic and F. Zapatero, Introduction to the Economics and Mathematics of Financial Markets, The MIT Press 2004.
- Kerry Back, Asset Pricing and Portfolio Choice Theory, Oxford University Press, USA; 1 edition (2010)
- D. Duffie, Dynamic Asset Pricing Theory, Princeton University Press, 3rd edition, 2001.
- Huang, C. F. and R. Litzenberger, Foundations for Financial Economics, Elsevier Science Publishing Co., 1988.
- W. Sharpe, Investors and Markets: Portfolio Choices, Asset Prices, and Investment Advice, Princeton University Press (2008)
- T. E. Copeland, J. Fred Weston, and Kuldeep Shastri, Financial Theory and Corporate Policy, Addison-Wesley, 4<sup>th</sup> edition (2004).
- B. Scherer, Portfolio Construction and Risk Budgeting, Risk Books 4<sup>th</sup> edition (2010)
- Ales Cerny, Mathematical Techniques in Finance: Tools for Incomplete Markets, Princeton University Press; 2 edition (2009)
- John Y. Campbell, and Luis M. Viceira, Strategic Asset Allocation, Oxford University Press, 2002.
- Gollier, Christian, The Economics of Risk and Time, MIT Press, 2004.
- Attilio, Meucci, Risk and Asset Allocation, Springer, 3rd printing edition, 2009.
- Rasmussen, Mikkel, Quantitative Portfolio Optimisation, Asset Allocation, and Risk Management, Palgrave MacMilan, 2003.
- Bernd Scherer, R. Douglas Martin, Modern Portfolio Optimization with NuOPT(TM), S-PLUS®, and S+Bayes(TM), Springer (2010)

## ÉVALUATION

Présentation et rapports critiques :	40 %
Participation et résumés :	20 %
Travail de recherche :	40 %

## SÉANCES DU COURS

### Séances 1 et 2 : Préférence, théorie de l'utilité et aversion au risque

#### Thèmes des séances

- Préférences et fonctions d'utilités
- Incertitude et aversion au risque
- Théorie des perspectives (Prospect Theory)
- Fonctions d'utilité couramment utilisées en finance

#### Liste de lectures

- Danilov, V. I. and A. Lambert-mogiliansky. 2010. "Expected Utility Theory Under Non-Classical Uncertainty." *Theory and Decision* 68 (1-2): 25-47
- Fishburn, Peter C. 1968. Utility theory. *Management Science* 14, (5) : 335-335,
- Friedman, Milton and Savage, Leonard J. "Utility Analysis of Choices Involving Risk." *Journal of Political Economy*, August 1948, 56(4), pp. 279-304.
- Hartley, Roger, and Lisa Farrell. 2002. Can expected utility theory explain gambling? *The American Economic Review* 92, (3) : 613-624.
- Helzner, Jeffrey. 2009. "On the Application of Multiattribute Utility Theory to Models of Choice." *Theory and Decision* 66 (4) : 301-315.
- Kahneman, D. and Tversky, A. (1992), "Advances in prospect theory: cumulative representation of uncertainty", *Journal of Risk and Uncertainty*, Vol. 5 No. 4, pp. 297-323.
- Kahneman, Daniel, and Amos Tversky. 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47, (2) : 263.
- Tversky, Amos, and Daniel Kahneman. 1986. Rational choice and the framing of decisions. *The Journal of Business* (1986-1998) 59, (4) : IIS251-IIS251,

### Séance 3 : Choix de portefeuille

#### Thèmes

- Problème de l'investisseur
- Titre pur
- Dominance stochastique
- Rendement, risque

#### Liste de lectures

- Arrow K (1964) The role of securities in the optimal allocation of risk-bearing. *Quarterly Journal of Economic* 31:91-96

- Levy, Moshe and Haim Levy. 2002. "Prospect Theory: Much Ado about Nothing?" *Management Science* 48 (10) : 1334-1349.
- Nau, Robert. 2011. "Risk, Ambiguity, and State-Preference Theory." *Economic Theory* 48 (2-3) : 437-467
- Nwogugu, Michael. 2005. "Towards Multi-Factor Models of Decision Making and Risk: A Critique of Prospect Theory and Related Approaches, Part I." *The Journal of Risk Finance* 6 (2) : 150-162.
- Pratt J (1964) Risk aversion in the small and in the large. *Econometrica* 32:122–136

## Séances 4 et 5 : Modèles d'évaluation d'actifs

### Thèmes

- Analyse moyenne-variance
- CAPM
- APT
- Extensions du CAPM

### Liste de lectures

- Huang and Litzenberger, Chap. 3
- Kraus, Alan and Robert H. Litzenberger. 1976. "Skewness Preference and the Valuation of Risk Assets." *The Journal of Finance* 31 (4) : 1085
- Levy H. and H. Markowitz, "Approximating Expected Utility by a Function of Mean and Variance", *American Economic Review* 69 (3) : 308-313.
- Lintner, J. 1965. "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets." *Review of Economics and Statistics* 47: 13-37.
- Meyer, J. (1987) "Two Moment Decision Models and Expected Utility Maximisation", *American Economic Review* 77 (3) : 421-430.
- Milne, F., & Smith, Clifford W., Jr. (1980). Capital asset pricing with proportional transaction costs. *Journal of Financial and Quantitative Analysis*, 15(2), 253
- Roll, Richard and Stephen A. Ross. 1994. "On the Cross-Sectional Relation between Expected Returns and Betas." *Journal of Finance* 49 (1) : 101-121.
- Roll, Richard. 1977. "A Critique of the Asset Pricing Theories Tests: Part I: On Past and Potential Testability of the Theory." *Journal of Financial Economics* 4 (2) : 129-176.
- Ross Stephen, "Return Risk and Arbitrage" in I. Friend and J. Bicksler (ed.), *Risk and Return in Finance*, Balinger, Cambridge, 1976.

- Samuelson, P. 1970. "The Fundamental Approximation Theorem of Portfolio Analysis in Terms of Means, Variances and Higher Moments", *Review of Economic Studies* 37: 537-542.
- Sharpe, W. F. 1964. "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk." *Journal of Finance* 19 : 425-442.

## **Séance 6 : Modèles multipériodiques**

### **Thèmes**

- ICAPM
- APT intertemporel

### **Liste de lectures**

- Cochrane. Chap. 9
- Connor, Gregory and Robert A. Korajczyk. 1989. "An Intertemporal Equilibrium Beta Pricing Model." *The Review of Financial Studies (1986-1998)* 2 (3): 373-373
- Huang and Litzenberger, Chap. 7 & 8.
- Kazemi, Hossein B. 1988. "A Multiperiod Asset-Pricing Model with Unobservable Market." *The Journal of Finance* 43 (4) : 1015-1015.
- Reisman, H. (1992). Intertemporal arbitrage pricing theory. *The Review of Financial Studies (1986-1998)*, 5(1), 105
- Stapleton, R. C. and M. G. Subrahmanyam. 1978. "A Multiperiod Equilibrium Asset Pricing Model." *Econometrica* 46 (5) : 1077.

## **Séance 7 : Finance et macro-économie**

### **Thèmes**

- Impact des variables macroéconomiques sur les rendements
- Valeurs prédictives des variables macroéconomiques

### **Liste de lectures**

- Brenner, Menachem, Paolo Pasquariello, and Marti Subrahmanyam. 2009. "On the Volatility and Comovement of U.S. Financial Markets Around Macroeconomic News Announcements." *Journal of Financial and Quantitative Analysis* 44 (6): 1265
- Cochrane, J. H. 1994. Permanent and transitory components of GNP and stock prices. *Quarterly Journal of Economics* 109: 241–266.
- Cochrane, J. H. 1999. New facts in finance. *Economic Perspectives*, Federal Reserve Bank of Chicago 23(3) : 36–58.
- Cochrane, J. H. Financial markets and the real economy. *Foundations and Trends in Finance* 1 (2005) : 1–101.

- Cochrane, J. H. The dog that did not bark: A defense of return predictability. *Review of Financial Studies* (2006).
- Cochrane, J. H., and L. P. Hansen. Asset pricing explorations for macroeconomics. In O. Blanchard, and S. Fisher, eds., *NBER Macroeconomics Annual* (1992) : pages 115–165.
- Pierdzioch, Christian, Jörg Döpke, and Daniel Hartmann. 2008. "Forecasting Stock Market Volatility with Macroeconomic Variables in Real Time." *Journal of Economics and Business* 60 (3): 256
- Rapach, David E., Jack K. Strauss, and Guofu Zhou. 2010. "Out-of-Sample Equity Premium Prediction: Combination Forecasts and Links to the Real Economy." *The Review of Financial Studies* 23 (2) : 821.

## Séance 8 : Allocation d'actifs

### Thèmes

- Évaluation des allocations
  - Objectifs de l'investisseur
  - Dominance stochastique
  - Quantile
  - Expected shortfall
- Optimisation des allocations
  - Moyenne-variance
  - Optimisation sous contrainte
  - Rendement total versus indice de référence

### Liste de lectures

- Fabozzi, F. J., Huang, D., & Zhou, G. (2010). Robust portfolios: Contributions from operations research and finance. *Annals of Operations Research*, 176(1), 191-220.
- Farrell, J. L., J.R. (2011). Asset allocation under extreme uncertainty. *Journal of Portfolio Management*, 37(2), 72-82
- Ibbotson, R. G., & Kaplan, P. D. (2000). Does asset allocation policy explain 40, 90, or 100 percent of performance? *Financial Analysts Journal*, 56(1), 26-33.
- Krink, T., Mittnik, S., & Paterlini, S. (2009). Differential evolution and combinatorial search for constrained index-tracking. *Annals of Operations Research*, 172(1), 153-176
- Meucci, Chap. 4, 5 et 6.
- Tu, Jun. 2010. "Is Regime Switching in Stock Returns Important in Portfolio Decisions?" *Management Science* 56 (7) : 1198-1215.

## Séances 9 et 10 : Allocation dynamique d'actifs

### Thèmes

- Allocation dynamique sous-contrainte
- Allocation dynamique en contexte de normalité
- Allocation dynamique en de non-normalité
- Allocation dynamique avec revenu et taux d'intérêt stochastique

### Liste de lectures

- Basak, Suleyman, and Georgy Chabakauri. 2010. Dynamic mean-variance asset allocation. *The Review of Financial Studies* 23, (8): 2970
- Detemple, J., and M. Rindisbacher. 2010. Dynamic asset allocation: Portfolio decomposition formula and applications. *Review of Financial Studies* 23 (1): 25-100
- Hainaut, Donatien, and Renaud Macgilchrist. 2012. Strategic asset allocation with switching dependence. *Annals of Finance* 8, (1): 75-96
- Hainaut, Donatien. 2009. Dynamic asset allocation under VaR constraint with stochastic interest rates. *Annals of Operations Research* 172, (1): 97-117
- Hibiki, Norio. 2006. Multi-period stochastic optimization models for dynamic asset allocation. *Journal of Banking & Finance* 30, (2) : 365-390
- Liu, Jun, Francis A. Longstaff, and Jun Pan. 2003. Dynamic asset allocation with event risk. *The Journal of Finance* 58, (1) : 231-259
- Munk, Claus, and Carsten Sørensen. 2010. Dynamic asset allocation with stochastic income and interest rates. *Journal of Financial Economics* 96, (3) : 433,
- Otranto, Edoardo. 2010. Asset allocation using flexible dynamic correlation models with regime switching. *Quantitative Finance* 10, (3) : 325
- Switzer, Lorne N., and Andrey Omelchak. 2009. Time-varying asset allocation across hedge fund indices. *Journal of Derivatives & Hedge Funds* 15, (1) : 70-85
- Switzer, Lorne N., and Andrey Omelchak. 2011. Are there benefits from dynamic asset allocation strategies across hedge funds? *Journal of Portfolio Management* 37, (3) : 116-120

## Séances 11 et 12 : Construction de portefeuille

### Thèmes

- Budget de risque
- Contexte de non-normalité
- Méthodes bayésiennes, Black-Litterman
- Optimisation de scénario

- Construction de portefeuille coûts de transaction
- Optimisation par rapport à un portefeuille de référence
- Liability-driven-investment
- Hedge funds

### Liste de lectures

- Amenc, Noël, Lionel Martellini, and Volker Ziemann. 2009. Inflation-hedging properties of real assets and implications for asset-liability management decisions. *Journal of Portfolio Management* 35, (4) : 94-110
- Amenc, Noël, Lionel Martellini, Felix Goltz and Vincent Milhau. 2010. New Frontiers in Benchmarking and Liability-Driven Investing. EDHEC-Risk Institute Publication
- Dempster, Michael A. H., Matteo Germano, Elena A. Medova, James K. Murphy, Dermot Ryan, and Francesco Sandrini. 2009. Risk-profiling defined benefit pension schemes. *Journal of Portfolio Management* 35, (4) : 76-93.
- Gosling, Susan. 2010. "A Scenarios Approach to Asset Allocation." *Journal of Portfolio Management* 37 (1): 53-66
- Meucci, Chap. 7, 8 et 9.
- Scherer, Section 2-5
- Theobald, Michael F., and Peter J. Yallup. 2010. Liability-driven investment: Multiple liabilities and the question of the number of moments. *The European Journal of Finance* 16, (5) : 413
- Van Bragt, David, and Dirk-jan Kort. 2011. Liability-driven investing for life insurers. *Geneva Papers on Risk & Insurance* 36, (1) : 30-49

## Séances 13 et 14 : Évaluation de la performance

### Thèmes

- Mesures traditionnelles
- Modèles conditionnels
- Modèles non-paramétrique d'évaluations

### Liste de lectures

- Cherny, Alexander and Dilip Madan. 2009. "New Measures for Performance Evaluation." *The Review of Financial Studies* 22 (7): 2371-2406
- Gregoriou, Greg N., Komlan Sedzro, and Joe Zhu. 2005. "Hedge Fund Performance Appraisal using Data Envelopment Analysis." *European Journal of Operational Research* 164 (2) : 555-571.



- Glawischnig, Markus and Margit Sommersguter-Reichmann. 2010. "Assessing the Performance of Alternative Investments using Non-Parametric Efficiency Measurement Approaches: Is it Convincing?" *Journal of Banking & Finance* 34 (2) : 295-303.
- Eling, M., Schuhmacher, F., 2007. Does the choice of performance measure influence the evaluation of hedge funds? *Journal of Banking and Finance* 31, 2632–2647.
- Kerstens, Kristiaan, Amine Mounir, and de Woestyne Van. 2011. "Non-Parametric Frontier Estimates of Mutual Fund Performance using C- and L-Moments: Some Specification Tests." *Journal of Banking & Finance* 35 (5) : 1190.
- Brandouy, Olivier, Walter Briec, Kristiaan Kerstens, and de Woestyne Van. 2010. "Portfolio Performance Gauging in Discrete Time using a Luenberger Productivity Indicator." *Journal of Banking & Finance* 34 (8) : 1899
- Moreno, David. 2006. "Performance Evaluation Considering the Coskewness: A Stochastic Discount Factor Framework." *Managerial Finance* 32 (4) : 375-392.
- Rudin, Alexander M. and Jonathan S. Morgan. 2006. "A Portfolio Diversification Index." *Journal of Portfolio Management* 32 (2): 81-89