

# Empirical Methods in Corporate Finance

## FNCE 9260

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Instructors:

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Coordinator: Luke Taylor

Lectures: Tuesdays, 1:45-4:45pm, SHDH 2401

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Course website on Canvas: <https://canvas.upenn.edu/courses/1692933>

### Summary and goals

The primary goal of this course is to teach students how to conduct empirical research on corporate finance and related fields (e.g., household finance, financial intermediation). The emphasis will be on econometric tools. The course will also expose students to papers on the research frontier. Topics will include OLS regression, difference in differences, instrumental variables, regression discontinuity design, regression kink design, sufficient statistics, binary choice models, duration models, inference, solving models using GPUs, and an introduction to structural estimation. The course will cover recent papers using these tools, which will expose students to the wide range of topics within corporate finance and related fields.

### Prerequisites

We will assume students have taken at least one semester of a PhD-level econometrics class. We will also assume students know how to numerically solve dynamic optimization problems by value-function iteration.

### Deliverables and evaluation

Problems sets will be due every one to two weeks. Problems sets will have a strong coding component. You will be expected to code in Stata, Matlab, and potentially other languages. Grades will be based on the problems sets and classroom participation.

## Textbook

Course readings, detailed below, come from many sources. You should buy *Mostly Harmless Econometrics*, by Angrist and Pischke ([Amazon link](#)).

## Communication

Instructors will use Canvas announcements to send extra details on assignments, readings, and course logistics. Feel free to email the TA or individual professors as needed.

## Schedule, topics, and readings

An asterisk (\*) denotes a required, high-priority reading. PDFs of most high-priority readings can be found on Canvas >> Files >> Readings.

- Session 1 (Jan. 17): Regression Part 1: identification, causality, omitted variables, measurement error, RCTs

Instructor: Sasha Indarte

\* Chapters 2 and 3: *Mostly Harmless*

\* Karlan, Dean, and Jonathan Zinman. 2009. Observing Unobservables: Identifying Information Asymmetries With a Consumer Credit Field Experiment. *Econometrica* 77, 1993-2008.

Sections 7.1-7.6: Manski, Charles F. 2009. Identification for prediction and decision. Harvard University Press. **Note: you can download chapters for free via Franklin.**

- Session 2 (Jan. 24): Regression Part 2: panel data, lagged dependent variables, fixed effects, difference in differences, and triple differences

Instructor: Dan Garrett

\* Zwick, Eric. "The 12 Step Program for Grad School."  
[http://www.ericzwick.com/public\\_goods/twelve\\_steps.pdf](http://www.ericzwick.com/public_goods/twelve_steps.pdf)

\* Chapters 5: *Mostly Harmless*

\* Sections 4 and 7: Roberts, Michael R., and Toni M. Whited. 2013. Endogeneity in empirical corporate finance. *Handbook of the Economics of Finance* 2, 493-572.

Manski, Charles. 2010. Unlearning and Discovery. *The American Economist* 55(1), 9-18.

Bertrand, Marianne, and Sendhil Mullainathan. 2003. Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of Political Economy* 111(5), 1043-1075.

Zwick, Eric, and James Mahon. 2017. Tax policy and heterogeneous investment behavior. *American Economic Review* 107(1), 217-48.

Garrett, Daniel G., Eric Ohn, and Juan Carlos Suárez Serrato. 2020. Tax policy and local labor market behavior. *American Economic Review: Insights* 2(1), 83-100.

- Session 3 (Jan. 31): Regression Part 3: heterogeneous treatment effects, matching, synthetic control, quantile regression, and semiparametrics

Instructor: Dan Garrett

\* Chapters 5.2 and 7.1: *Mostly Harmless*

\* Gibbons, Charles E., Juan Carlos Suárez Serrato, and Michael B. Urbancic. 2019. Broken or fixed effects? *Journal of Econometric Methods* 8(1). 20170002

\* De Chaisemartin, Clément, and Xavier d'Haultfoeuille. 2020. Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review* 110(9), 2964-96.

\* Abadie, Alberto. 2021. Using synthetic controls: Feasibility, data requirements, and methodological aspects. *Journal of Economic Literature* 59(2), 391-425.

Roth, Jonathan, Pedro H. C. Sant'Anna, Alyssa Bilinski, and John Poe. 2022. What's Trending in Difference-in-Differences? A Synthesis of the Recent Econometrics Literature. *arXiv preprint arXiv:2201.01194*.

Borusyak, Kirill, Xavier Jaravel, and Jann Spiess. 2022. Revisiting event study designs: Robust and efficient estimation. *arXiv preprint arXiv:2108.12419*.

Sections 6 and 8.4: Roberts, Michael R., and Toni M. Whited. 2013. Endogeneity in empirical corporate finance. *Handbook of the Economics of Finance* 2, 493-572.

- Session 4 (Feb. 7): Instrumental variables

Instructor: Sasha Indarte

\* Chapter 4: *Mostly Harmless*

\* Indarte, Sasha. 2022. Financial Crises and the Transmission of Monetary Policy to Consumer Credit Market. *Working Paper*.

Bartik papers:

Borusyak, Kirill, Peter Hull, and Xavier Jaravel. 2022. Quasi-Experimental Shift-Share Research Designs. *The Review of Economic Studies* 89(1) 181–213.

Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift. 2020. Bartik instruments: What, when, why, and how. *American Economic Review* 110, 2586-2624.

Simulated IV papers:

Borusyak, Kirill, and Peter Hull. 2021. Non-Random Exposure to Exogenous Shocks. *Working Paper*.

Mahoney, Neale. 2015. Bankruptcy as implicit health insurance. *American Economic Review* 105(2), 710-746.

Examiner IV papers:

Dobbie, Will, and Jae Song. 2015. Debt Relief and Debtor Outcomes: Measuring the Effects of Consumer Bankruptcy Protection. *American Economic Review* 105(3), 1272-1311

Arnold, David, Will Dobbie, and Crystal S. Yang. 2018. Racial Bias in Bail Decisions. *Quarterly Journal of Economics* 133(4), 1885–1932.

Dobbie, Will, Andres Liberman, Daniel Paravisini, and Vikram Pathania. 2021. Measuring Bias in Consumer Lending. *The Review of Economic Studies* 88(6), 2799–2832.

- Session 5 (Feb. 14): Regression discontinuity design

Instructor: Michael Roberts

Read the papers below **in the following order**:

\* Chava, Sudheer, and Michael R. Roberts. 2008. How does financing impact investment? The role of debt covenants. *The Journal of Finance* 63, 2085-2121.

\* Gulen, Huseyin, Candace E. Jens, and T. Beau Page. 2019. An application of causal forest in corporate finance: How does financing affect investment? *Working Paper*.

\* Chava, Sudheer, and Michael R. Roberts. 2020. Debt Covenants and Investment: Response to Gulen, Jens, and Page (2020). *Working Paper*.

- Session 6 (Feb. 21): Regression kink design and sufficient statistics

Instructor: Sasha Indarte

\* Card, David, David S. Lee, Zhuan Pei, and Andrea Weber. 2015. Inference on Causal Effects in a Generalized Regression Kink Design. *Econometrica* 83(6), 2453-2483.

\* Indarte, Sasha. 2021. Moral Hazard versus Liquidity in Household Bankruptcy. *Journal of Finance*, Forthcoming.

Chetty, Raj. 2006. A general formula for the optimal level of social insurance. *Journal of Public Economics* 90(10-11), 1879-1901.

Chetty, Raj. 2008. Moral Hazard versus Liquidity and Optimal Unemployment Insurance. *Journal of Political Economics* 116(2), 173-234.

Jaeger, Simon, and Peter Ganong. 2018. A Permutation Test for the Regression Kink Design. *Journal of the American Statistical Association* 113, 494-504.

- Session 7 (Feb. 28): Binary-choice and duration models

Instructor: Marius Guenzel

\* Guenzel, Marius, Hamilton, C., and Malmendier, Ulrike. 2023. CEO Social Preferences and Layoffs. Working paper.

\* Malmendier, Ulrike, Geoffrey Tate, and Jon Yan. 2011. Overconfidence and early-life experiences: The effect of managerial traits on corporate financial policies. *The Journal of Finance* 66(5), 1687-1733.

\* Gormley, Todd A., and David A. Matsa. 2016. Playing it safe? Managerial preferences, risk, and agency conflicts. *Journal of Financial Economics* 122(3), 431-455.

\* Chapters 3.2.3 (“Bad Control” only): *Mostly Harmless*

- Session 8 (Mar. 14): Additional issues in reduced-form estimation

Instructor: Marius Guenzel

Guenzel, Marius. 2022. In Too Deep: The Effect of Sunk Costs on Corporate Investment. Working paper.

Borgschulte, Mark, Mark Guenzel, Canyao Liu, and Ulrike Malmendier. 2022. CEO Stress, Aging, and Death. *Working paper*.

Jenter, Dirk, and Fadi Kanaan. 2015. CEO Turnover and Relative Performance Evaluation. *The Journal of Finance* 70, 2155-2184.

- Session 9 (Mar. 21): Introduction to structural estimation

Instructor: Luke Taylor

\* Keane, Michael. 2015. Practical issues in structural estimation. 90-minute Youtube video: <https://www.youtube.com/watch?v=0hazaPBAYWE>

\* Kahn, Jay R., and Toni M. Whited. 2018. Identification is not causality, and vice versa. *Review of Corporate Finance Studies* 7, 1-21.

Dou, Winston W., Lucian A. Taylor, Wei Wang, and Wenyu Wang, 2021. Dissecting bankruptcy frictions. *Journal of Financial Economics* 142, 975-1000.

Whited, Toni M. 2018. A primer on how to do dynamic programming. Lecture note, available on our Canvas page (Canvas >> Files >> Readings)

DellaVigna, Stefano. 2018. Structural behavioral economics. *Handbook of Behavioral Economics: Applications and Foundations 1*, 613-723.

- Session 10 (Mar. 28): Solving models using GPUs

Instructor: Sylvain Catherine

\* Catherine, Sylvain. 2022. Countercyclical Labor Income Risk and Portfolio Choices over the Life Cycle. *The Review of Financial Studies*, 35(9) 4016–4054

- Session 11 (Apr. 4): Simulation estimators

Instructor: Luke Taylor

\* Sections 3 and 4 (pages 82-146): Strebulaev, Ilya A., and Toni M. Whited. 2012. Dynamic models and structural estimation in corporate finance, *Foundations and Trends in Finance* 6, 1-163.

Gourieroux, Christian S., Alain Monfort, and Eric Renault. 1993. Indirect inference. *Journal of Applied Econometrics* 8, S85-S118

Pakes, Ariel, and David Pollard. 1989. Simulation and the asymptotics of optimization estimators. *Econometrica* 57, 1027-1057.

- Session 12 (Apr. 11): Inference
  - Instructor: Luke Taylor
    - \* Chapters 8: *Mostly Harmless*
  
- Session 13 (Apr. 18): Structural estimation applications
  - Instructor: Sylvain Catherine
    - \* Catherine, Sylvain. 2022. Keeping options open: What motivates entrepreneurs? *Journal of Financial Economics* 144, 1-21.
  
    - Catherine, Sylvain, Thomas Chaney, Zongbo Huang, David Sraer, and David Thesmar. 2022. Quantifying Reduced-Form Evidence on Collateral Constraints. *The Journal of Finance* 77, 2143-2181
  
    - Catherine, Sylvain, Mehran Ebrahimian, David Sraer, and David Thesmar. 2022. Robustness Checks in Structural Analysis. *Working Paper*.
  
- Session 14 (Apr. 25): Additional topics TBD and course wrap-up
  - Instructor: Luke Taylor
    - \* Berk, Jonathan B., Campbell R. Harvey, and David Hirshleifer. 2017. How to write an effective referee report and improve the scientific review process. *Journal of Economic Perspectives* 31, 231-244