Xingze Du
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Dear Members of the Selection Committee,

I am writing to apply for the NBER Innovation Research Boot Camp 2026. I am a PhD candidate in Finance at the PBC School of Finance, Tsinghua University, having entered the program in 2023 and expecting to graduate in 2028.

My research focuses on the intersection of financial technology and innovation finance. In particular, I study how fintech adoption affects the allocation of patent-backed loans and the financing constraints of high-tech firms and start-ups. I further compare patent-backed loans with stock pledge loans and find that patent-backed lending relies more heavily on fintech to evaluate high-quality intangible assets, which are inherently more difficult to assess.

My future research agenda will further explore the economic consequences of firms' exposure to financial technology and the determinants of corporate automation decisions. These questions are particularly salient in the current era of artificial intelligence and rapidly advancing digital technologies, which are fundamentally reshaping firms' production processes, organizational structures, and financing environments.

I am very interested in attending this boot camp because its focus on innovation closely aligns with my research interests. I am particularly eager to deepen my understanding of frontier research methodologies, contribute to scholarly dialogue, and refine my ongoing work through rigorous discussion and feedback.

My recommendation letter writer is:

Xuan Tian, Vice Dean
Deputy to the 14th National People's Congress of PRC
JD Capital Chair Professor of Finance
"Cheung Kong Scholar" Distinguished Professor
PBC School of Finance, Tsinghua University
Personal website: http://xuantian.info
Academic papers: http://ssrn.com/author=464869

Thank you very much for your consideration. I sncerely appreciate your time and look forward to the opportunity to participate.

Sincerely,
Xingze Du

Xingze Du

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EDUCATION

PBC School of Finance, Tsinghua University, China

Ph.D. in Finance — 2023-Present

Central University of Finance and Economics, China

B. A. in Mathematical Economics — 2019-2023

RESEARCH INTEREST

Corporate Finance, Innovation, Entreprenuership

WORKING PAPERS

[1] Lending to Technology: Fintech Adoption and Patent Pledgeability

with Chunrui Liu (University of international Business and Economics) and Xuan Tian (Tsinghua University)

[2] Production Uncertainty and Firms' Automation Decisions

GRANTS AND HONORS

National Scholarship (¥8000)	2020-2021
Beijing Municipal Merit Student	2023
Beijing Municipal Outstanding Graduate	2023
Tsinghua Friends–PBCSF China Gold Coin Scholarship (¥1000, awarded twice)	2023-2025

SOCIAL SERVICES

Teaching Assistant, FinTech Industry Practice	2024
Teaching Assistant, Financial Derivatives	2025
Teaching Assistant, English Speaking for Master's Students	2025

COMPLETED PhD COURSES

Advanced Macroeconomics I, Advanced Macroeconomics II

Advanced Econometrics I, Advanced Econometrics II

Advanced Microeconomics I, Advanced Microeconomics II

Advanced Topics in Financial Economics I, Advanced Topics in Financial Economics II
Mathematics for Economists, Advanced Topics on Current Issues of Finance II,
Advanced Corporate Finance Theory, Empirical Corporate Finance Theory,
Empirical Asset Pricing, Advanced Theory of Capital Markets,
History of Financial Reform in China, Monetary Policy Analysis and New Keynesian Models,
Quantitative Methods for Policy Evaluation.

PERSONAL INFORMATION

Citizenship: China
Languages: English (Fluent), Chinese (Native)

A growing strand of literature documents that patents serve as collateral in debt contracts and that increased pledgeability of patents enhances firms' access to financing for innovation. (Mann, 2018; Hochberg et al., 2018). In parallel, Myers and Lanahan (2022) find that public R&D grants stimulate patent invention activities through spillover effect. While prior work examines how innovation is financed, little attention has been paid to the determinants of patent pledgeability itself. In this paper, we examine the role of fintech in reshaping the financing capacity and economic returns of intangible assets. Building on recent advances in natural language processing and machine learning methods (Ganguli et al., 2024; Chen et al., 2019), we investigate whether improvements in Fintech alter how intangible assets are evaluated, collateralized, and ultimately translated into credit access and firm performance.

Unlike traditional collateral backed by tangible assets, the value of patent rights depends heavily on factors such as technological prospects, legal enforceability, and commercialization potential, which is difficult to quantify. These features give rise to severe information asymmetries, including moral hazard and adverse selection. As a result, bank risk management departments often adopt a cautious stance toward patent-backed lending, categorizing it as a asset class with high risk and placing it at a disadvantage in credit allocation.

However, for startups and high-tech companies, patents frequently constitue their core pledgeable assets. The development of an effective patent-backed lending market is therefore a critical financial infrastructure for alleviating financing constraints faced by innovative firms and expanding access to debt financing.

Our study uses detailed transaction-level data to show that financial technology enhances banks' ability to evaluate both the value of intangible assets and the underlying quality of borrowing firms through the hard-information channel. We further document that this effect is significantly stronger for loans secured by patent collateral than for those backed by equity collateral, highlighting the particular importance of information processing in the valuation of intangible assets.

My future research agenda will further explore the economic consequences of firms' exposure to financial technology and the determinants of corporate automation decisions. These questions are particularly salient in the current era of artificial intelligence and rapidly advancing digital technologies, which are fundamentally reshaping firms' production processes, organizational structures, and financing environments (Acemoglu and Restrepo, 2020; Acemoglu and Restrepo 2022; Benmelech and Zator, 2025).

I am especially eager to participate in the NBER Innovation Boot Camp, as its thematic focus closely aligns with both my research agenda and that of my advisor. The adoption of new technologies and automation upgrade also represent the innovation of firms' producing procedure and organizational structures. I look forward to engaging with leading scholars and fellow PhD students to learn advanced methodologies and explore frontier research questions in innovation and entrepreneurship. At the same time, I am confident that my ongoing research and the rigorous methodological training I received during the first two years of my PhD will enable me to engage actively and contribute meaningfully to scholarly discussions.

I would be deeply grateful for the opportunity to participate in the Boot Camp and further develop my research within such an inspiring scholarly environment. Thank you very much for considering my application.

REFERENCES

Acemoglu D, Restrepo P. Robots and jobs: Evidence from US labor markets[J]. Journal of political economy, 2020, 128(6): 2188-2244

Acemoglu D, Restrepo P. Tasks, automation, and the rise in US wage inequality[J]. Econometrica, 2022, 90(5): 1973-2016.

Benmelech E, Zator M. Robots and firm investment[J]. Journal of Financial Economics, 2025, 174: 104183.

Chen M A, Wu Q, Yang B. How valuable is FinTech innovation?[J]. The Review of financial studies, 2019, 32(5): 2062-2106.

Ganguli I, Lin J, Meursault V, et al. Patent text and long-run innovation dynamics: the critical role of model selection[R]. National Bureau of Economic Research, 2024.

Hochberg Y V, Serrano C J, Ziedonis R H. Patent collateral, investor commitment, and the market for venture lending[J]. Journal of Financial Economics, 2018, 130(1): 74-94.

Mann W. Creditor rights and innovation: Evidence from patent collateral[J]. Journal of Financial Economics, 2018, 130(1): 25-47.

Myers K R, Lanahan L. Estimating spillovers from publicly funded R&D: Evidence from the US Department of Energy[J]. American Economic Review, 2022, 112(7): 2393-2423.