



### Irene Monasterolo, PhD

Professor – Specialty: Climate Finance

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**Irene Monasterolo** is Professor of Climate Finance at EDHEC Business School and EDHEC-Risk Institute in Nice (FR) and senior research fellow at the Vienna University of Economics and Business (Austria) and Boston University (USA), as well as visiting scholar at the International Institute for Applied Systems Analysis (Austria). Irene holds a PhD in Agri-food economics and statistics from the University of Bologna (IT) and two post doctoral experiences in Cambridge (UK) and Boston University (USA), on climate finance.

Irene's research is contributing to understand the role of finance in the achievement of the climate targets in both high income and developing countries, and the assessment of climate-financial risks and opportunities in the low-carbon transition. She has co-developed the climate stress-test of the financial system, which embeds climate scenarios in asset pricing and investors' risk assessment, and was published in Nature Climate Change and Science. The Climate Stress test methodology included in the CLIMAFIN tool has been applied by several (public and private) financial institutions to assess investors' exposure to climate physical and transition risks.

Irene has also co-developed the EIRIN Stock-Flow Consistent macro-financial model to analyse the implications of climate policies (fiscal, monetary, prudential) on green investments, financial stability and inequality. Currently, with the EIRIN model, Irene is supporting the World Bank in the analysis of the macro-financial criticality of compounding COVID-19 and climate risk ,and is collaborating with the European Central Bank at the analysis of the double materiality of climate risk in the EU economy and banking sector (forthcoming as European Central Bank working paper).

Irene is contributing to the G24 V20 countries' Task Force on Climate, Development, and the IMF led by Boston University's Global Development Policy Center, as well as to the World Bank's Crisis Risk Analytics project of the Global Risk Financing Facility aimed to assess the macroeconomic and financial implications of compounding COVID-19 and climate physical risks.

Irene's research has been published on leading academic journals, such as Science and Nature Climate Change, as well as on non-academic journals (e.g. Le Monde, UNPRI). She has co-edited the first special issue on Climate Risks and Financial Stability (published on Journal of Financial Stability in 2021). Irene has co-authored the G20's T-20 chapter on Sustainable Finance, and climate finance chapters of the Financial Stability Review of the European Insurance and Occupational Pension Authority (EIOPA) and of the Austrian National Bank (OeNB).

## EDUCATION

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- 2012      **PhD in Agri-Food Economics and Statistics**  
Department of Statistics, University of Bologna (31/05/2012). AISSEC best PhD thesis in Comparative Political Economy.
- 2007      **Laurea Specialistica, Economic Cooperation and Development (2 years)**  
Faculty of Political Sciences, University of Bologna. Thesis written at the Corvinus University of Budapest, University of Bologna, 23/06/2007. Final grade: 110 cum laude.
- 2004      **Laurea Triennale, International Relations (3 years)**  
Faculty of Political Sciences, University of Pavia, 7/7/2004.  
Final grade: 110 cum laude.

## KEY QUALIFICATIONS

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- **Full professor of Climate Finance**, EDHEC Business School (Nice, FR).
- **Habilitation** (Full Professor – Fascia I, May 2021) in Economic Policy (SECS-P/01), and Political Economy (SECS-P/02), Italian Ministry of Education and University.
- **PhD** in Agri-food economics and statistics (2012): political economy of the European integration (University of Bologna). **Laurea Specialistica** (2007) in Economic cooperation and international development, University of Bologna, summa cum laude.
- **Advanced post-doctoral qualifications** in Cambridge (UK) and Boston University (USA) on green fiscal and monetary policy modelling, climate stress-testing and green bonds.
- **Track record in attracting research funding** by the European Commission, development finance institutions, governments, private financial institutions.
- **Track record of publications and editorial activity** in high and top ranked journals in climate economics and finance (e.g. Science, Nature Climate Change, Journal of Financial Stability).
- **Collaborations with financial supervisors** (e.g. G20, G24 and V20, Network for Greening the Financial System), **development finance institutions** (the World Bank, European Investment Bank, Inter-American Development Bank), **central banks** (Austrian National Bank, European Central Bank), **financial regulators** (European Banking Authority, European Insurance and Occupational Pensions Authority), European Commission (Joint Research Centre).
- **Direct work experience with governments**: negotiations, technical assistances, training and capacity building for sustainable development and financial stability; programming and absorption of EU funds; monitoring and evaluation of EU2030 targets (Croatia, Hungary, Poland, Italy).
- **Co-founder of CLIMAFIN**, the start-up that brings climate stress test to the market (<https://climafin.com/>).

## **WORK EXPERIENCE: ACADEMIA**

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### **October 2021 - EDHEC Business School, EDHEC-Risk Institute (Nice, FR), Full Professor of Climate Finance.**

Research focus:

- Assessment of the impact of climate change and tail effects on financial valuation
- Analysis of macro-financial criticality of cascading climate risks on investors and sovereign financial stability via dynamic climate stress test
- Design of financial tools and policies to prevent and manage the effects of climate change and of a disorderly low-carbon transition
- Development of a taxonomy of high-carbon activities to map firms into classes of climate risk exposure

### **March 2020 – December 2021 International Institute for Applied Systems Analysis (Laxenburg, AT), visiting researcher, Energy department.**

Research focus:

- Integrating the role of finance and its complexity in the climate mitigation scenarios based on Integrated Assessment Models (IAMs)' energy technology trajectories (paper published on Science) to understand under which conditions finance could be a driver or barrier to the achievement of the climate targets.

### **March 2019 – September 2019 Stanford University (Stanford, USA), invited visiting research scholar.**

Contribution to the research agenda of Stanford University's Sustainable Finance Initiative (<https://stanford.io/3jfnSPM>) about climate risks transmission through the economy and finance:

- Pricing forward looking climate risks in financial contracts and securities.
- Development and application of quantitative approaches rooted on financial networks and complexity science to analyse the socio-economic and financial impacts of a disorderly transition to a low-carbon economy, and role of policies to mitigate such risks.
- Financial markets' reaction to the Paris Agreement and mispricing of climate risks in stock markets.

### **March 2017 – September 2021 Vienna University of Economics and Business (Vienna, AT), Assistant professor of Climate Economics and Finance.**

Research focus:

*(i) Role of green fiscal and monetary policies and prudential regulation for the low-carbon transition:*

- Stock-Flow Consistent behavioral model (EIRIN) to analyse under which conditions EU governments and financial institutions could align the COVID-19 recovery policies with the Green Deal targets. Focus on green fiscal, monetary policies, macroprudential regulation, green policies complementarity. **GreenFin** project leader: <https://greenfin.at/>
- Dynamic climate stress test model to assess the double materiality of climate risks in the EU economy and banking sector (in collaboration with the European Central Bank).

(ii) *Embedding climate into financial risk assessment of financial institutions:*

- (Mis)pricing of climate risks in financial markets: analysis of financial market's reactions to climate announcements (risk premia and risk-adjusted returns of low-carbon vs high-carbon portfolios). **EIBURS** ESG-credit.eu project partner.
- CLIMAFIN tool to assess forward-looking climate risks in the value of financial contracts (equity holdings, bonds, loans) and investors' portfolios:
  - Scenarios-adjusted financial risk analytics; climate stress-test based on financial network models to assess direct and indirect losses.

(iii) *Compounding epidemics, climate change and financial risk*

- Assess the macroeconomic and financial impacts of compounding COVID-19 and climate risks in low-income and emerging countries, focusing on:
  - Analysing risk transmission channels across agents and sectors of the economy, identification of drivers of risk amplification, in the EIRIN Stock-Flow Consistent model.
  - Development of a compound risk indicator to quantify the non-linearity of compound risk scenarios on GDP growth.

(iv) *Cascading impacts of climate risks on economic development and natural resources*

- Multi-layer behavioral network model of multiple spatial-explicit layers populated by heterogeneous interacting agents and new multi-layer risk measure (Vulnerability rank). We use the model to assess both the supply- and the demand-side dimensions of climate physical shocks affecting a defined area, and the cascading effects driven by short-term behavioural responses.
- Stock-Flow Consistent model integrating bio-based Input-Output (IO) tables that cover bio-based land resources in the EU, to analyse the impact of different policies aimed to increase the use of bio-based resources in the economy to decrease GHG emissions. BIOCLIMAPATHS project leader (<http://www.jpi-climate.eu/AXIS/Activities/BIO-CLIMAPATHS>)

**May 2015 – February 2017 - Boston University (Boston, USA), Post-doctoral Associate, Frederick S. Pardee Center for the Study of the Longer Range Future.**

Research focus:

- Modelling climate impacts on multiple breadbasket failures and implications for sustainable development, food security and inequality.
- Assessment of the impact of governments' phasing out of fossil fuel subsidies in high-income, energy dependent countries on economic competitiveness, energy security and financial stability.

**February 2014 – March 2015 National Council of Research Milan (IT), Insurance and disaster risk researcher.**

Research focus:

- Development of the methodological framework to assess the fiscal and financial implications of natural disasters, project "The assessment of the risk of natural disasters in selected Italian case study regions".
- Benchmarking of climate adaptation strategies and insurance products for Disaster Risk reduction in the EU/US and lessons learned for the EU climate adaptation strategy (research visiting at Resources for the Future, Washington DC).

**April 2012 - April 2015 Global Sustainability Institute (Cambridge, UK), Post-doctoral Associate.**

Research focus: modeling the impact of natural resource scarcity and climate-led extreme events on GDP growth, multiple breadbasket failures and financial system stability through the development of the integrated System Dynamics (SD)-Agent Based Model (ABM) GRO.

**December 2012- September 2013 Erasmus Mundus program, University of Belgrade (SRB), JOIN-EU SEE post-doctoral visiting researcher.**

Research focus:

- Principal Investigator of the project “Mapping rural poverty for more targeted and inclusive poverty reduction strategies”. Co-organizer of an international workshop on “Serbia and the EU enlargement perspective” on 2/12/2014 at Unicredit bank headquarter in Milan (IT).

## TEACHING

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**Regular classes during academic semester terms:**

- Measurement challenges for the financial industry. In: Climate change and sustainable finance MSc, 2021/2022 (EDHEC, Nice)
- From climate change to climate finance. In: Climate change and sustainable finance MSc, 2021/2022 (EDHEC, Nice)
- Sustainable Finance. In: Climate change and sustainable finance MSc, 2021/2022 (EDHEC, Nice)
- Environment and the economy (WU Wien, Spring-summer semester 2017/2018, undergraduate)
- Environment and the economy II (WU Wien, Spring-summer semester 2017/2018, undergraduate)
- System Dynamics for sustainability analysis (WU Wien, Winter semester 2017/2018, postgraduate)
- System Dynamics for sustainability analysis (WU Wien, Winter semester 2018/2019, postgraduate)
- Sustainable Business and finance (WU Wien, Winter semesters 2018-2021 postgraduate)

**Lecturer at intensive schools:**

July 2021: 3rd European Commission's summer school on Sustainable finance

June 2021: 2nd GrEnFin project summer school on Greening Energy Markets and Finance

September 2020: 2nd European Commission's summer school on Sustainable finance

August 2020: Austrian National Bank's summer school “The Economics of Climate Change – a Central Bank Perspective”

November 2019: “Climate economics and finance” winter school, Italian Association of Environmental and Resource Economist (IAERE)

July 2019: 1st European Commission's summer school on Sustainable finance

March 2019: University of Bologna's Intensive Program: Advanced Topics in Quantitative Methods in Finance, Bologna (IT)

February 2019: Climate change and agriculture: a complex systems approach, ASERI master class, Cattolica University, Milan (IT)

July 2018: Sustainability, fiscal and monetary policies, EAEPE PhD summer school 2018, University of Roma Tre, Rome (IT)

May 2018: Sustainable Finance, Warsaw School of Economics, Warsaw (Poland)

July 2015: “Complex systems and sustainability”, Sustainability summer school, New York University, New York (USA)

### **PhD supervision:**

1. Regis Gourdel, WU Wien. Topic: Analyzing the double materiality of climate risks in the EU economy and finance: towards a dynamic climate stress test (2020-)
2. Giacomo Bressan, WU Wien. Topic: Assessing the impacts of cascading climate risk on the EU financial system’s stability, using complex network models (2019-)
3. Nepomuk Dunz, WU Wien. Topic: Macroecological modelling of fiscal, monetary and macroprudential policies on green growth, financial stability and inequality using Stock-Flow Consistent-Agent Based Models (2018-2021)
4. Sarah Hafner, Global Sustainability Institute, Cambridge. Topic: System dynamics modelling of the low-carbon energy transition in the UK (2018-2021)
5. Roberto Pasqualino, Global Sustainability Institute, Cambridge. Topic: Integrating finance in the Limits to Growth’s System Dynamics model for systemic climate finance risk analysis (2015-2019)
6. Davide Natalini, Global Sustainability Institute, Cambridge. Topic: Agent-Based Models of climate impacts on Multiple Breadbasket Failures (2015-2019).

## **WORK EXPERIENCE: CONSULTANCIES**

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### **May 2021 – December 2022 – G24 and Vulnerable 20 countries**

Scientific leader of macrofinancial modelling team of the Task Force on Climate Policy for Development at the International Monetary Fund at Boston University (USA). Research focused at assessing the macro-financial criticality of spillover climate transition risk in G24 and V20 and inform the introduction of climate transition risk into IMF’s Financial Stability Assessment Program and Article IV.

### **March 2021 – September 2021 CERES**

“Financing a net-zero economy: The Consequences of Physical Climate Risk for Banks”. Development of a comprehensive assessment of the climate physical risks faced by US banks via loans, their impact (primary and secondary shocks) on individual and systemic risk, and their integration into banks’ risk management strategies and lending behaviors. Report available at: <https://bit.ly/2WAAg4C>

### **April 2020 – December 2021 – The World Bank**

Leader of the macroeconomic modelling team within the project “COVID-19 Pandemic, Financial Shock and Climate Disasters: Assessing macroeconomic and financial impact of compound risks in developing countries”, Disaster risk finance, Finance, Competitiveness & Innovation Global Practice (FCI).

### **May 2020 – October 2020 – European Commission, DG DEVCO**

Development of the research study “How can development cooperation better promote climate-aligned finance solutions in developing countries?” aimed to inform the operational implementation of the external dimension of the EU Green Deal, and the implementation of the Sustainable Development Goals (SDGs), the Nationally Determined Contributions (NDCs) and development of Integrated National Financing Frameworks (INFF).

### **March 2020 – The World Bank**

Western Balkans' Regular Economic Report of the World Bank: contribution focused on "Climate transition risk exposure of Western Balkan economies" using the Climate Policy Relevant Sectors classification of investments' exposure to climate transition risk by Battiston et al. (2017).

### **January 2020 – June 2020 CERES**

"Financing a net-zero economy: measuring and addressing climate risks for banks". Development of a comprehensive assessment of the climate transition risks faced by US banks via loans, their impact (primary and secondary shocks) on individual and systemic risk, and their integration into banks' risk management strategies and lending behaviors. Report available at: <https://bit.ly/3B850Jp>

### **February 2019 – March 2019 Positive Money and Veblen Institute**

"How could the ECB's monetary policy support the sustainable finance transition?". Analysis aimed to assess the alignment of the ECB's Quantitative Easing Corporate Bonds Purchase (CSPP) to the climate and energy targets, via its exposure to economic sectors that are relevant for the low-carbon transition: [\[Link\]](#)

### **October 2016 – February 2017 United Nations Office for Disaster Risk Reduction**

Within the evaluation of the Initiative "Building capacities for increased public investment in integrated climate change adaptation and disaster risk reduction: 2012 – 2015", assessment of "Program design and implementation", "Quality of loss and risk results" and "Partnership arrangements".

### **January 2016 – September 2016 European Investment Bank**

Within the European Investment Bank's technical assistance "Climate action support to the Caribbean Development Bank (CDB)", assist the CDB in Barbados in the implementation of its Climate Resilience Strategy by:

- Assessing CDB's projects portfolio contribution to the green energy transition in the region and risks imposed by hazards and climate change on CDB's projects.
- Developing a methodology to regularly assess CDB's projects portfolio's exposure to climate risks as part of portfolio risk management strategy.
- Identifying loans' misalignment to the climate targets and provide recommendations for climate-aligned portfolios' rebalancing.

### **February 2016 Inter-American Development Bank**

Peer-Review of the Inter-American Development Bank's climate mitigation and adaptation strategy "Climate Change Mitigation and Adaptation: Identifying Pathways that lead knowledge to action". Policy recommendations on projects' portfolio reallocation toward climate adaptation.

### **December 2014 The World Bank**

Capacity building to the Polish Ministry of Finance and Ministry of Agriculture on EU2030 targets, including cost-benefit analysis of alignment under macroeconomic and climate policy scenarios.

### September 2012 – March 2014 The World Bank

*Direct support to the Ministry of Agriculture:* reviews and recommendations on the draft Croatian National Rural Development Program for the programming period 2014-2020; feedbacks on sustainability of financial allocations by measures, in conjunction with sectorial priorities and absorption potentials and implications on sovereign creditworthiness risk; identification of smart complementarities between EU structural funds, financial engineering instruments for SME (JEREMIE), European Agricultural Fund for Rural Development (EAFRD);

*Direct support to the Ministry of Regional Development and EU funds:* review and Recommendations on the Partnership Agreement and draft Operative Programs; identification of smart complementarities between actions funded by Cohesion Funds and Structural Funds; analysis of constraints in securing beneficiary counterpart financing under EU-funded rural and regional development programs; drafting technical notes, organization of workshops and training sessions.

### June 2013 The World Bank

Support the World Bank team leader Dr. Elisabetta Capannelli in the preparation of advisory services in Hungary on sustainable and inclusive development and pension system reform. Direct work experience with the government and ministries during official negotiations.

## PROJECTS FUNDED

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### As a principal investigator

1. “Scaling up green finance to achieve the climate and energy targets: an assessment of macro-financial opportunities and challenges for Austria” (**GREENFIN**). Sponsor: Austrian Climate Research Program (ACRP). Duration: December 2019 - December 2021. <https://greenfin.at/>
2. “Assessing climate-led social-ecological impacts and opportunities for resilience pathways in the EU bioeconomy” (**BIOCLIMAPATHS**). Sponsor: European Commission, ERANET-AXIS grant. Duration: November 2019 – October 2022. <http://www.jpi-climate.eu/AXIS/Activities/BIO-CLIMAPATHS>
3. Austrian National Bank’s Maria Schaumeyer Habilitationsstipendium “**Closing the gap between finance and sustainability: A novel methodological framework for monetary policies’ evaluation**” Duration: March 2019 – September 2020.

### As a project partner

1. **EIBURS - ESG-Credit.eu** - ESG Factors and Climate Change for Credit Analysis and Rating, Knowledge Programme – European Investment Bank, 2020-2022.
2. “CASCADING Climate risks: towards ADaptive and resilient European Societies” (**CASCADES**). Sponsor: European Commission, H2020 LC-CLA-03-2018. Duration: 2019 – 2023. Budget: 6 944 314 Eur. <https://www.cascades.eu/>
3. “Greening energy market and finance” (**GrEnFin**). Sponsor: European Commission, Erasmus + Knowledge Alliance Action, EPPKA2 - Cooperation for innovation and the exchange of good practices. Duration: 2019 –2023. <https://grenfin.eu/>
4. International Network for Sustainable Financial Policy Insights, Research, and Exchange (**INSPIRE**) first grant. Duration: 2019 –2020.



5. H2020 FET Innovation Launchpad “Climate Exposure Tool for Financial Risk Analysis” (**CLIMEX**). Sponsor: European Commission, FETOPEN-03-2018-2019-2020 (CSA). Duration: 2019 –2020. <https://climexproject.eu/>
6. “Analysis of Carbon Risks in Financial Markets and Austrian Portfolios” (**RiskFinPorto**). Sponsor: Austrian Climate Research Program (ACRP). Duration: 2017 - 2019.
7. “Perception and Evaluation of Regional and Cohesion Policies by Europeans and Identification with the Values of Europe” (**PERCEIVE**). Sponsor: European Commission, H2020 REFLECTIVE-3-2015: European cohesion, regional and urban policies and the perceptions of Europe. Coordinator: University of Bologna (IT). Duration: 2016 –2019.

## PERSONAL GRANTS

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1. Stanford University’s Sustainable Finance Initiative: visiting fellowship (March – August 2019).
2. WU visiting research mobility, “Greening monetary policies: the missing link between finance and sustainability?”, Sant’Anna School of Advanced Studies, Pisa (IT), March – August 2018.
3. Boston University’s Global Economic Governance Initiative (GEGI) grant, “The fiscal and financial implications of phasing out fossil fuels subsidies”, 2016.
4. Italian National Council of Research Short Term Mobility, “Natural disaster risk insurance: a comparative US – EU perspective”, October 2014.
5. European Commission, DG Regio grant to take part in the workshop “Mind the Gap! Innovating for regional cohesion and smart growth”, Salzburg Global Seminar, Salzburg (Austria), May 2014.
6. Erasmus Mundus External Cooperation Window post-doctoral research grant, “Mapping rural poverty for more targeted and inclusive poverty reduction strategies”, 2013.
7. Marco Polo PhD research grant, 2010.

## RESEARCH PRIZES

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- 2021: Vienna University of Economics and Business, Researcher of the month, July 2021.
- 2020 ECOMOD conference young researcher prize.
- 2019 ECMCC-IV Econometric models of climate change conference prize.
- AISSEC best PhD thesis award in comparative political economy, 2014.

## PUBLICATIONS AND EDITORIALS ACTIVITIES

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### Publications in peer-reviewed journals

1. Battiston S. **Monasterolo**, I., Riahi, K., and van Rujiven, B. (2021). Accounting for finance is key for climate mitigation pathways. *Science*, 372(6545), 918-920. DOI: 10.1126/science.abf3877
2. Gourdel, R., **Monasterolo**, I, Dunz, N., Mazzocchi, A. and Parisi, L. (2021). Assessing the double materiality of climate risks in the EU economy and banking sector.

- ECB working paper, forthcoming (Nov. 2021), available at SSRN (<https://bit.ly/2YWrRcA>)
3. Dunz, N., Mazzocchetti, A., **Monasterolo**, I., Essenfelder, A., Raberto, M. (2021). Compounding COVID-19 and climate risks: the interplay of banks' lending and government's policy in the shock recovery. *Journal of Banking and Finance*, 106303 (in press). DOI: <https://doi.org/10.1016/j.jbankfin.2021.106306>
  4. Ranger, N., Mahul, O., **Monasterolo**, I (2021). Managing the financial risks of climate change and pandemics. What we know (and don't know). *One Earth* (in press), *Perspective*, Oct. 2021
  5. Naqvi, A., **Monasterolo** I. (2021). Assessing the cascading impacts of natural disasters in a multi-layer behavioral network framework. *Scientific Reports*, 11(1), 1-14. DOI: <https://doi.org/10.1038/s41598-021-99343-4>
  6. **Monasterolo**, I. (2020). Embedding finance in the macroeconomics of climate change: research challenges and opportunities ahead. *CESifo Forum*, 4/2020, p.25-33.
  7. **Monasterolo**, I. (2020). Climate change and the financial system. *Annual Review of Resource Economics*, Volume 12, 1-22. DOI: <https://doi.org/10.1146/annurev-resource-110119-031134>
  8. Battiston, S., Dafermos, Y., and **Monasterolo**, I (2021). Climate risks and financial stability. *Journal of Financial Stability*, vol. 54, June 2021. DOI: <https://doi.org/10.1016/j.jfs.2021.100867>
  9. Dunz, N., Naqvi, A., **Monasterolo**, I. (2021). Climate sentiments, transition risk, and financial stability in a stock-flow consistent model. *Journal of Financial Stability*, vol. 54, June 2021. DOI: <https://doi.org/10.1016/j.jfs.2021.100872>
  10. Hafner, S., Anger-Kraavi, A., **Monasterolo**, I., Jones, A. (2020). Emergence of New Economics Energy Transition Models: A Review. *Ecological Economics*, 177, 106779 <https://doi.org/10.1016/j.ecolecon.2020.106779>
  11. **Monasterolo**, I., de Angelis, L. (2020). Blind to carbon risk? An Analysis of Stock Market's Reaction to the Paris Agreement. *Ecological Economics*, 170, 1-10. DOI: <https://doi.org/10.1016/j.ecolecon.2019.106571>
  12. **Monasterolo**, I., Roventini, A., Foxon, T. (2019). Uncertainty of climate policies and implications for economics and finance: an evolutionary economics approach. *Ecological Economics*, 163, 1-10. DOI: <https://doi.org/10.1016/j.ecolecon.2019.05.012>
  13. Brasili, C., Calia, P., **Monasterolo**, I. (2019). Mapping citizens' identification with the EU. *Regional Science Policy & Practice*. DOI: 10.1111/rsp3.12227.
  14. Pasqualino, R. **Monasterolo**, I., Jones, A.W. (2019). Global food and energy security—integrated system dynamics model for addressing systemic risk. *Sustainability*, 11(14), 3995. DOI: <https://doi.org/10.3390/su11143995>
  15. **Monasterolo**, I., Raberto, M. (2019). The impact of phasing out fossil fuel subsidies on the low-carbon transition. *Energy Policy*, 124, 355-370. DOI: <https://doi.org/10.1016/j.enpol.2018.08.051>
  16. Stolbova, V., **Monasterolo**, I. Battiston, S. (2018). A financial macro-network approach to climate policies evaluation, *Ecological Economics*, 149, 239-253. DOI: <https://doi.org/10.1016/j.ecolecon.2018.03.013>
  17. **Monasterolo**, I., Jiani I. Zheng and Battiston, S. (2018). Climate transition risk and development finance: a climate stress-test of China's overseas energy portfolios. *China & World Economy* 26(6), 116–142. Input to the G20 Task Force “An International Financial Architecture for Stability and Development”. DOI: <https://doi.org/10.1111/cwe.12264>

18. **Monasterolo, I., Raberto, M** (2018). The EIRIN flow-of-funds behavioral model of green fiscal policies and green sovereign bonds. *Ecological Economics*, 144, 228-243. DOI: <https://doi.org/10.1016/j.ecolecon.2017.07.029>
19. **Monasterolo, I., Battiston, S., Janetos, A. C., & Zheng, Z.** (2017). Vulnerable yet relevant: the two dimensions of climate-related financial disclosure. *Climatic Change*, 145(3-4), 495-507. DOI: <https://doi.org/10.1007/s10584-017-2095-9>
20. Battiston S., Mandel A, **Monasterolo I.**, Schuetze F. & G. Visentin (2017). A Climate stress-test of the EU financial system. *Nature Climate Change*, 7, 283–288. DOI: <https://doi.org/10.1038/nclimate3255>
21. Howarth, C., **Monasterolo, I.** (2017). Opportunities for knowledge co-production across the energy-food-water nexus: Making interdisciplinary approaches work for better climate decision making. *Environmental Science & Policy*, 75, 103-110. DOI: <https://doi.org/10.1016/j.envsci.2017.05.019>
22. Howarth C., **Monasterolo I.** (2016). Understanding barriers to decision making in the energy-food-water nexus: The added value of interdisciplinary approaches. *Environmental Science & Policy*, [Volume 61](#), July 2016, Pages 53–60. DOI: <https://doi.org/10.1016/j.envsci.2016.03.014>
23. **Monasterolo, I., Pasqualino, R., Janetos, A.C. and Jones, A.** (2016). Sustainable and Inclusive food systems through the lenses of a complex system thinking approach - A bibliometric review. *Agriculture*, 6(3), p.44. DOI: <https://doi.org/10.3390/agriculture6030044>
24. Pasqualino R., Jones AW., **Monasterolo I.**, Phillips A. (2015). Understanding global systems today—A calibration of the World3-03 model between 1995 and 2012. *Sustainability*. 2015; 7(8):9864-9889. DOI: <https://doi.org/10.3390/su7089864>

## Working papers

1. **Monasterolo, I., Dunz, N., Mazzocchetti, A, Hrast-Essenfelder, A.** (2021). It could be worse: it could compound. Financial risk assessment and management in times of compounding climate and pandemic shocks. Under review as Brookings Institute working paper.
2. Bressan, G., **Monasterolo, I., Battiston, S.** (2021). Reducing Climate Transition Risk in Central Banks' Asset Purchasing Programs. Available at SSRN ([abstract=3770192](#))
3. Nicola Ranger, Olivier Mahul, Irene **Monasterolo** (2021). Assessing Financial Risks from Physical Climate Shocks: A Framework for Scenario Generation. Working paper under review, World Bank Policy and Research Papers.
4. Kruczkiewicz, A., Cian, F., **Monasterolo, I.** et al. (2021). Multiform Flood Risk in a Rapidly Changing World: research challenges and steps ahead. Working paper under review.
5. Stokeld, E. et al. (2021). Europe's cross-border trade, security and financial connections: a climate risk perspective. Working paper under review at Climate Risk Management.
6. Battiston, S., **Monasterolo, I.** (2020). On the dependence of investor's probability of default on climate transition scenarios. Available at SSRN ([abstract\\_id=3743647](#)).
7. Battiston, S., **Monasterolo, I.** (2020). The Climate spread of sovereign and corporate bonds. Available at SSRN ([abstract\\_id=3376218](#)).
8. **Monasterolo, I., Glas, N., and Kunesch, S.** (2020). Climate sentiments in the financial sector: how financial markets, policies and regulations generate barriers and opportunities to align portfolios to sustainability. Available at SSRN [abstract\\_id=3659459](#)

9. **Monasterolo, I., Billio, M., and Battiston, S. (2020).** The importance of compound risk in the nexus of COVID-19, climate change and finance. Available at SSRN: <https://ssrn.com/abstract=3622487>
10. Battiston S., Mandel A, **Monasterolo I. (2019).** CLIMAFIN handbook: pricing forward-looking climate risks under uncertainty. SSRN: <https://ssrn.com/abstract>
11. Battiston, S. and **Monasterolo, I. (2019).** How could the ECB's monetary policy support the sustainable finance transition? Input to Positive Money and Veblen's policy report "Aligning Monetary Policy with the EU's Climate Targets"): [https://www.finexus.uzh.ch/en/news/cspp\\_sustainable\\_finance.html](https://www.finexus.uzh.ch/en/news/cspp_sustainable_finance.html)
12. **Monasterolo, I., Raberto, M. (2017).** Is there a role for Central Banks in the low-carbon transition? A Stock-Flow Consistent-Agent Based modelling approach. Working Paper prepared for the De Nederlandsche Bank's conference Central Banking and Green Finance, Amsterdam, 28-29.11.2017.

### Technical reports

1. **Monasterolo, I., Volz, U. (2020).** Addressing climate-related financial risks and overcoming barriers to scaling up sustainable investments. G20 Saudi Arabia: T20's Task Force 2 "Climate Change and Environment" 2020: [https://www.g20-insights.org/policy\\_briefs/addressing-climate-related-financial-risks-and-overcoming-barriers-to-scaling-up-sustainable-investment/](https://www.g20-insights.org/policy_briefs/addressing-climate-related-financial-risks-and-overcoming-barriers-to-scaling-up-sustainable-investment/)
2. Battiston, S., Guth, M., **Monasterolo, I., Nuerdorfer, B., Pointner, W. (2020).** The exposure of Austrian banks to climate-related transition risk. In: Austrian National Bank's Financial Stability Report 2020: <https://www.oenb.at/en/Publications/Financial-Market/Financial-Stability-Report.html>
3. **Monasterolo, I., Monnin, P. (2020).** How can development cooperation better promote climate-aligned finance solutions in developing countries? Report for European Commission, DG-DEVCO
4. **Monasterolo, I., Battiston, S. (2020).** Pricing forward-looking climate risks in financial contracts. In: Report of the Joint JRC - EBA workshop on Banking Regulation and Sustainability, ed. by Alessi, L
5. Battiston, S., **Monasterolo, I. (2020).** A science-based climate-stress testing framework to integrate forward-looking climate transition risk into existing supervisory. In: Report of the Joint JRC - EBA workshop on Banking Regulation and Sustainability, ed. by Alessi, L.
6. Battiston, S., Jakubik, P., **Monasterolo, I., Riahi, K., van Ruijven, B. (2019).** Climate risk assessment of sovereign bonds' portfolio of European insurers. In: European Insurance and Occupational Pension Authority (EIOPA) Financial Stability Report, December 2019.
7. Campiglio, E., **Monasterolo, I., Gnan, Ernest. (2018).** Green finance, regulation and monetary policy. SUERF working paper series. Vienna: WU, OeNB, SUERF.

### Chapters in books

1. Battiston, S., Billio, M., and **Monasterolo, I. (2020).** Pandemics, climate and public finance: how to strengthen socio-economic resilience across policy domains. In: A New World Post COVID-19 Lessons for Business, the Finance Industry and Policy Makers, edited by Monica Billio and Simone Varotto, Edizioni Ca' Foscari, pag. 259-268. ISBN [ebook] 978-88-6969-442-4 | ISBN [print] 978-88-6969-443-1
2. **Monasterolo I., Battiston S. (2020).** Assessing forward-looking climate risks in financial portfolios: a science-based approach for investors and supervisors. NGFS

Occasional Papers Case Studies of Environmental Risk Analysis Methodologies.  
Published on 09/10/2020; 616 pages: <https://www.ngfs.net/en/case-studies-environmental-risk-analysis-methodologies>

3. Lamperti, F., **Monasterolo**, I., Roventini, A. (2019). Climate Risks, Economics and Finance: Insights from Complex Systems. In: The Systemic Turn in Human and Natural Sciences. A Rock in The Pond, Hrsg. Ulivi, L. 1-23. Contemporary Systems Thinking: Springer.
4. **Monasterolo**, I., Raberto, M. (2016). No Contest: Green versus Brown Subsidies under TTIP trade agreement. Issues in Brief, The Pardee Center Series, Sept. 2016.
5. Zoboli, R., **Monasterolo**, I. (2015). Climate change and agriculture: Reducing food risk through Adaptation Strategies. In 'Poverty eradication: access to land, access to food', edited by S. Balestri, S. Beretta. EDUCatt – Ente per il Diritto allo Studio Universitario dell'Università Cattolica, ISBN print edition: 978-88-6780-906-6 ISBN digital edition: 978-88-6780-907-3.

### Editorial activity

1. Co-editor, special issue "Climate risks and financial stability" (2021), Journal of Financial Stability.
2. Lead editor, special issue "Understanding uncertainty of climate policies and implications for economics and finance: an evolutionary economics approach" (2019). Ecological Economics.
3. Co-editor, special issue of the Journal Agriculture on "Distributed, Interconnected and Democratic Agri-Food Economies: New Directions in Research" (2018) (ISSN 2077-0472).

### Blogposts and online articles

1. Mahul, O., **Monasterolo**, I., Ranger, N. (2021). Learning from COVID-19 and climate change: Managing the financial risks of compound shocks. World Bank blog, <https://bit.ly/3zYqTdV>
2. Die "Bio-Schiene" der Finanzwelt. Wiener Zeitung (06/08/2021) <https://www.wienerzeitung.at/nachrichten/chronik/leben/2115558-Die-Bio-Schiene-der-Finanzwelt.html>
3. Battiston, S., **Monasterolo**, I. (2021). [Le système financier peut faire pencher la dynamique de la transition écologique d'un côté ou de l'autre](#). Le Monde (26/5/2021).
4. Battiston, S., **Monasterolo**, I. (2021). [Transizione ecologica e rischio finanziario: il ruolo chiave delle aspettative](#). Il Sole 24 Ore (24/5/2021).
5. Kletzian-Slamanig, D., ea. [Klimawandel gefährdet finanzielle Stabilität](#). Der Standard (15/02/2021).
6. **Monasterolo**, I. [Assessing climate risks in investors' portfolios: a journey through climate stress-testing](#). UN PRI blogpost (2/03/2020):
7. **Monasterolo**, I., Volz, U. [How to finance virus response in a sustainable way? Scale up synergies with the Green Deal](#). Euractiv (7/04/2020).
8. **Monasterolo**, I., Volz, U. ["EU virus response to shape climate action"](#). OMFIF (8/04/2020).
9. **Monasterolo**, I., Volz, U. "Enabling EU solidarity while preserving public finances: how the EU could finance the COVID response". Financial Times (The Banker) (2/05/2020).
10. Il Sole 24 Ore ["Climate change, ecco l'impatto del Quantitative easing della BCE"](#) (27.7.2019).

11. Le Monde, "[La Banque centrale européenne soutient trop les entreprises polluantes, selon une étude](#)" (21.3.2019).

## INSTITUTIONAL RESPONSIBILITIES

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- 2021: Editor, Ecological Economics
- 2021: Invited expert reviewer, Intergovernmental Panel on Climate Change (IPCC) report.
- 2020: G20 Saudi Arabia: T20's Task Force 2 "Climate Change and Environment" 2020: Leader of Sustainable Finance chapter.
- 2020: Editorial board, Climatic Change Journal.
- 2019: External Collaborator, Responsible Management Research Center (REMARC) Department of Economics and Management (DEM) of the University of Pisa (IT).
- 2018 – 2020: Council member of the European Association for Evolutionary Political Economy (EAEPE), with responsibility for assigning the Myrdal, Kapp and Simon prizes.
- 2017 - : Advisory board member of FINEXUS – Center for Financial Networks and Sustainability at the University of Zurich (UZH), led by Prof. Stefano Battiston.
- 2016 - Leader of the Research Area F "Environment-Economy Interactions" of the European Association for Evolutionary Political Economy (EAEPE).

## ORGANISATION OF SCIENTIFIC CONFERENCES & POLICY EVENTS

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- 2019: Organizer of the **UNFCCC COP25 side event** "Assessing climate transition risk and scaling up climate investments" in collaboration with Univ. of Zurich (UZH), European Commission Joint Research Center (JRC), ClimateWorks. EU Pavilion, Madrid (ES), 9 December 2019.
- 2019: Organizer of **WU Research Group Meeting**, 1st October 2019.
- 2019: Organizer of the **EAEPE conference special session** "Climate Risks and Opportunities in Financial Markets and Investors' Portfolios", Warsaw (Poland), 12-15 Sept. 2019.
- 2018: Co-organizer of the special session "The economic and financial impacts of climate change" at the **EAEPE conference** 2018, Nice (France), 6-8 Sept 2018.
- 2018: Co-organizer of the **ECOMOD conference** Special Session "Climate risks and financial stability", Venice (Italy) July 4-6, 2018.
- 2018: Co-organizer of the **SUERF-WU-OENB conference** "Green finance, regulation and monetary policy", Austrian Central Bank (OeNB), Vienna (AT), 4 May 2018.
- 2017: Co-organizer of the **UNFCCC COP23 side event** "How new climate risk and impact metrics can empower development finance institutions", in collaboration with Inter-American Development Bank, Climate-KIC, and the University of Zurich, Bonn (DE), November 2018.
- 2017: Co-organizer of the **EAEPE special sessions** "The role of the State in the climate-finance nexus" (invited speakers: Prof. Mariana Mazzucato, Prof. Giovanni Dosi) at the conference of the European Association of Evolutionary Political Economy (EAEPE), Budapest, Hungary.
- 2016: Co-organizer of the **UNFCCC COP22 side-event** "Disentangling the Climate-Finance Nexus: methods for 2°C alignment and climate stress-tests for institutional investors and development banks", Marrakesh (MO), October 2016.

- 2016: Organizer of the **EAEPE conference special session** “Complexity and climate change economics”, Manchester (UK), Nov. 2016.

## **INVITED SPEAKER: CONFERENCE AND WORKSHOPS (selected)**

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- 03 Nov. 2021: invited speaker, **Deutsche Bundesbank**'s research seminars.
- 28 Oct. 2021: invited speaker, **ECB Climate Change Center Green Seminar**.
- 26 Oct. 2021: invited speaker, **IMF macrofinancial seminars serie**.
- 20 Oct. 2021: 12th **FMA Supervisory Conference** “Sustainable Ways out of the Crisis”, Austrian Financial Markets Authority, Vienna (AT).
- 1 Sept. 2021: Central Banks and Regulators panel, **GRASFI conference 2021**.
- 1 Sept. 2021: invited speaker, “Divesting from Carbon-intensive towards a Sustainable and Green Infrastructure”, **European Forum Alpbach 2021**.
- 28 January 2021: invited speaker, “Virtual Seminar on Climate Economics”, **Federal Reserve Bank of San Francisco**.
- 10 December 2020: “Green Finance Research Advances”, **Banque de France**.
- 9 December 2020: Central Banking conference 2020, climate stress testing session.
- 2 December 2020: Understanding Risk conference 2020, Multiform flood risk session.
- 28 October 2020: keynote speaker, **World Bank** workshop “Compound risks: combining COVID and climate shocks in macroeconomic models for stronger financial resilience”.
- 22 October 2020: keynote speaker, **National Bank of Belgium**'s Conference 2020 "Climate Change: Economic Impact and Challenges for Central Banks and the Financial System".
- 21 October 2020: invited speaker, **Bank for International Settlements (BIS)**'s International Conference on Central Banks Supervision 2020.
- 24 September 2020: invited speaker, **CREDIT** conference 2020, Ca' Foscari University Venice (IT).
- 4 September 2020: invited speaker, **OECD** workshop “Climate Change: assumptions, uncertainties and surprises, OECD (virtual).
- 1 September 2020: invited speaker, 2nd **European Commission's summer school** on Sustainable Finance (virtual).
- 26 August 2020: invited speaker, **Austrian National Bank (OeNB)**'s summer school.
- 1 July 2020: invited lecture, Banca d'Italia, IT.
- 27 February 2020: invited speaker, **European Insurance and Occupational Pension Authority (EIOPA)**, Frankfurt (GE).
- 28 January 2020: Invited lecture, **European Banking Authority (EBA)**, Paris (FR).
- 16 January 2019: moderator and speaker, FINEXUS2020 conference “Climate change and financial risks”, **University of Zurich**, Zurich (CH).
- 6 December 2019: Invited speaker, European Systemic Risk Board (ESRB) workshop “Wind of Change: Climate Risk and Dynamic Stress Testing”, **Austrian National Bank (OeNB)**, Vienna (AT).
- 25 November 2019: Keynote speaker, **Banque de France**, “Green Finance Research Advances”, Paris (FR).
- 18-19 November 2019: Keynote speaker, **European Banking Authority** – European Commission Joint Research Center workshop “Banking regulation and sustainability”, Ispra (IT).

- 21 October 2019: Invited speaker, **World Bank Group** seminar series, DC (USA).
- 18 October 2019: invited speaker at the **World Bank Group** - International Monetary Fund Annual Meeting 2019 “Climate change and Minsky moments”.
- 26-27 September 2019: Keynote speaker, **CREDIT** conference “Assessing and Managing Climate Change Risk: Opportunities for Financial Institutions”, Ca’ Foscari University Venice (IT).
- 19 September 2019: Invited speaker, Sustainable development and climate change: From global research to national implementation, **IIASA**, Palais Coburg, Vienna (AT).
- 6 September 2019: Keynote speaker, European Insurance and Pension Funds Authority (EIOPA) seminar on “Quantitative techniques in financial stability”, Frankfurt (GE).
- 5 September 2019: Invited speaker, **GRASFI Sustainable Finance** conference, Oxford (UK).
- 17 July 2019: Invited speaker, Energy Modelling Forum “Transitions to Low GHG Futures Workshop”, **Snowmass**, Colorado (USA), July 2019.
- 22 April 2019: Invited speaker, **Stanford University**’s Precourt Institute of Energy, Energy Seminar, Stanford (USA).
- 27 February 2019: Invited speaker, **Bank of England**: Climate Stress-test of central banks’ portfolios, London (UK),
- 9 January 2019: Invited speaker, **European Commission** - JRC conference “Promoting sustainable finance”, Brussels (BE).
- 15 May 2018: Invited speaker, **R20 Austrian World Summit**, invited speaker at the session “Sustainable Investments: New Directions for the Finance Sector”, Vienna (Austria).
- 4 May 2018: Moderator, session “New paradigms, metrics and financial instruments for sustainable finance: why do they matter for central banks?” **SUERF-WU-OENB** conference Vienna (Austria).
- 23 April 2018: Invited speaker, G20 T-20 Task Force event on “Scaling Development Finance for the Sustainable Development Goals and the Paris Agreement”, **Boston** University (USA).
- 9 January 2018: Moderator, practitioners’ session on Development Bank, climate risks and impacts. Invited speaker “Data and methods to assess climate risk and impact”, 2nd FINEXUS Conference, **University of Zurich**, Zurich (CH).
- 28 November 2017: Invited speaker, **Dutch Central Bank** (DNB), Amsterdam, The Netherlands. Presentation: “Is there a role for Central Banks in the low-carbon transition?”
- July 2017: Invited speaker, **Inter-American Development Bank** (IDB)’s workshop “Fiscal and financial consequences of unburnable fossil fuels in Latin America and Caribbean”.

## REFEREE AND EVALUATOR

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- Journals: Journal of Banking and Finance, Nature Climate Change, Nature Energy, Nature Sustainability, Climatic Change, Ecological Economics, Energy Policy, Regional Environmental Change, Economic Modelling, Sustainable Finance & Investment, Journal of Cleaner Production.
- Research Programs:
  - International Institute for Applied Systems Science (IIASA)’s Young Scientists Program (YSSP)



- The [Peccei & Mikhalevich Awards](#)
- Austrian National Bank (OeNB)'s Jubilaeumsfund
- Federal Ministry of Education and Research in Germany (BMBF)
- Swiss National Science (SNF) Foundation
- European Science Foundation – Science connect
- Dutch Research Council - Open Competition SSH scheme.

## MISCELLANEOUS

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### Languages:

Mother tongue: Italian.

English: excellent

German: average

Serb-Croat: fair.

### Computer Skills :

Office, STATA, SPSS, Vensim, Matlab.