Jiwei Liu

jiwei.liu@durham.ac.uk • Durham University Business School

Corporate Finance Innovation Entrepreneurial Finance

WORKING PAPER

Access to Finance and FinTech Innovation Around the World

with Hans Degryse (KU Leuven), Xian Gu (Durham University), and Oskar Kowalewski (IESEG)

We examine how financial development shapes the creation and diffusion of FinTech innovation worldwide. Using a novel global dataset covering over 300,000 financial patents and patent transactions across 105 countries (1990–2020), we identify financial patents through a combined CPC-based search and PatentSBERTa text-classification framework. We distinguish between innovation (new filings) and adoption (patent acquisitions). Financial development is strongly associated with both margins, while regulatory sandboxes partially substitute for deep markets in less developed systems. Internally generated patents generate stronger knowledge spillovers, whereas acquired patents are more closely linked to subsequent firm sales growth, highlighting a divergence between public and private returns to innovation.

Presentations: Edinburgh Financial Technology Conference 2026; 2026 Global AI Finance Research Conference, Taipei*

Green Innovation Spillovers Through Production Networks

Single authored

This paper asks whether green innovation spreads beyond directly regulated industries through inter-industry production networks. Using BEA input-output tables to construct downstream green innovation exposure for 84,700 U.S. firm-years (1997–2021), I find that the answer depends on network strength: below the 75th percentile of downstream economic importance, downstream green innovation displaces focal firm patenting (18.2% decline); above it, knowledge spillovers dominate (13.5% increase). The spillover is additive — firms add green patents without reducing non-green output — and concentrated in the same CPC technology domains as their downstream industries. Results survive predetermined IO weights and a placebo permutation test, identifying production networks as a regulation-independent channel for the green transition.

Presentations: 11th ZEW Conference on the Economics of Innovation and Patenting 2026

* Presented by coauthor

WORK IN PROGRESS

Syndicated Lending and AI Innovation

with Xian Gu (Durham University)

Links DealScan syndicated loans to Google Patents through Orbis ultimate-owner records, identifying AI patents with a classifier applied to the assignee corpus, to ask whether a lead arranger's own AI invention changes the contracts it writes. Measuring the lender at its time-varying bank-holding-company parent, rather than the booking entity DealScan reports, overturns several results obtained from the naive match. Across roughly 104,000 facilities (1985–2025), US bank lead arrangers holding AI patents filed in the preceding five years arrange facilities about 30% larger at slightly shorter maturities, with the effect increasing in the number of AI patents and in the breadth of the bank's early entry across AI subfields. Covenants, renegotiation and ex-post borrower performance are unchanged, pointing to a capacity channel rather than improved screening.

DISCUSSANT

Edinburgh Financial Technology Conference 2026
11th ZEW Conference on the Economics of Innovation and Patenting 2026

EDUCATION

Durham University 2023 – Present
Ph.D. in Finance
Supervisor: Prof. Xian Gu Co-Supervisor: Prof. Nan Xiong

Durham University 2019 – 2021
Master of Science in Business Analytics

Durham University 2015 – 2019
Bachelor of Arts in Accounting and Finance

Sun Yat-sen University 2014 – 2015
Bachelor of Arts in Anthropology

TEACHING

Tutorial 2024
Econometric Methods (MSc), Durham University Business School
Instructor: Prof. Kumushoy Abduraimova

WORK EXPERIENCE

Head Office Management Trainee 2021 – 2022
Fudian Bank Co. Ltd., Kunming, Yunnan, China

HONORS AND AWARDS

Durham University Scholarship 2019
Durham University and CSC Joint Scholarship 2023 – 2026
DUBS Postgraduate Research Community Contribution Award 2025
EFA Travel Grant 2026
ZEW Travel Grant 2026

SERVICE

Finance Chair, Durham University Business School Doctoral Society 2024 – 2025

RESEARCH WORKSHOPS

Summer PhD Workshop on Entrepreneurial Finance 2025
Instructor: Prof. Michael Ewens, Columbia University
Pre-EFA PhD Program 2026
Ghent University

MISCELLANEOUS

Languages Chinese (native), English (advanced), French (elementary)
Software Python, R, Stata, MySQL, LaTeX
Hobbies Tennis, Swimming, Photography