

## **FINANCIAL ECONOMICS OF CLIMATE AND SUSTAINABILITY**

### **GLOBAL DOCTORAL COURSE 2025**

**15 December 2024**

Note: Required readings are either labeled or identified by asterisks; they are available through linked URLs. Books on this reading list are optional and must be accessed locally. In some instances, we provide multiple links, as students may have differential access to various sites. This syllabus is subject to change. Please check the “FECS announcements” channel on Slack for changes and see the course Dropbox for any readings that are not shareable by URL links.

## CLASS 1: Introduction to climate change

*Professor Peter Tufano, Harvard University*

In this session, we will attempt to level-set the class with respect to basic climate science and introduce the elements of climate science would be useful to financial economics researchers. For some of you, this material may be basic, for others it will be new.

### Required readings and assignment (4)

1. <https://climateprimer.mit.edu/> \* This is a comprehensive but accessible introduction to climate science. You can either go through the interactive version or download the pdf version (<https://climateprimer.mit.edu/climate-science-risk-solutions-0324.pdf>). If you have an opportunity, please drill down a little deeper on climate models (<https://climateprimer.mit.edu/climate-change#predicting-climate>).
2. After you've gone through the Climate Primer, please read two recent reports on the current state of the climate.
  - a. Please read this March 2023 IPCC Report\* summary for policymakers [https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC\\_AR6\\_SYR\\_SPM.pdf](https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf)
  - b. Please read this UNEP Emissions Gap Report\* from October 2024 <https://www.unep.org/resources/emissions-gap-report-2024>
3. To get a sense of the challenges of getting to a 1.5° scenario, please create your own pathway using the MIT-developed simulator, En-Roads, which is available at <https://www.climateinteractive.org/en-roads/> (click on "Explore the En-Roads Simulation"). This is a simplified version of a systems model. To understand how to use it, either watch the video linked below (or read the instructions on the website) and then put together your model using the control panel. ([Watch the En-ROADs Introductory Walkthrough](#))

## CLASSES 2 & 3: The Economics and Finance of Climate Change

Professors Patrick Bolton, Imperial College London and Geoffrey Heal, Columbia University

### Class 2: Required readings (5-6)

Coase, Ronald H. "The Problem of Social Cost." *The Journal of Law and Economics* 56, no. 4 (1960): 837–877. <https://www.jstor.org/stable/724810> (<https://www.law.uchicago.edu/sites/default/files/file/coase-problem.pdf>)

Gollier, Christian. *Pricing the Planet's Future: The Economics of Discounting in an Uncertain World*. Princeton University Press (2012) – Note: this is a book and you will have to get access to it locally if possible.

Daniel, Kent, Robert Litterman, and Gernot Wagner. "Declining CO2 Paths." *Proceedings of the National Academy of Sciences* (2019). <https://doi.org/10.1073/pnas.1817444116>

Pindyck, Robert S. "The Social Cost of Carbon Revisited." *Journal of Environmental Economics and Management* 94 (2019): 140–160. <https://doi.org/10.1016/j.jeem.2019.02.003>  
([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2865542](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2865542))

Adrian, Tobias, Patrick Bolton, and Anouk Kleinnijenhuis. "The Great Carbon Arbitrage." *IMF Working Paper No. 2022/107* (2023). <https://ssrn.com/abstract=4129572>

Heal, Geoffrey. "Climate Economics: A Meta-Review and Some Suggestions for Further Research." *Review of Environmental Economics and Policy* 1, no. 3 (2009): 4-21. <https://doi.org/10.1093/reep/ren014>  
([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1119218](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1119218))

### Class 3: Required Readings (5)

Heal, Geoffrey. "The Economics of the Climate." *Journal of Economic Literature* 55, no. 3 (2017): 1046-1063. <https://doi.org/10.1257/jel.20151335>

Heal, Geoffrey, and Antony Millner. "Uncertainty and Decision-Making in Climate Change Economics." *Review of Environmental Economics and Policy* 1, no. 8 (2014): 120-137.  
<https://doi.org/10.1093/reep/ret023> ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2241397](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2241397))

Millner, Antony, and Geoffrey Heal. "Choosing the Future: Markets, Ethics and Rapprochement in Social Discounting." *Journal of Economic Literature* 61, no. 3 (September 2023): 1037-1087.  
<https://doi.org/10.1257/jel.20211675> ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3824529](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3824529))

Millner, Antony, Simon Dietz, and Geoffrey Heal. "Scientific Ambiguity and Climate Policy." *Environmental and Resource Economics* 55 (2013): 21-46. <https://doi.org/10.1007/s10640-012-9612-0>  
([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2191966](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2191966))

### Optional readings (Note: some of these are books and are not available online.)

Mas-Colell, Andreu, Michael Dennis Whinston, and Jerry R. Green. *Microeconomic Theory*. New York: Oxford University Press, 1995. Chapters 10.D & 11.

Dasgupta, Partha S., and Geoffrey M. Heal. *Economic Theory and Exhaustible Resources*. Cambridge University Press, 1979. Chapter on Hotelling's Rule.

Hardin, Garrett. "The Tragedy of the Commons." *Science* 162, no. 3859 (1968): 1243-1248.  
<https://www.jstor.org/stable/1724745>

Ostrom, Elinor. (1990) *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, 1990. (out of print)

Stern, Nicholas Herbert. *The Economics of Climate Change: The Stern Review*. Cambridge University press, 2007.  
[http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview\\_report\\_complete.pdf](http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf)

Weitzman, Martin L. "A review of the Stern Review on the economics of climate change." *Journal of Economic Literature* 45, no. 3 (2007): 703-724. <https://doi.org/10.1257/jel.45.3.703>

Nordhaus, William. *The climate casino: Risk, uncertainty, and economics for a warming world*. Yale University Press, 2013.

Llavador, Humberto, John E. Roemer, and Joaquim Silvestre. *Sustainability for a warming planet*. Harvard University Press, 2015. <https://www.jstor.org/stable/j.ctvjk2xrr>

Auffhammer, Maximilian. "Quantifying economic damages from climate change." *Journal of Economic Perspectives* 32, no. 4 (2018): 33-52. <https://doi.org/10.1257/jep.32.4.33>

## CLASS 4: Corporate Carbon Accounting and Disclosures

Professor Stefan Reichelstein, Stanford University and Mannheim University

### Required readings (5)

Downar, Benedikt, Jürgen Ernstberger, Stefan Reichelstein, Sebastian Schwenen, and Aleksandar Zaklan. "The impact of carbon disclosure mandates on emissions and financial operating performance." *Review of Accounting Studies* 26 (2021): 1137-1175. <https://doi.org/10.1007/s11142-021-09611-x>.  
(<https://dx.doi.org/10.2139/ssrn.3853935>)

Tomar, S. "Greenhouse Gas Disclosure and Emissions Benchmarking" *Journal of Accounting Research*. (2023). <https://onlinelibrary.wiley.com/doi/abs/10.1111/1475-679X.12473>  
(<https://dx.doi.org/10.2139/ssrn.3448904>)

Greenstone, Michael, Christian Leuz, and Patricia Breuer. "Mandatory disclosure would reveal corporate carbon damages." *Science* 381, no. 6660 (2023): 837-840.  
<https://www.science.org/doi/10.1126/science.add6815>  
([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4620586](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4620586))

Tollefson, Jeff. "Climate pledges from top companies crumble under scrutiny." *Nature* (2022).  
<https://doi.org/10.1038/d41586-022-00366-2>

Reichelstein, Stefan. "Corporate Carbon Accounting: Balance Sheets and Flow Statements". *Review of Accounting Studies* (2024). <https://link.springer.com/article/10.1007/s11142-024-09830-y>  
(<https://dx.doi.org/10.2139/ssrn.4672099>)

### Optional readings

Christensen, H.B., Floyd, E. L.Y. Liu, and M.G. Maffett. (2017). "The Real Effects of Mandated Information on Social Responsibility in Financial Reports: Evidence from Mine-safety Records". *Journal of Accounting and Economics*. 64: 284–304. <https://doi.org/10.1016/j.jacceco.2017.08.001>.  
(<https://dx.doi.org/10.2139/ssrn.2680296>)

Cohen, S., Kadach, I., Ormazabal, G. and S. Reichelstein (2023). "Executive Compensation Tied to ESG Performance: International Evidence." *Journal of Accounting Research*.  
<https://onlinelibrary.wiley.com/doi/full/10.1111/1475-679X.12481>

Griffin, P. and E. Sun (2023) "The Conundrum of Scope 3 Emissions for Corporate Reporting" *Accountability in a Sustainable World Quarterly*, Issue 2. 61-72. <https://online.fliphtml5.com/jdbmp/ptht/>

Hale, T. et al. (2022/2021) "Assessing the Rapidly Emerging Landscape of Net Zero Targets." *Climate Policy*, 22(1), 18-29. <https://doi.org/10.1080/14693062.2021.2013155>

## CLASS 5: Climate and Asset Pricing - Theory

Professors Stefano Giglio, Yale School of Management and Marcin Kacperczyk, Imperial College Business School

This part of the class will introduce a variety of ways climate risks have been modeled in finance. The class will cover both structural and reduced-form equilibrium models of climate risks and their effects on asset prices.

### Introductory reading

Giglio, Stefano, Bryan Kelly, and Johannes Stroebe. "Climate finance." *Annual Review of Financial Economics* 13 (2021): 15-36. <https://doi.org/10.1146/annurev-financial-102620-103311>

### Required readings (6)

Bansal, Ravi, Dana Kiku, and Marcelo Ochoa. "Climate change risk." *Federal Reserve Bank of San Francisco Working Paper* (2019). <https://www.frbsf.org/economic-research/events/2019/november/economics-of-climate-change/files/Paper-5-2019-11-8-Kiku-1PM-1st-paper.pdf>

Pástor, Ľuboš, Robert F. Stambaugh, and Lucian A. Taylor. "Sustainable investing in equilibrium." *Journal of Financial Economics* 142, no. 2 (2021): 550-571. <https://doi.org/10.1016/j.jfineco.2020.12.011> (<https://dx.doi.org/10.2139/ssrn.3498354>)

Giglio, Stefano, Matteo Maggiori, Krishna Rao, Johannes Stroebe, and Andreas Weber. "Climate change and long-run discount rates: Evidence from real estate." *The Review of Financial Studies* 34, no. 8 (2021): 3527-3571. <https://doi.org/10.1093/rfs/hhab032> ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2696853](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2696853))

Bolton, Patrick, and Marcin Kacperczyk. "Global Pricing of Carbon-Transition Risk." *Journal of Finance* 78, no 6: 3677-3754. <https://doi.org/10.1111/jofi.13272> (<https://dx.doi.org/10.2139/ssrn.3550233>)

Cenedese, Gino, Shangqi Han, and Marcin T. Kacperczyk. "Carbon-transition risk and net-zero portfolios." *Imperial College Working Paper* (2024). <https://ssrn.com/abstract=4565220>

Pástor, Ľuboš, Robert F. Stambaugh, and Lucian A. Taylor. "Dissecting green returns." *Journal of Financial Economics* 146, no. 2 (2022): 403-424. <https://doi.org/10.1016/j.jfineco.2022.07.007> (<https://dx.doi.org/10.2139/ssrn.3864502>)

### Optional readings

Barnett, Michael, William Brock, and Lars Peter Hansen. "Pricing uncertainty induced by climate change." *The Review of Financial Studies* 33, no. 3 (2020): 1024-1066. <https://doi.org/10.1093/rfs/hhz144> (<https://dx.doi.org/10.2139/ssrn.3440301>)

Heinkel, Robert, Alan Kraus, and Josef Zechner. "The effect of green investment on corporate behavior." *Journal of Financial and Quantitative Analysis* 36, no. 4 (2001): 431-449. <https://doi.org/10.2307/2676219>

Pedersen, Lasse Heje, Shaun Fitzgibbons, and Lukasz Pomorski. "Responsible investing: The ESG-efficient frontier." *Journal of Financial Economics* 142, no. 2 (2021): 572-597.  
<https://doi.org/10.1016/j.jfineco.2020.11.001> (<https://dx.doi.org/10.2139/ssrn.3466417>)

Weitzman, Martin L. "Fat tails and the social cost of carbon." *American Economic Review* 104, no. 5 (2014): 544-546. <https://doi.org/10.1257/aer.104.5.544>

## CLASS 6: Climate and Asset Pricing - Empirics

Professors Stefano Giglio, Yale School of Management and Marcin Kacperczyk, Imperial College Business School

This lecture will expose you to the ideas underlying physical and transition risk in financial markets. We will discuss the basic empirical framework in which these problems can be studied and discuss empirical findings consistent with this framework. Our focus will be on equity markets but we will also discuss auxiliary predictions from other markets.

### Required Readings (4)

Acharya, V., Johnson, T., Sundaresan, S., and Tomunen, T. (2024). Is physical climate risk priced? Evidence from regional variation in exposure to heat stress  
[https://pages.stern.nyu.edu/~sternfin/vacharya/public\\_html/pdfs/working-papers/Acharya%20et%20al%20\(2024\).pdf](https://pages.stern.nyu.edu/~sternfin/vacharya/public_html/pdfs/working-papers/Acharya%20et%20al%20(2024).pdf)

Cenedese, G., Han, S., and Kacperczyk, M. (2024). Carbon-transition risk and net-zero portfolios.  
[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4565220](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4565220)

Hong, H., Li, F. W., & Xu, J. (2019). Climate risks and market efficiency. *Journal of Econometrics*, 208(1), 265-281. <https://doi.org/10.1016/j.jeconom.2018.09.015> (<https://dx.doi.org/10.2139/ssrn.2776962> )

Pástor, L., Stambaugh, R. F., & Taylor, L. A. (2022). Dissecting green returns. *Journal of Financial Economics*, 142(2), 550-571. <https://doi.org/10.1016/j.jfineco.2022.07.007>  
([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3376611](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3376611) )

### Optional Readings

Baker, M., Bergstresser, D., Serafeim, G., & Wurgler, J. (2022). The pricing and ownership of US green bonds. *Annual Review of Financial Economics*, 14. <https://doi.org/10.1146/annurev-financial-111620-014802>

Bernstein, A., Gustafson, M. T., & Lewis, R. (2019). Disaster on the horizon: The price effect of sea level rise. *Journal of Financial Economics*, 134(2), 253-272.  
<https://www.sciencedirect.com/science/article/pii/S0304405X19300807>  
([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3073842](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3073842).)

Bolton, P., Halem, Z., & Kacperczyk, M. (2022). The financial cost of carbon. *Journal of Applied Corporate Finance*, 34(2), 17-29. <https://onlinelibrary.wiley.com/doi/full/10.1111/jacf.12502> ()

Bolton, P., & Kacperczyk, M. (2021). Do investors care about carbon risk?. *Journal of Financial Economics*, 142(2), 517-549. <https://doi.org/10.1016/j.jfineco.2021.05.008>  
(<https://dx.doi.org/10.2139/ssrn.3398441>)

Bolton, P., Kacperczyk, M., and Samama, F. (2022). Net-zero carbon portfolio alignment. *Financial Analysts Journal*, 78(2), 19-33. <https://doi.org/10.1080/0015198X.2022.2033105>

Goldsmith-Pinkham, P., Gustafson, M., Lewis, R., & Schwert, M. (2023). Sea-Level Rise Exposure and Municipal Bond Yields. *The Review of Financial Studies* 36(11), 4588–4635. Sea level rise and municipal

bond yields. Rodney L. White Center for Financial Research. <https://doi.org/10.1093/rfs/hhad041>  
([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4282510](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4282510))

Murfin, J., & Spiegel, M. (2020). Is the risk of sea level rise capitalized in residential real estate?. *The Review of Financial Studies*, 33(3), 1217-1255. <https://doi.org/10.1093/rfs/hhz134>

Painter, M. (2020). An inconvenient cost: The effects of climate change on municipal bonds. *Journal of Financial Economics*, 135(2), 468-482. <https://doi.org/10.1016/j.jfineco.2019.06.006>  
(<https://dx.doi.org/10.2139/ssrn.3167379>)

## CLASS 7: Sustainable Finance – Investing in Equity

Professors Caroline Flammer, Columbia University and Laura Starks, University of Texas Austin

### Required readings (4)

Flammer, Caroline. “Does Corporate Social Responsibility Lead to Superior Financial Performance? A Regression Discontinuity Approach.” *Management Science* 41 (2015): 2549-2824. <https://doi.org/10.1287/mnsc.2014.2038> (<https://dx.doi.org/10.2139/ssrn.2146282>)

Flammer, Caroline, Michael W. Toffel, and Kala Viswanathan. “Shareholder Activism and Firms’ Voluntary Disclosure of Climate Change Risks.” *Strategic Management Journal* 42 (2021): 1850-1879. SSRN Paper. <https://doi.org/10.1002/smj.3313> (<https://dx.doi.org/10.2139/ssrn.3468896>)

Ilhan, Emir, Philipp Krueger, Zacharias Sautner, and Laura T. Starks. “Climate Risk Disclosure and Institutional Investors.” *Review of Financial Studies* 36 (2022): 2617-2650. <https://doi.org/10.1093/rfs/hhad002> (<https://dx.doi.org/10.2139/ssrn.3437178>)

Sautner, Zacharias, Laurence van Lent, Grigory Vilkov, and Ruishen Zhang. “Firm-Level Climate Change Exposure.” *Journal of Finance* 78 (2021): 1449-1498. <https://doi.org/10.1111/jofi.13219>

### Optional readings

Alok, Shashwat, Nitin Kumar, and Russ Wermers. “Do Fund Managers Misestimate Climatic Disaster Risk?” *Review of Financial Studies* 33 (2020): 1146-1183. <https://doi.org/10.1093/rfs/hhz143> (<https://dx.doi.org/10.2139/ssrn.34279030>)

Berg, Florian, Julian F. Kolbel, and Roberto Rigobon. “Aggregate Confusion: The Divergence of ESG Ratings.” *Review of Finance* 26 (2022): 1315-1344. <https://doi.org/10.1093/rof/rfac033> (<https://dx.doi.org/10.2139/ssrn.3438533>)

Bolton, Patrick, Zachery Halem, and Marcin T. Kacperczyk. “The Financial Cost of Carbon.” *Journal of Applied Corporate Finance* 34 (2022): 17-29. <https://doi.org/10.1111/jacf.12502>

De Angelis, Tiziano, Peter Tankov, and Olivier David Zerbib. “Climate Impact Investing.” *Management Science* (2022). <https://doi.org/10.1287/mnsc.2022.4472> (<https://dx.doi.org/10.2139/ssrn.3562534>)

Dimson, Elroy, Oğuzhan Karakaş, and Xi Li. “Active ownership.” *The Review of Financial Studies* 28, no. 12 (2015): 3225-3268. <https://doi.org/10.1093/rfs/hhv044>

Dyck, Alexander, Karl V. Lins, Lukas Roth, and Hannes F. Wagner. “Do Institutional Investors Drive Corporate Social Responsibility? International Evidence.” *Journal of Financial Economics* 131 (2019): 693-714. <https://doi.org/10.1016/j.jfineco.2018.08.013> (<https://dx.doi.org/10.2139/ssrn.2708589>)

Flammer, Caroline, Thomas Giroux, and Geoffrey Heal. “Biodiversity Finance.” *Journal of Financial Economics*. Forthcoming. <https://ssrn.com/abstract=4379451>

Gantchev, Nickolay, Mariassunta Giannetti, and Rachel Li. “Does Money Talk? Divestitures and Corporate Environmental and Social Policies.” *Review of Finance* 26 (2022): 1469-1508. <https://doi.org/10.1093/rof/rfac029> (<https://dx.doi.org/10.2139/ssrn.3409455>)

Garel, Alexandre, Arthur Romec, Zacharias Sautner, and Alexander F. Wagner. "Do Investors Care About Biodiversity?." *Swiss Finance Institute Research Paper* 23-24 (2023). <https://ssrn.com/abstract=4398110> (<https://dx.doi.org/10.2139/ssrn.4398110>)

Krueger, Philipp, Zacharias Sautner, and Laura T Starks. "The Importance of Climate Risks for Institutional Investors." *Review of Financial Studies* 33 (2020): 1067-1111. <https://doi.org/10.1093/rfs/hhz137> (<https://dx.doi.org/10.2139/ssrn.3235190>)

Starks, Laura T. "Presidential Address: Sustainable Finance and ESG Issues – Value Versus Values." *Journal of Finance* 78 (2023): 1837-1872. <https://doi.org/10.1111/jofi.13255>

## CLASS 8: Sustainable Finance – Investing in Debt

Professors Caroline Flammer, Columbia University and Laura Starks, University of Texas Austin

### Required readings (5)

Flammer, Caroline. "Corporate Green Bonds." *Journal of Financial Economics* 142 (2021): 499-516. <https://doi.org/10.1016/j.jfineco.2021.01.010> (<https://dx.doi.org/10.2139/ssrn.3125518>)

Flammer, Caroline, Thomas Giroux, and Geoffrey Heal. "Biodiversity Finance." *Journal of Financial Economics*. Forthcoming. <https://ssrn.com/abstract=4379451>

Flammer, Caroline, Thomas Giroux, and Geoffrey Heal. "Blended Finance." *NBER Working Paper No. 32287*. <https://ssrn.com/abstract=4770779>

Goldsmith-Pinkham, Paul, Matthew T. Gustafson, Ryan C. Lewis, and Michael Schwert. "Sea-level rise exposure and municipal bond yields." *The Review of Financial Studies* 36, no. 11 (2023): 4588-4635. <https://doi.org/10.1093/rfs/hhad041> ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4282510](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4282510))

Seltzer, Lee H., Laura Starks, and Qifei Zhu. "Climate regulatory risk and corporate bonds." *Nanyang Business School Research Paper No. 20-05, FRB of New York Staff Report No. 1014* (2023). <https://ssrn.com/abstract=3563271>

### Optional readings

Baker, Malcolm, Daniel Bergstresser, George Serafeim, and Jeffrey Wurgler. "The Pricing and Ownership of US Green Bonds." *Annual Review of Financial Economics* 14 (2022): 415-437. <https://doi.org/10.1146/annurev-financial-111620-014802>

D'Amico, Stefania, Johannes Klausmann, and N. Aaron Pancost. "The benchmark greenium." Working Paper (2024). <https://ssrn.com/abstract=4128109>

Flammer, Caroline. "Green Bonds: Effectiveness and Implications for Public Policy." *Environmental and Energy Policy and the Economy* 1 (2020): 95–128. <https://doi.org/10.1086/706794> ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3405137](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3405137))

Heinkel, Robert, Alan Kraus, and Josef Zechner. "The Effect of Green Investment on Corporate Behavior." *The Journal of Financial and Quantitative Analysis* 36 (2001): 431-449. <https://doi.org/10.2307/2676219>

Kölbel, Julian F., and Adrien-Paul Lambillon. "Who pays for sustainability? An analysis of sustainability-linked bonds." *Swiss Finance Institute Research Paper* 23-07 (2023). <https://ssrn.com/abstract=4007629>

Pastor, Lubos, Robert Stambaugh, and Lucian Taylor. "Dissecting Green Returns." *Journal of Financial Economics* (2022). <https://doi.org/10.1016/j.jfineco.2022.07.007> ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3376611](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3376611) )

Zerbib, Olivier David. "The Effect of Pro-Environmental Preferences on Bond Prices: Evidence from Green Bonds." *Journal of Banking & Finance* 98 (2019): 39–60. <https://doi.org/10.1016/j.jbankfin.2018.10.012>

Larcker, David F., and Edward M. Watts. "Where's the greenium?." *Journal of Accounting and Economics* 69, no. 2-3 (2020): 101312. <https://doi.org/10.1016/j.jacceco.2020.101312>

## CLASS 9: Climate and Corporate Finance

Professor Peter Tufano, Harvard University

Required readings (6) noted with asterisks in sections below (\*)

### Corporate climate exposures

Sautner, Zacharias, Laurence Van Lent, Grigory Vilkov, and Ruishen Zhang. "Firm-level climate change exposure." *The Journal of Finance* 78, no. 3 (2023): 1449-1498. <https://doi.org/10.1111/jofi.13219>

Addoum, Jawad M., David T. Ng, and Ariel Ortiz-Bobea. "Temperature shocks and establishment sales." *The Review of Financial Studies* 33, no. 3 (2020): 1331-1366. <https://doi.org/10.1093/rfs/hhz126>

Li, Xia. "Physical climate risk and firms' adaptation strategy." *Strategic Management Journal*, Forthcoming (2024). *Working Paper* (2023). <https://ssrn.com/abstract=4143981>

Li, Qing and Shan, Hongyu and Tang, Yuehua and Yao, Vincent. "Corporate Climate Risk: Measurements and Responses." *Review of Financial Studies*, 37(6):1778–1830 (2024) "Corporate Climate Risk: Measurements and Responses." *Review of Financial Studies*, Forthcoming (2023). <https://ssrn.com/abstract=3508497>

### Corporate (in)action, collaboration and competition (3)

Aldy, Joseph E., Bolton, Patrick, Kacperczyk, Marcin, Halem, Zachery M.. 2023. "Behind Schedule: The Corporate Effort to Fulfill Climate Obligations." *Journal of Applied Corporate Finance* 35: 26–34. <https://doi.org/10.1111/jacf.12560>

\*Bolton, Patrick, and Marcin Kacperczyk. "Firm commitments." *Columbia Business School Research Paper* (2023). <https://ssrn.com/abstract=3840813>

\*Gasparini, M. and P. Tufano, "Climate Alliances: Helpful or Harmful?" (Available early in 2025)

\*Kim et al, "Bank competition and strategic adaptation to climate change". [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4914699](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4914699)

Shive, Sophie A., and Margaret M. Forster. "Corporate governance and pollution externalities of public and private firms." *The Review of Financial Studies* 33, no. 3 (2020): 1296-1330. <https://doi.org/10.1093/rfs/hhz079>

Acharya, Viral V., Robert F. Engle, and Olivier Wang. "Committing to Decarbonize: The Role of Large Firms, Common Ownership, and Governments." *Work. Pap., NYU Stern Sch. Bus., New York* (2024). <https://as.nyu.edu/content/dam/nyu-as/econ/documents/Committing%20to%20Decarbonize.pdf>  
"Incentives to decarbonize and innovate: the role of net zero commitments." *Work. Pap., NYU Stern Sch. Bus., New York* (2023). <https://afajof.org/management/viewp.php?n=27552>

### Carbon taxes and other levers (2)

\*Martinsson, Gustav and Stromberg, Per and Sajtos, Laszlo and Thomann, Christian J. "The Effect of Carbon Pricing on Firm Emissions: Evidence from the Swedish CO<sub>2</sub> Tax" *The Review of Financial Studies*

37, no. 6 (2024): 1848-1886 “Carbon Pricing and Firm-Level CO<sub>2</sub> Abatement: Evidence from a Quarter of a Century-Long Panel.” European Corporate Governance Institute – Finance Working Paper No. 842/2022 (2022). <https://ssrn.com/abstract=4206508>

\*Strechmesser et al. “Climate Policies that achieved major emissions reductions: Global evidence from two decades” (Also available in course dropbox.) *Science* 385, 884–892 (2024) <https://cdn-ceo-ca.s3.amazonaws.com/1jcv2f-science.adl6547.pdf>

Allen, Franklin, Adelina Barbalau, and Federica Zeni. “Reducing Carbon using Regulatory and Financial Market Tools.” Working Paper (2023). <https://ssrn.com/abstract=4357160>

Iovino, Luigi, Thorsten Martin, and Julien Sauvagnat. “The Environmental Bias of Corporate Income Taxation Corporate taxation and carbon emissions.” Working Paper (2024). <https://ssrn.com/abstract=3880057>

Fan, Grace, and Xi Wu. “Going Green: The Governance Role of Environmental Regulations on Firm Innovation and Value.” *Singapore Management University School of Accountancy Research Paper* 2023-163 (2022). <https://ssrn.com/abstract=4098403>

*Emissions reduction, offshoring and greenwashing (1)*

\*Duchin, Ran, Janet Gao, and Qiping Xu. “Sustainability or greenwashing: Evidence from the asset market for industrial pollution.” *Journal of Finance*, Forthcoming (2024) Working Paper (2022). <https://ssrn.com/abstract=4095885>

Dai, Rui, Rui Duan, Hao Liang, and Lilian Ng. “Outsourcing climate change.” *European Corporate Governance Institute–Finance Working Paper* 723 (2024). <https://ssrn.com/abstract=3765485>

Bingler, Julia Anna, Mathias Kraus, Markus Leippold, and Nicolas Webersinke. “How cheap talk in climate disclosures relates to climate initiatives, corporate emissions, and reputation risk.” *Journal of Banking & Finance*, Forthcoming (2024). Swiss Finance Institute Research Paper (22-01) (2023). <https://ssrn.com/abstract=4000708>

Aldy, Joseph E., Patrick Bolton, Zachery Halem, Marcin T. Kacperczyk, and Peter R. Orszag. “Show and Tell: An Analysis of Corporate Climate Messaging and its Financial Impacts.” Working Paper (2024). <https://ssrn.com/abstract=4418347>

## **CLASS 10: Climate and Household Finance**

Professor Johannes Stroebe, New York University

Required readings (5) noted with asterisks in sections below (\*)

### **Overview**

Canals-Cerda, José J., and Raluca Roman. "Climate Change and Consumer Finance: A Very Brief Literature Review." *FRB of Philadelphia Payment Cards Center Discussion Paper 21-4* (2021).

<https://ssrn.com/abstract=3937770>

### **Climate Risk and Household Investment Decisions**

Bauer, R., Ruof, T., & Smeets, P. (2021). Get real! Individuals prefer more sustainable investments. *The Review of Financial Studies*, 34(8), 3976-4043. <https://doi.org/10.1093/rfs/hhab037>

(<https://dx.doi.org/10.2139/ssrn.3287430>)

\*Giglio, S., Maggiori, M., Stroebe, J., Tan, Z., Utkus, S., & Xu, X. (2024). Four facts about ESG beliefs and investor portfolios, *Journal of Financial Economics*. <https://ssrn.com/abstract=4415012>

\*Engle, R. F., Giglio, S., Kelly, B., Lee, H., & Stroebe, J. (2020). Hedging climate change news. *The Review of Financial Studies*, 33(3), 1184-1216. <https://doi.org/10.1093/rfs/hhz072>

(<https://dx.doi.org/10.2139/ssrn.3317570>)

Pástor, L., Stambaugh, R. F., & Taylor, L. A. (2022). Dissecting green returns. *Journal of Financial Economics*, 146(2), 403-424. <https://doi.org/10.1016/j.jfineco.2022.07.007>

(<https://dx.doi.org/10.2139/ssrn.3864502>)

### **Climate Risk and Housing Markets**

Baldauf, M., Garlappi, L., & Yannelis, C. (2020). Does climate change affect real estate prices? Only if you believe in it. *The Review of Financial Studies*, 33(3), 1256-1295. <https://doi.org/10.1093/rfs/hhz073>

(<https://dx.doi.org/10.2139/ssrn.3240200>)

Bernstein, A., Gustafson, M. T., & Lewis, R. (2019). Disaster on the horizon: The price effect of sea level rise. *Journal of Financial Economics*, 134(2), 253-272. <https://doi.org/10.1016/j.jfineco.2019.03.013>

(<https://dx.doi.org/10.2139/ssrn.3073842>)

Bernstein, A., Billings, S. B., Gustafson, M. T., & Lewis, R. (2022). Partisan residential sorting on climate change risk. *Journal of Financial Economics*, 146(3), 989-1015.

<https://doi.org/10.1016/j.jfineco.2022.03.004> (<https://dx.doi.org/10.2139/ssrn.3712665>)

\*Giglio, S., Maggiori, M., Rao, K., Stroebe, J., & Weber, A. (2021). Climate change and long-run discount rates: Evidence from real estate. *The Review of Financial Studies*, 34(8), 3527-3571.

<https://doi.org/10.1093/rfs/hhab032> ([https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2696853](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2696853))

### **Climate Risk and Mortgage Markets**

Ouazad, Amine, and Matthew E. Kahn (2021). Mortgage finance and climate change: Securitization Dynamics in the Aftermath of Natural Disasters. *NBER Working Paper*.

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3461490](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3461490)

Issler, P., Stanton, R., Vergara, C., & Wallace, N. (2024). Housing and mortgage markets with climate risk: Evidence from California wildfires. *Working Paper*. <https://ssrn.com/abstract=3511843>

### **Climate Risk and Insurance Markets**

Ge, S., Lam, A., & Lewis, R. (2023). The Effect of Insurance Premiums on the Housing Market and Climate Risk Pricing. *Working Paper*. <https://ssrn.com/abstract=4192699>

Mulder, P. (2024). Mismeasuring risk: The welfare effects of flood risk information. *Working Paper*. <https://ssrn.com/abstract=4966795>

\*Keys, B., and Mulder, P (2024). Property Insurance and Disaster Risk: New Evidence from Mortgage Escrow Data. *Working Paper*. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4867443](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4867443)

\*Sastry, P. (2022). Who bears flood risk? Evidence from mortgage markets in Florida. *Working Paper*. <https://ssrn.com/abstract=4306291>

Sastry, P, Sen, I. and Tenekedjieva, A. (2024) When insurers exit: Climate losses, fragile insurers, and mortgage markets." *Working Paper*. <https://ssrn.com/abstract=4674279>

## **CLASS 11: Climate and Financial Institutions**

Professor Ben Caldecott, Oxford University and Professor Marcin Kacperczyk, Imperial College

### **Financial institutions creating impact (Prof. Caldecott):**

#### Required Readings (2)

Busch, T., Bruce-Clark, P., Derwall, J., Eccles, R., Hebb, T., Hoepner, A., Klein, C., Krueger, P., Paetzold, F., Scholtens, B., & Weber, O. (2021). Impact investments: a call for (re)orientation. *SN Business & Economics* 2021 1:2, 1(2), 1–13. <https://doi.org/10.1007/S43546-020-00033-6>

Caldecott, B., Clark, A., Harnett, E., & Liu, F. (2024). How sustainable finance creates impact: transmission mechanisms to the real economy. *Review of World Economics*, 1–33. <https://link.springer.com/article/10.1007/s10290-024-00541-9>

#### Optional Readings

Born, K., & Brest, P. (2013). When Can Impact Investing Create Real Impact? *Stanford Social Innovation Review*, 11(4), 22–31. <https://doi.org/10.48558/JFWQ-GZ70>

Transition Plan Taskforce. (2023). Disclosure Framework. <https://www.ifrs.org/content/dam/ifrs/knowledge-hub/resources/tpt/disclosure-framework-oct-2023.pdf>

Wilson, C., & Caldecott, B. (2023). Investigating the role of passive funds in carbon-intensive capital markets: Evidence from U.S. bonds. *Ecological Economics*, 209, 107792. <https://doi.org/10.1016/J.ECOLECON.2023.107792>

### **Climate risk and banking (Prof. Kacperczyk):**

#### Required Readings (3)

\*Altavilla, C., Boucinha, M., Pagano, M., Polo, M. (2024). Climate risk, bank lending and monetary policy. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4918451](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4918451)

\*Jung, H., Engle, R., & Berner, R. (2023). CRISK: Measuring the climate risk exposure of the financial system. [https://www.newyorkfed.org/medialibrary/media/research/staff\\_reports/sr977.pdf/1000](https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr977.pdf/1000)

\*Kacperczyk, M., & Peydro J.L. (2024). Carbon emissions and the bank lending channel. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3915486](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3915486)

#### Optional Readings

Green, D., & Vallee, B. (2024). Measurement and effects of bank exit policies. *Journal of Financial Economics*, forthcoming. [https://www.hbs.edu/ris/Publication%20Files/draft\\_Coal\\_divestment\\_7a4fa45e-b0db-480c-a805-cca05efc23b.pdf](https://www.hbs.edu/ris/Publication%20Files/draft_Coal_divestment_7a4fa45e-b0db-480c-a805-cca05efc23b.pdf)

Ivanov, I., Kruttli, M., & Watugala, S. (2024). Banking on carbon: Corporate lending and cap-and-trade policy. *The Review of Financial Studies*, 37(3), 1640-1684. <https://doi.org/10.1093/rfs/hhad085>

Morse, A., and Sastry, P. (2024). The economics of net-zero banking.  
[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=5032530](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5032530)

## **CLASS 12: Climate Finance wrap-up**

In this class, all of the FECS professors will join to discuss their new research, new and exciting topics in climate finance, applications of climate finance in practice, and more. There will also be opportunities for students and schools to share their work.