

# Marloes Hagens

## Ph.D. Researcher

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## Current position

sep 2025-jan 2026 *Visiting Ph.D. student at the Sustainable Development PhD Program*, School of International and Public Affairs (SIPA) visiting Prof. Caroline Flammer, Columbia University, New York  
2022-2027 *Ph.D. Candidate in Finance*, Rotterdam School of Management, Erasmus University Rotterdam

## Principle interests

Climate and nature risks, climate change mitigation adaptation, environmental economics, climate finance, climate econometrics, sustainable investing, artificial intelligence.

## Publications

### JOURNAL ARTICLES

2023 Leib, M., Köbis, N., Rilke, R. M., Hagens, M., & Irlenbusch, B. (2023). Corrupted by Algorithms? How AI-Generated and Human-Written Advice Shape (Dis)Honesty. *The Economic Journal*, ueado56. Retrieved from <https://doi.org/10.1093/ej/ueado56> doi: 10.1093/ej/ueado56

### BLOG POSTS

2023 Leib, M., Köbis, N., Rilke, R. M., Hagens, M., & Irlenbusch, B. (2023, November 27). Testing Artificial Intelligence Regulation: Is algorithmic transparency enough? *Psychology Today*. <https://www.psychologytoday.com/intl/blog/decisions-in-context/2023ii/testing-artificial-intelligence-regulation>

## Research in progress

### 2024-present WATER STRESS RISK PROJECT

As freshwater levels decline and economic expansion and population growth place increasing pressure on global freshwater resources, many regions face growing water stress, exposing firms to potential operational disruptions. However, do investors care? This study examines the relation between corporate water use, stress, and global stock returns from 2013 to 2024. We construct a novel monthly firm-level water stress measure by combining corporate water use with granular

water supply data from NASA satellites. We find a statistically significant positive relation between corporate water use and global stock returns, and show that investors perceive water use as a systematic risk, demanding an annual premium of 2.15% for investing in firms with high water use. Furthermore, we provide initial evidence of a potential water stress risk premium for firms in high-water-use industries.

2022-present

#### THE BIODIVERSITY LOSS RISK PREMIUM

Biodiversity loss is identified as a great long term global risk, and financial economists have started to investigate whether biodiversity risk is priced in financial markets. This paper aims to answer this question by analyzing global stock returns and firm profitability in relation to firm-level biodiversity risk. We distinguish biodiversity risk across within-firm, within-industry, and across-industry dimensions to assess both potential risk premia and cash flow effects. Our findings reveal that within-firm biodiversity risk is negatively associated with stock returns and profitability, while within-industry risk shows a positive relationship. We cautiously interpret these results as a pricing-in effects on within firm variance and the positive risk premium within firm, possibly in coexistence with negative and positive cash flow effects. Transition-related biodiversity risk appears more influential than physical risk, with heterogeneous impacts across environmental drivers. The results are generally robust across geographies but show modest variation based on national environmental performance. By introducing a tractable, double materiality-based biodiversity risk measure and exploring variance at multiple levels, this study contributes a more nuanced understanding of biodiversity risk in asset pricing and offers new directions for climate and nature finance research.

## Education

2022-2027	Ph.D. in Finance, Erasmus University Rotterdam - <i>Dissertation (working title): Climate and nature risks and sustainable investing</i>
2021	MSc in Econometrics, Vrije Universiteit Amsterdam - <i>Thesis: Does a carbon tax reduce CO<sub>2</sub> emissions? Investigating the CO<sub>2</sub> emission abatement in the UK's electricity sector as an carbon tax.</i>
2018-2020	MSc in Economics, University of Amsterdam - <i>Thesis: The artificial moral advisor: advice utilization in a moral trade-off from artificial intelligence versus humans.</i>
2017-2018	Transition Minor Economics, University of Amsterdam - <i>Graduate (BSc) courses in economics, advanced mathematics and econometrics to transition from Psychology (BSc) to Economics (MSc)</i>
2014-2017	BSc in Psychology, Utrecht University - <i>Thesis: What are the effects of (un)conscious processing of monetary rewards on performance and motivation of people?</i>

## Teaching

2024-2025	MSc course "Investments" workshop and grading exams, Erasmus University Rotterdam
2023-2024	MSc course "Investments" workshop and grading exams, Erasmus University Rotterdam
2023-2024	MSc theses supervision and grading, Erasmus University Rotterdam

2022-2023	MSc course "Investments" workshop and grading exams, Erasmus University Rotterdam
2022-2023	MSc theses supervision and grading, Erasmus University Rotterdam
2022-2023	BSc theses supervision and grading, Erasmus University Rotterdam
2021-2022	BSc course "Finance" programming and grading exams, Erasmus University Rotterdam
2019-2020	BSc course "Macroeconomics" grading exams, University of Amsterdam

## Industry work experience

2021-2021	Co-Founder, <i>FIKA</i> (Start-up)
2020	Participant, <i>Nationale DenkTank</i> (National thinktank)
2019-2020	Venture Scout, <i>HenQ</i> (Venture capital fund)
2019	Research Analyst Intern, <i>Dealroom.co</i> (Data platform company)
2017-2019	Managing Director & Chairwoman, Project Manager, Strategy Consultant, <i>De Kleine Consultant</i> (Non-profit strategy consulting firm)
2017-2018	Statistics and thesis tutor, <i>De Bijlespartner</i> (Tutoring company) & self-employed

## Grants

2021-2024	Ph.D. funded by Netspar theme grant: <a href="#">Climate risks in investment portfolios</a> , by Mathijs van Dijk
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## Conferences

### ATTENDED

2023	EFA, August 16-19, Vrije Universiteit Amsterdam
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## Additional skills

R - Advanced  
 Python- Intermediate  
 L<sup>A</sup>T<sub>E</sub>X- Advanced

## Languages

Dutch - Native speaker  
 English - Excellent and full professional fluency  
 French - Limited (learning)

## Service to the profession

2024-2025	<i>PhD Council</i> at ERIM, Treasurer
2023-2024	<i>PhD student lead</i> in the ERIM PhD seminar series, providing feedback on presentation skills.
2023	<i>Peer reviewer</i> in the Fondazione AIS PhD Network, exchanging research ideas and providing feedback to peers.

## Extracurricular Activities

- 2024 Internships in the Valley 2024 cohort
- 2019-2021 Board of alumni society, De Kleine Consultant
- 2019-2020 Lustrum Commission, UUMUN
- 2016-2017 Model United Nations Delegate at Oximun (Oxford University) and HNMUN (Harvard University), UUMUN

## Memberships

- 2023, 2025 European Finance Association (EFA)
- 2024 VVAO, international knowledge network of university-educated women.

## References

Mathijs A. van Dijk  
Professor of Financial Markets  
Erasmus University Rotterdam  
(RSM) Finance Department  
Email: [madijk@rsm.nl](mailto:madijk@rsm.nl)

Dirk Schoenmaker  
Professor of Banking and Finance  
Erasmus University Rotterdam  
(RSM) Finance Department  
Email: [schoenmaker@rsm.nl](mailto:schoenmaker@rsm.nl)

## Appendix: Coursework

### PHD (DOCTORAL) COURSES

S2 2021-2022	Corporate Finance Theory (4 EC), <i>Tinbergen Institute</i>
S2 2021-2022	Empirical Asset Pricing (3 EC), <i>Tinbergen Institute</i>
S2 2021-2022	Academic Writing (2 EC), <i>ERIM</i>
SS 2022	Panel Data Econometrics (3 EC), <i>ERIM</i>
Si 2022-2023	Introduction to R (2 EC), <i>ERIM</i>
Si 2022-2023	Advanced R (2 EC), <i>ERIM</i>
Si 2022-2023	Engaged Research (2 EC), <i>ERIM</i>
S2 2022-2023	Asset Pricing (4 EC), <i>Tinbergen Institute</i>
S2 2022-2023	Econometrics of Networks (3 EC), <i>Tinbergen Institute</i>
S2 2022-2023	Empirical Research Methodology and Measurement (5 EC), <i>ERIM</i>
S2 2022-2023	Spatial Economics (3 EC), <i>Tinbergen Institute</i>
S2 2022-2023	Multilevel Models (1 EC), <i>ERIM</i>
SS 2023	Mediation and Moderation (2 EC), <i>ERIM</i>
Si 2023-2024	Topics in the Philosophy of Science (5 EC), <i>ERIM</i>
S2 2023-2024	Financial Economics of Climate and Sustainability (no EC), <a href="#">FECS Global Faculty</a>
SS 2024	Boosting Empirics with Theory (2 EC), <i>ERIM</i>
	<i>Total: 43 EC</i>
Si 2024-2025	(scheduled) Thesis supervision (1 EC), <i>ERIM</i>
S2 2024-2025	(scheduled) Open Science and Integrity (2 ECTs), <i>ERIM</i>

### MSc COURSES

*Total: 120 EC*

#### MSc Econometrics and Operation Research

S2 2020-2021	Land Use Change and Ecosystems (6 EC), <i>VU</i>
S2 2020-2021	Time Series Models (6 EC), <i>VU</i>
S2 2020-2021	Environmental Economics (6 EC), <i>VU</i>
S2 2020-2021	Thesis MSc Econometrics (18 EC), <i>VU</i>
Si 2021-2022	Economics of Climate Change (6 EC), <i>VU</i>
Si 2021-2022	Multivariate Econometrics (6 EC), <i>VU</i>
Si 2021-2022	Advanced Econometrics (6 EC), <i>VU</i>
Si 2021-2022	Climate Systems (6 EC), <i>VU</i>
	<i>Subtotal: 60 EC</i>

#### MSc Economics

Si 2018-2019	Microeconomics and Game Theory (5 EC), <i>UvA</i>
Si 2018-2019	Advanced Game Theory (5 EC), <i>UvA</i>
Si 2018-2019	Applied Econometrics (5 EC), <i>UvA</i>
Si 2018-2019	Behavioural Economics (5 EC), <i>UvA</i>
S2 2018-2019	Macroeconomics (5 EC), <i>UvA</i>
S2 2018-2019	Experimental Economics (5 EC), <i>UvA</i>

- S<sub>2</sub> 2018-2019 Evolution and Behaviour (5 EC), *UvA*  
 S<sub>2</sub> 2018-2019 Neuroeconomics (5 EC), *UvA*  
 S<sub>2</sub> 2018-2019 Research Seminar (5 EC), *UvA*  
 S<sub>2</sub> 2018-2019 MSc Thesis (15 EC), *UvA*  
*Subtotal: 60 EC*

#### BSc COURSES

*Total: 252 EC*

#### BSc transition courses

- S<sub>2</sub> 2019-2020 Financial Econometrics (6 EC), *VU Amsterdam*  
 S<sub>2</sub> 2019-2020 Econometrics III (6 EC), *VU Amsterdam*  
 S<sub>1</sub> 2017-2018 Principles of Economics (6 EC), *UvA*  
 S<sub>1</sub> 2017-2018 International Trade and Investment (6 EC), *UvA*  
 S<sub>1</sub> 2017-2018 Mathematics 1 for Economics (6 EC), *UvA*  
 S<sub>1</sub> 2017-2018 Money and Banking (6 EC), *UvA*  
 S<sub>2</sub> 2017-2018 Econometrics (6 EC), *UvA*  
 S<sub>2</sub> 2017-2018 Microeconomics (6 EC), *UvA*  
 S<sub>2</sub> 2017-2018 Statistics 1 for Economics (6 EC), *UvA*  
 S<sub>2</sub> 2017-2018 Macroeconomics (6 EC), *UvA*  
 S<sub>2</sub> 2017-2018 Game Theory (6 EC), *UvA*  
 S<sub>2</sub> 2017-2018 Economics of Markets and Organisations (6 EC), *UvA*  
*Subtotal: 72 EC*

#### BSc Psychology

- S<sub>1</sub> 2014-2015 Methods, Techniques, and Statistics 1 for Psychologists (7.5 EC), *UU*  
 S<sub>1</sub> 2014-2015 Introduction to Psychology: Overview and History (7.5 EC), *UU*  
 S<sub>1</sub> 2014-2015 Biological Foundations of Behavior (7.5 EC), *UU*  
 S<sub>1</sub> 2014-2015 Experimental Psychology (7.5 EC), *UU*  
 S<sub>2</sub> 2014-2015 Developmental Psychology (7.5 EC), *UU*  
 S<sub>2</sub> 2014-2015 Methods, Techniques, and Statistics 2 for Psychologists (7.5 EC), *UU*  
 S<sub>2</sub> 2014-2015 Personality Theory (7.5 EC), *UU*  
 S<sub>2</sub> 2014-2015 Social Psychology (7.5 EC), *UU*  
 S<sub>1</sub> 2015-2016 Biopsychosocial Perspectives on Psychopathology (7.5 EC), *UU*  
 S<sub>1</sub> 2015-2016 Foundations of Psychological Assessment and Test Theory (7.5 EC), *UU*  
 S<sub>1</sub> 2015-2016 Training in Experimentation and Recording 1 (7.5 EC), *UU*  
 S<sub>1</sub> 2015-2016 Training in Experimentation and Recording 2 (7.5 EC), *UU*  
 S<sub>1</sub> 2015-2016 Clinical Neuropsychology (7.5 EC), *UU*  
 S<sub>2</sub> 2015-2016 Methods, Techniques, and Statistics 3: Context Experimental Psychology (7.5 EC), *UU*  
 S<sub>2</sub> 2015-2016 Basic Skills in Professional Conversational Techniques for Trainee Psychologists: Neuropsychology (7.5 EC), *UU*  
 S<sub>2</sub> 2015-2016 Sensation and Perception: 6.5  
 S<sub>2</sub> 2015-2016 Rhetoric: The Art of Persuasion from Pericles to Obama (7.5 EC), *UU*  
 S<sub>2</sub> 2015-2016 Laboratory in Cognitive and Neurobiological Psychology (7.5 EC), *UU*  
 S<sub>2</sub> 2015-2016 Psychopharmacology (7.5 EC), *UU*

S1 2016-2017 Neuroscience of Social Behavior and Emotional Disorders (7.5 EC), *UU*

S1 2016-2017 Memory and Language (7.5 EC), *UU*

S2 2016-2017 Methods and Techniques in Social Neuroscience (7.5 EC), *UU*

S2 2016-2017 Research Seminar in Social Neuroscience (7.5 EC), *UU*

S2 2016-2017 Research Project in Social Neuroscience (7.5 EC), *UU*

*Subtotal: 180 EC*

#### OTHER COURSES

dec 2023 Python for Researchers, *Erasmus University Rotterdam*

• Appendix last updated: September 26, 2025 •