Ph.D. Course at Aarhus University
Modeling Overconfidence in Economics and Finance

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Office Hours: By appointment (schedule via email)

Number of ECTS: 5

Description and Objectives

In the last two decades, economics and finance have witnessed a shift from the rational paradigm towards one that incorporates the possibility that the actions of economic actors are influenced by various behavioral biases documented in psychology. In particular, studies of the calibration of subjective probabilities find that individuals are overconfident: they tend to overestimate the precision of their knowledge and information, as well as their ability to improve outcomes.

The principal objective of this course is to provide students with a theoretical framework to model overconfidence and related behavioral biases, and to study their impact on financial markets and firms. By relating the theoretical approaches to other non-behavioral theories, the course will also introduce students to classic models in economics and finance. Indeed, the course will start with a brief introduction to models of financial markets, and will successively look at a variety of topics about, or related to, overconfidence.

Students are expected to engage in the course by reading and internalizing the papers that will be presented ahead of class. In fact, during class, students will be randomly asked questions about the papers that are covered to make sure that they have adequately prepared for class. While students will not be expected to master every aspect of every paper, they should at least understand each paper's main objective and come ready with their questions.

Another objective of the course is for students to develop their own skills for modeling overconfidence and other behavioral biases as they relate to financial economics. For this purpose, students will be expected to produce early versions of theory papers that they would like to further develop as part of their research following the course. More information about these write-ups is provided in the Course Requirements section below.

Course Format

The bulk of the course will consist of lectures about specific theoretical papers on overconfidence in economics and finance. The approach will be rigorous in the sense that we will cover few papers but will do so in great detail. Specifically, a significant amount of time will be dedicated to formally deriving the key results of each paper. As such, the course will naturally complement any Ph.D. level course that provides an overview of behavioral finance research but that does not focus on the formal details of the many papers on this topic.

Course Requirements

For students to get credit for the course, they are expected to hand in a preliminary version of a paper that includes their own model of overconfidence or other biases in financial economics.

The paper does not have to be full-fledged, but the write-ups that students produce should at least be clear about the paper's main objective and the model's assumptions, contain some analytical manipulations and equilibrium derivations, and include an explicit strategy to fully solve the model. The write-up should also provide an overview of the results and empirical predictions that students hope to generate, and the contribution(s) that these results are expected to make to the literature.

More information about these write-ups will be given on the first day of class. The deadline for submitting these write-ups (as one pdf file) is Friday, September 19, namely two weeks after the course's last class.

Course Schedule

The papers that I *tentatively* plan to cover in the course are listed, along with other related papers, in the Reading List below. The definitive set of papers will be announced a few days before the start of the course. Regardless, the course will meet on the following dates at the following times.

Date	**Time**	**Tentative Topic**
Mon, Sep 1	02:00pm-04:00pm	Overconfidence in Financial Markets
Tue, Sep 2	10:00am-12:00pm	The Emergence of Overconfidence
Wed, Sep 3	10:00am-12:00pm	Overconfidence in Firms
Thu, Sep 4	10:00am-12:00pm	Overconfidence and Contracting
Fri, Sep 5	10:00am-12:00pm	Overconfidence in Learning and Search

Course Materials

The lecture notes for the course will be distributed in digital format prior to each class. Students are welcome to print these notes, bring them to class, and use them to take their own notes during class. Alternatively, students can directly edit the (pdf) files on a tablet computer (in silent mode).

The (required and optional) readings for the course are provided in the Reading List below. The title of each paper is linked to a website where the paper can be download. All the papers will also be made available via a shared repository before the course starts.

Reading List

Here is a list of readings for each of the tutorial's topics (the paper titles embed links to the papers). We will focus on the papers marked with (⋆). Time permitting, we will also cover (some of) the papers marked with (⋄). The other papers should be considered optional.

Models of Financial Markets

- Grossman, Sanford J., 1976, "On the Efficiency of Competitive Stock Markets Where Traders Have Diverse Information," *Journal of Finance*, 31(2), 573–585.
- (⋆) Grossman, Sanford J., and Joseph E. Stiglitz, 1980, "On the Impossibility of Informationally Efficient Markets," *American Economic Review*, 70(3), 393–408.
- Hellwig, Martin F., 1980, "On the Aggregation of Information in Competitive Markets," *Journal of Economic Theory*, 22(3), 477–498.
- Diamond, Douglas W., and Robert E. Verrecchia, 1981, "Information Aggregation in a Noisy Rational Expectations Economy," *Journal of Financial Economics*, 9(3), 221–235.
- (⋆) Kyle, Albert S., 1985, "Continuous Auctions and Insider Trading," *Econometrica*, 53(6), 1315–1335.
- Kyle, Albert S., 1989, "Informed Speculation with Imperfect Competition," *Review of Economic Studies*, 56(3), 317–356.

Overconfidence in Financial Markets

- Kyle, Albert S., and F. A. Wang, 1997, "Speculation Duopoly With Agreement to Disagree: Can Overconfidence Survive the Market Test?," *Journal of Finance*, 52(5), 2073–2090.
- (⋆) Odean, Terrance, 1998, "Volume, Volatility, Price, and Profit When All Traders Are Above Average," *Journal of Finance*, 53(6), 1887–1934.
- Daniel, Kent D., David Hirshleifer, and Avanidhar Subrahmanyam, 2001, "Overconfidence, Arbitrage, and Equilibrium Asset Pricing," *Journal of Finance*, 56(3), 921–965.
- Scheinkman, José A., and Wei Xiong, 2003, "Overconfidence and Speculative Bubbles," *Journal of Political Economy*, 111(6), 1183–1220.
- García, Diego, Francesco Sangiorgi, and Branko Urošević, 2007, "Overconfidence and Market Efficiency with Heterogeneous Agents," *Economic Theory*, 30(2), 313–336.
- Kyle, Albert S., Anna A. Obizhaeva, and Yajun Wang, 2018, "Smooth Trading with Overconfidence and Market Power," *Review of Economic Studies*, 85(1), 611–662.
- (⋄) Eyster, Erik, Matthew Rabin, and Dimitri Vayanos, 2019, "Financial Markets Where Traders Neglect the Informational Content of Prices," *Journal of Finance*, 74(1), 371–399.

The Emergence of Overconfidence

- Daniel, Kent D., David Hirshleifer, and Avanidhar Subrahmanyam, 1998, "Investor Psychology and Security Market Under- and Overreactions," *Journal of Finance*, 53(6), 1839–1885.

- (⋆) Gervais, Simon, and Terrance Odean, 2001, "Learning to Be Overconfident," *Review of Financial Studies*, 14(1), 1–27.
- (⋄) Bénabou, Roland, and Jean Tirole, 2002, "Self-Confidence and Personal Motivation," *Quarterly Journal of Economics*, 117(3), 871–915.
- Van den Steen, Eric, 2004, "Rational Overoptimism (and Other Biases)," *American Economic Review*, 94(4), 1141–1151.
- Compte, Olivier, and Andrew Postlewaite, 2004, "Confidence-Enhanced Performance," *American Economic Review*, 94(5), 1536–1557.
- (⋄) Brunnermeier, Markus K., and Jonathan A. Parker, 2005, "Optimal Expectations," *American Economic Review*, 95(4), 1092–1118.
- Santos-Pinto, Luís, and Joel Sobel, 2005, "A Model of Positive Self-Image in Subjective Assessments," *American Economic Review*, 95(5), 1386–1402.
- Kőszegi, Botond, 2006, "Ego Utility, Overconfidence, and Task Choice," *Journal of the European Economic Association*, 4(4), 673–707.
- Van den Steen, Eric, 2011, "Overconfidence by Bayesian-Rational Agents," *Management Science*, 57(5), 884–896.
- Benoît, Jean-Pierre, and Juan Dubra, 2011, "Apparent Overconfidence," *Econometrica*, 79(5), 1591–1625.
- Banerjee, Snehal, Jesse Davis, and Naveen Gondhi, 2024, "Choosing to Disagree: Endogenous Dismissiveness and Overconfidence in Financial Markets," *Journal of Finance*, 79(2), 1635–1695.

Overconfidence in Firms

- Stein, Jeremy C., 1996, "Rational Capital Budgeting in an Irrational World," *Journal of Business*, 69(4), 429–455.
- Heaton, J. B., 2002, "Managerial Optimism and Corporate Finance," *Financial Management*, 31(2), 33–45.
- (⋄) Gervais, Simon, and Itay Goldstein, 2007, "The Positive Effects of Biased Self-Perceptions in Firms," *Review of Finance*, 11(3), 453–496.
- (⋆) Goel, Anand M., and Anjan V. Thakor, 2008, "Overconfidence, CEO Selection, and Corporate Governance," *Journal of Finance*, 63(6), 2737–2784.
- Hackbarth, Dirk, 2008, "Managerial Traits and Capital Structure Decisions," *Journal of Financial and Quantitative Analysis*, 43(4), 843–882.
- Bhaskar, V., and Caroline Thomas, 2019, "The Culture of Overconfidence," *American Economic Review: Insights*, 1(1), 95–109.

- Santos-Pinto, Luís, and Leonidas E. de la Rosa, 2020, "Overconfidence in Labor Markets," *Handbook of Labor, Human Resources and Population Economics*, Zimmermann, Klaus F. (Ed.), Springer Nature, 1–42.

Overconfidence and Contracting

- Manove, Michael, and A. J. Padilla, 1999, "Banking (Conservatively) With Optimists," *RAND Journal of Economics*, 30(2), 324–350.
- (⋆) Gervais, Simon, J. B. Heaton, and Terrance Odean, 2011, "Overconfidence, Compensation Contracts, and Capital Budgeting," *Journal of Finance*, 66(5), 1735–1777.
- De la Rosa, Leonidas E., 2011, "Overconfidence and Moral Hazard," *Games and Economic Behavior*, 73(2), 429–451.
- (⋄) Palomino, Frédéric, and Abdolkarim Sadrieh, 2011, "Overconfidence and Delegated Portfolio Management," *Journal of Financial Intermediation*, 20(2), 159–177.
- Heller, Yuval, 2014, "Overconfidence and Diversification," *American Economic Journal: Microeconomics*, 6(1), 134–153.
- Kőszegi, Botond, 2014, "Behavioral Contract Theory," *Journal of Economic Literature*, 52(4), 1075–1118.
- Banerjee, Snehal, and Martin Szydlowski, 2024, "Harnessing the Overconfidence of the Crowd: A Theory of SPACs," *Journal of Financial Economics*, 153, 103787.
- Lambertsen, Nikolaj N., and Morten L. Poulsen, 2024, "Overconfidence and Ethical Contracts," *Economics Letters*, 241, 111841.
- Lambertsen, Nikolaj N., 2025, "Manipulative Overconfidence and the Cost of Unbiased Reporting," *Accounting and Business Research*, 55(2), 139–155.

Overconfidence in Learning and Search

- Banerjee, Abhijit V., 1992, "A Simple Model of Herd Behavior," *Quarterly Journal of Economics*, 107(3), 797–817.
- (⋄) Bikhchandani, Sushil, David Hirshleifer, and Ivo Welch, 1992, "A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades," *Journal of Political Economy*, 100(5), 992–1026.
- (⋄) Bernardo, Antonio E., and Ivo Welch, 2001, "On the Evolution of Overconfidence and Entrepreneurs," *Journal of Economics and Management Strategy*, 10(3), 301–330.
- Dubra, Juan, 2004, "Optimism and Overconfidence in Search," *Review of Economic Dynamics*, 7(1), 198–218.
- (⋆) Heidhues, Paul, Botond Kőszegi, and Philipp Strack, 2018, "Unrealistic Expectations and Misguided Learning," *Econometrica*, 86(4), 1159–1214.