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Cover Letter – NBER PhD Student Workshop on Climate Finance
Submitted: August 4, 2025

Dear Professors Flammer and Giglio,

I am writing to apply for the PhD Student Workshop on Climate Finance, scheduled for October 9, 2025, in Cambridge, MA. I am currently a final-year PhD candidate in Finance at University College Dublin, where I study how institutional uncertainty shapes corporate environmental behavior and the functioning of financial markets in China. My research sits at the intersection of climate finance, sustainable investment, and policy uncertainty.

The submitted paper, titled "The Dynamic Effects of Policy Uncertainty on Corporate Carbon Emissions," forms the first chapter of my doctoral dissertation. It investigates how economic policy uncertainty (EPU) and climate policy uncertainty (CPU) jointly influence corporate carbon emissions in China, using a dynamic time-series panel of listed firms from 2011 to 2022.

To address the evolving nature of firm responses, I employ an Autoregressive Distributed Lag (ARDL) model and an Error Correction Mechanism (ECM) framework to distinguish between short- and long-run effects of policy uncertainty on carbon emissions. The analysis reveals that while uncertainty tends to increase emissions in the short run—due to delayed decarbonization and green investment deferral—firms begin to adapt in the long run. I further embed a three-path mediation structure to uncover the channels through which policy uncertainty affects emissions: financial constraints, cost of debt, and corporate risk-taking behavior.

The paper contributes to the literature by offering a dynamic and structural view of how institutional volatility impacts carbon trajectories, especially in a large transition economy. I hope to receive feedback on the robustness of the dynamic identification, the clarity of mediation design, and potential extensions that tie firm-level risk exposure to global climate finance frameworks.

This research aligns closely with the goals of the workshop, and I would be honored to discuss it with fellow scholars and leading researchers in the field.

Attending the workshop would offer me the invaluable opportunity to receive critical feedback from leading scholars in the field, refine the framing of my dissertation, and engage in meaningful discussions on the financial economics of climate transition. I would be especially grateful for comments on the empirical design, model interpretation, and the implications for global financial markets facing rising policy and climate uncertainty.

I expect to complete my PhD by September 2025 under the supervision of Professor John Cotter, who has kindly agreed to serve as my reference. Thank you for your consideration, and I look forward to the opportunity to contribute to this timely and important dialogue.

Sincerely,
Min Zhang

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RESEARCH

PhD candidate in Climate Finance with research focus on how institutional uncertainty affects corporate sustainability behavior, carbon emissions, and ESG asset pricing. My doctoral work examines how firms and labor markets respond to climate and economic policy shifts, with a focus on ESG strategy, greenwashing behavior, and carbon emissions. I also bring practical experience from my ESG consulting work at PwC, where I collaborated with industry leaders on sustainability strategies. Coupled with extensive teaching experience at both undergraduate and MSc levels, I am equipped to contribute to multidisciplinary projects exploring skill gaps, workforce adaptation, and stakeholder engagement for a just and equitable clean energy transition.

EDUCATION

PhD in Finance – University College Dublin, Smurfit Graduate Business School 09.2021 – 12.2025

- Supervision: Prof. John Cotter and Prof. Thomas Conlon
- Completed coursework in Financial Modeling, Derivatives, Asset Pricing, Machine Learning
- Applied Python, MATLAB, Stata, Jupyter, and Bloomberg for financial analysis
- Dissertation: *Sustainable Finance Under Uncertainty: ESG Behavior, Carbon Emissions, and Greenwashing*

Diploma in High Performance Computing – Trinity College Dublin *(2.1 degree)* 09.2020 – 09.2021

- Studied HPC software/hardware, C/C++, Machine Learning (Python), Numerical Analysis (MATLAB)
- Developed GPU programs using CUDA and optimization algorithms for large-scale data analysis

MSc in Applied Economics – University College Dublin *(2.1 degree)* 09.2016 – 09.2017

- Core Modules: Advanced Econometrics, Microeconomics, Macroeconomics, Behavioral Economics, International Economics, Quantitative Techniques (Stata, R, MATLAB)
- Thesis: *The international knowledge spillover of returnee reflux and its impact on technological progress*

BSc in International Economics – Beijing University of Chemical Technology 09.2012 – 09.2015

- Core Modules: Advanced Mathematics, Probability and Statistics (SPSS), Linear Algebra, Accounting, Finance, Commercial Law, International Accounting, Financial Analysis, Macro/Microeconomics
- Thesis: *Time Discounting of Hypothetical Monetary Rewards*

WORKING PAPERS

- Zhang, M.*,†, Cotter, J., Conlon, T. (working paper). *The Dynamic Effects of Policy Uncertainty on Corporate Carbon Emissions.*

  – Explores how economic and climate policy uncertainty shape corporate carbon emissions in China.

  – Uses ARDL-ECM and mediation models to identify financing constraints, debt cost, and risk-taking as key transmission channels.

  – **Status:** Full draft completed, seeking feedback.

  – **Target journal:** Journal of Financial Economics – Climate Finance Series.

- Zhang, M.*,†, Cotter, J., Conlon, T. (working paper). *Unmasking Greenwashing: ESG's Impact on Chinese Stock Returns.*

  – Develops a novel ESG factor pricing model and firm-level greenwashing index using China A-share data. The study reveals how greenwashing behavior distorts ESG return premia and market pricing mechanisms.

  – **Conference presentations:** International Conference on Sustainable Finance and ESG Investing (ISAFE 2024); PhD Workshop in Climate Finance, UCD (2023) **Award:** Best Paper Award, ISAFE 2024

- Zhang, M.*,†, Cotter, J., Conlon, T. *Economic Policy Uncertainty and Stock Market Reactions.*

– Demonstrates a nonlinear (inverted U-shaped) relationship between policy uncertainty and excess returns. Incorporates greenwashing as a mediating mechanism using firm-level panel data.

WORK EXPERIENCE

ESG Consulting Assistant (Intern) – Strategy& (PwC Network), Hybrid 08.2023 – 12.2023

- **Industry Analysis:** Conducted in-depth research on the automotive and semiconductor sectors, delivering over 20 pages of strategic insights and 60+ pages of key documentation.
- **Data Visualization and Market Research:** Collected, analyzed, and visualized data from multiple sources, contributing to high-impact market intelligence and final client reports.

Fraud Data Analyst – AvaTrade Co., Ltd, Dublin, Ireland 07.2018 – 07.2020

- **Fraud Analysis and Compliance:** Maintained and enhanced statistical tools to identify fraud patterns. Developed SQL-based triggers for real-time fraud alerts and produced detailed regulatory-compliant reports (weekly, monthly, and quarterly).
- **Model Development and Monitoring:** Monitored transaction data using Python, SQL, Tableau, and Excel. Supported anti-fraud model development based on historical data and aligned triggers with evolving compliance policies.
- **Risk Assessment and Reporting:** Contributed to regional risk KPIs, assisted the fraud manager with trend analysis and alert strategies, and participated in internal reviews.
- **Cross-Functional Collaboration:** Worked closely with trading, business intelligence, customer service, and finance teams to manage fraud cases, assess credit risks, and resolve payment/withdrawal disputes.
- **Training and Knowledge Sharing:** Participated in fraud prevention training sessions, and shared practical insights to support internal anti-fraud initiatives.

TEACHING EXPERIENCE

Tutor – Business in Society (HRM10730), UCD Quinn School of Business 09/2024 – 12/2024

- Delivered tutorials for 250 undergraduate students across five weekly sessions, covering corporate social responsibility (CSR), business ethics, and stakeholder analysis.
- Designed and facilitated debates and case studies (e.g., Apple supply chain labor conditions) to develop critical thinking on sustainable business practices.
- Graded group projects and individual assessments via Brightspace, providing constructive feedback to support student learning outcomes.

Tutor – Capital Markets and Instruments (FIN42040), UCD Smurfit School 09/2022 – 12/2023

- Led tutorials for MSc Finance students on capital markets, portfolio theory, asset pricing models (CAPM, APT), and investment analysis.
- Guided students through empirical assignments involving Bloomberg Terminal and Excel for portfolio construction, risk-return analysis, and beta estimation.
- Supported group projects on portfolio diversification and investment strategy, enhancing students' applied financial modeling skills.

Tutor – Financial Principles (FIN20010), UCD Quinn School of Business 09/2022 – 12/2023

- Delivered tutorials for over 250 undergraduate students on core finance topics, including time value of money, financial statement analysis, and capital budgeting.
- Supported learning through problem-solving workshops and interactive exercises to improve quantitative and conceptual understanding.
- Enhanced student performance by tailoring explanations to diverse learning needs.

Teaching Assistant – Quantitative Methods, UCD Smurfit School 09/2022 – 12/2022

- Provided one-on-one and small group tutorials for MSc Finance students requiring additional support for quantitative methods coursework.
- Assisted students in understanding key concepts such as matrix algebra, optimization techniques, and applied econometrics to prepare for supplemental assessments.

- Offered targeted guidance on coursework involving MATLAB, Excel, and financial data analysis.

DATABASE MANAGEMENT

Database Group Member – UCD Smurfit Graduate Business School 09/2021 – 09/2025

- Assisted in maintaining access and supporting renewals for key financial databases (Bloomberg, FactSet, CRSP, OptionMetrics, Cirium, OpRisk, and LSEG Workspace).
- Contributed to the migration process from Refinitiv Eikon to LSEG Workspace and monitored usage limits.
- Supported allocation of database access among faculty, PhD students, and researchers.
- Participated in group meetings on database management, renewals, and acquisitions.

RESEARCH SKILLS

Quantitative Analysis: Python, R, Stata, SPSS
Research Tools: LaTeX, Git, Jupyter Notebook
Visualization: Tableau, Excel, Bloomberg
Languages: English (fluent), Mandarin (native)

AWARDS AND SCHOLARSHIPS

Best Paper Award – International Society for the Advancement of Financial Economics 07/2024

- Awarded for the paper *Unmasking Greenwashing: ESG's Impact on Chinese Stock Returns*, presented at the ISAFE 2024 conference.
- Recognized for contributions to ESG factor pricing and greenwashing index construction.

University College Dublin – CSC Scholarship (4 years) 09/2021 – 08/2025

- Fully funded doctoral scholarship covering tuition and living expenses for PhD studies in Finance at UCD Smurfit Graduate Business School.

SEMINARS & COURSES

- **MBA Guest Student – Yale School of Management** 09/2022 – 12/2022
  Participated in the MBA-level course as a guest student. Performed and presented detailed equity analyses of L'Oréal and Estée Lauder, applying advanced valuation techniques and financial modeling tools. Developed hands-on skills in Bloomberg Terminal and financial statement analysis.
- **Sustainable Finance Summer School – Erasmus University (ERIM PhD Programme)** 06/2023
  Attended an intensive programme covering ESG valuation, sustainable capital structures, and long-term value creation. Enhanced understanding of sustainable investing frameworks and their application in corporate finance research.
- **Research Seminars – UCD Smurfit Graduate Business School** 2021 – 2025
  Actively participated in faculty-led and guest speaker seminars on sustainable finance, ESG ratings, and climate policy uncertainty. Regularly engaged in discussions on emerging topics such as carbon pricing, climate risk in financial markets, and greenwashing behavior.
- **Workshops on Financial Databases and Tools – UCD Smurfit School Library** 2021 – 2025
  Completed training on the use of Bloomberg, Eikon (LSEG Workspace), FactSet, and OptionMetrics for financial data extraction and analysis. Attended workshops on database migration and management.

REFERENCES

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