

Advanced Finance 2: Asset Pricing and Financial Markets

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This module is made up of three parts. The first deals with questions of information aggregation in financial markets. It comprises 18h of coursework and is taught by Alexander Guembel. The second part is taught by Sophie Moinas and comprises 6h of teaching focusing on the design of experiments in asset pricing. Part III deals with behavioural issues in portfolio choice. Each part is graded separately and the overall course grade is the weighted average of the grades obtained for each part (60% Part I, 20% Part II, 20% Part III).

Intended Learning Outcomes

By the end of this course students should be able to:

- Identify key frictions that prevent the efficient aggregation of information in markets prices.
- Explain how such frictions can be captured in a mathematical model of trade with asymmetric information.
- Solve the corresponding models discussed in class.
- Describe the various categories of experiments
- Discuss whether an experimental design is suited to test a specific theoretical prediction
- Evaluate portfolio choices and asset prices in light of recent insights in behavioral finance
- Assess the impact of fintech on individual investors and financial markets

PART I

(Alexander Guembel)

Overview

In perfect markets equilibrium prices reflect the information and preferences of all potential investors and the corresponding allocation of the asset is efficient. We focus on the alternative case, where information asymmetries and strategic behaviour impair market efficiency. In this context the institutional arrangements governing the trading process can affect market outcomes. Against this backdrop, we will study the formation of prices, the trades conducted by market participants and the welfare properties of the resulting allocations. This will provide you with an introduction to a field of research in finance called “market microstructure.”

The course will be organized as follows. There are 6 sessions of 3h each.

First, we will introduce the general topic and briefly review the actual organization of financial markets in practice, so as to understand the rules of the game (session 1).

Second we will study some of the major models of price formation under information asymmetry (sessions 2 and 3).

Third, we will extend these models to study two applications (manipulation and herding) (session 4)).

Finally, we consider price formation in over-the counter markets.

We will use the final session to give students the opportunity to present and discuss some recent research papers.

Evaluation: Part I of the course will be evaluated on the basis of a presentation of a (recent) research paper and the submission of a report in the style of a referee report about the same paper. The report should be no more than 4 pages long and provide (i) a description of the paper’s main findings, (ii) an explanation of the economic mechanisms at play, (iii) the paper’s contribution to the literature, (iv) a critique of the paper, (v) avenues of research following on from the article. The presentation should cover the same points and be approximately 30 minutes in length.

I will distribute lecture notes at the beginning of each session. The following provides general background reading.

Biais, Glosten and Spatt, 2005, “Market microstructure: A survey of microfoundations, empirical results and policy implications,” *Journal of Financial Markets*, 217-264.

An advanced text that can serve as a reference is:

Xavier Vives, 2008, *Information and Learning in Markets: The Impact of Market Microstructure*, Princeton University Press.

Detailed Course Outline

I.1) Introduction (Lecture 1)

Introduction: Overview and institutional details

An illustration of speculation; a simple model of market microstructure: bid-ask spreads in the Glosten – Milgrom model

Reference article: Glosten, L. and P. Milgrom, 1985, “Bid, Ask and Transactions Prices in a Specialist Market with Heterogenously Informed Agents,” *Journal of Financial Economics*, 17, 71-100.

I.2) Fundamental principles of financial markets with privately informed traders

I.2.1) Competitive equilibrium in a financial market with private information

The benchmark model (Lecture 2.1)

Reference articles: Grossman, S. and J. Stiglitz, 1980, “On the Impossibility of Informationally Efficient Markets,” *American Economic Review*, 70, 393-408.

I.2.2) Strategic traders

Informed traders with market power (Lecture 2.2)

Reference articles: Kyle, A., 1985, “Continuous auctions and insider trading”, *Econometrica*, 1315—1335.

Hedging as a trading motive for uninformed traders (Lecture 3.1)

Reference article: Spiegel, M, and A. Subrahmanyam, 1992, “Informed speculation and hedging in a non-competitive securities market,” *Review of Financial Studies*, 5, 307 – 329.

Limit orders and liquidity supply by risk averse agents (Lecture 3.2)

Kyle, A., 1989, "Informed Speculation with Imperfect Competition," *Review of Economic Studies*, 56, 317-355.

I.3) Applications

Manipulation (Lecture 4.1)

Reference articles: Goldstein, I. and A. Guembel, 2008, “Manipulation and the Allocational Role of Prices,” *Review of Economic Studies*, 75, 133-164.

Herding (Lecture 4.2)

Reference articles: Avery, C. and P. Zemsky, 1998, “Multidimensional Uncertainty and Herd Behavior in Financial Markets,” *American Economic Review*, 88, 724-748.

I.4) Over-the-counter markets

Reference article: Duffie, D., N. Garleanu and L.H. Pedersen, 2005, “Over-the-counter Markets,” *Econometrica*, 73, 1815 – 1847.

Suggested reading for presentation topics

Babus, A. And P. Kondor, 2018, “Trading and Information Diffusion in Over-the-Counter Markets,” *Econometrica*.

Bond, P. And I. Goldstein, 2015, “Government Intervention and Information Aggregation by Prices,” *Journal of Finance*.

Hennessy, C., 2017 “A Theory of ABS Design Based on Rational Noise-Traders,” Review of Financial Studies.

Vives, 2014, “Endogenous Public Information and Welfare in Market Games,” unpublished manuscript, ISES Business School.

PART II

(Sophie Moinas)

Overview

Experiments can fall into four categories: Descriptive studies that lack any explicit model; Single Model studies that test a single model-based hypothesis; Competing Models studies that test competing model-based hypotheses; and Parameter Estimation studies that estimate structural parameters in a completely specified model. This course is intended to present and propose a discussion of these various approaches. In various applications to asset pricing, we will discuss how to design an experimental framework building on theoretical models, and how to analyze experimental data to feed theoretical models.

Detailed course outline

Lecture II.1

Introduction: the role of theory in experiments

Designing a lab experiment building on theory

Lecture II.2

Analyzing experimental data building on theory

References for Part II

Biais B., Mariotti T., Moinas S., and Pouget S., 2019, “*Asset pricing and risk sharing in a complete market: An experimental investigation*”, Working Paper n°17-798, TSE.

Bossaerts P., Plott C. and Zame, W. “Prices and portfolio choices in financial markets: Theory, econometrics, experiments”. *Econometrica*. 75. 2007

Card D., DellaVigna S., Malmendier U., 2011, “The Role of Theory in Field Experiments”, *Journal of Economic Perspectives*, 25, 39-62.

Moinas S., and Pouget S., 2013, “*The Bubble Game: An Experimental Analysis of Speculation*”, *Econometrica* 81, 1507–1539

Pouget S. “Adaptive Traders and the Design of Financial Markets”, *The Journal of Finance*, vol. 62, n. 6, December 2007, pp. 2835–2863.

Smith V., 1962. “An Experimental Study of Competitive Market Behavior.” *Journal of Political Economy* 70: 111–137.

PART III

(Milo Bianchi)

Overview

The behaviors of individual investors have received increasing attention from academics and policy makers. Textbook finance models have found a hard time in accommodating the substantial heterogeneity one can observe both in terms of investors' decisions and of outcomes. Behavioral finance has emerged to develop alternative approaches relaxing standard assumptions about investors' preferences and rationality. A novel and particularly interesting angle to address these issues come from the rise of fintech services, which may have the potential of improving financial inclusion and helping investors be less exposed to behavioral biases. This course is intended to present and propose a discussion of the most recent developments in behavioral finance, with applications to household finance and financial markets. We will start from classic contributions and then analyze novel methodological approaches.

Detailed course outline

Lecture III.1

Classic puzzles in portfolio choices and explanations

- Prospect Theory and the disposition effect
- Limited attention and trading behaviors
- Overconfidence and excessive trading

Lecture III.2

New approaches: what can we learn from survey data and from digital footprints?

- Financial Literacy and Trend Chasing
- Underdiversification and Ambiguity Aversion
- The potential of Fintech for individual investors

References for Part III

Barber, B. M. and Odean, T. (2008) "All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors," *Review of Financial Studies*, 21(2), 785-818.

Barber, B. M. and Odean, T. (2013), "The behavior of individual investors", in *Handbook of the Economics of Finance*, Elsevier, pp. 1533-1570

Berg, T., Burg, V., Gombović, A., & Puri, M. (2018) "On the rise of FinTechs—Credit scoring using digital footprints" *Review of Financial Studies*, forthcoming.

Beshears, J. and Choi, J.J. and Laibson, D. and Madrian, B.C. (2018), Behavioral Household Finance. NBER Working Paper No. w24854.

Bianchi, M. (2018), "Financial Literacy and Portfolio Dynamics", *Journal of Finance*, 73(2): 831-859.

Bianchi, M. and Tallon, J.-M. (2017), "Ambiguity Preferences and Portfolio Choices: Evidence from the Field", *Management Science* forthcoming

Campbell, J. Y. (2006), "Household Finance", *Journal of Finance*, 61(4): 1553-1604.

D'Acunto, F. Prabhala, N. and Rossi, A. (2018), "The Promises and Pitfalls of Robo-advising" - *Review of Financial Studies*, forthcoming.

Dellavigna, S. & Pollet, J. M. (2009) "Investor Inattention and Friday Earnings Announcements," *Journal of Finance*, 64(2), 709-749.

Gargano, A. and Rossi A.G. (2018). "Does it Pay to Pay Attention?" *Review of Financial Studies* 31.12: 4595-4649.

Guiso, L. and Sodini, P. (2012), Household Finance: An emerging field.

Kahneman D and Tversky A. (1979) "Prospect theory: an analysis of decision under risk" *Econometrica* 47: 263-291.

Odean T. "Are investors reluctant to realize their losses?" (1998) *Journal of Finance*, 53: 1775-1798.

Odean, T. 1999. "Do investors trade too much?" *American Economic Review*, 89: 1279—1298.