BOSTON COLLEGE
Carroll School of Management

To: Brett Maranjian
National Bureau of Economic Research
1050 Massachusetts Avenue
Cambridge, MA 02138, US

January 17, 2022

Dear Brett:

I am Jiajie Xu, a fifth-year Ph.D. student in Finance at Boston College and will join the University of Iowa's Tippie College of Business as an Assistant Professor in Finance. My research interests are innovation and entrepreneurial finance. My current research projects are focused on the financing of innovation and the role of government in promoting local innovation and entrepreneurship. As I have written my dissertation in the area of innovation and entrepreneurship and I am devoted to doing research in the area, I sincerely hope to get in the 2022 NBER Innovation Research Boot Camp to get exposure to frontier research and leading topics in innovation.

My advisor is Prof. Thomas Chemmanur in the Department of Finance of Boston College, who is writing me the recommendation letter. I have a working paper with him and we analyze the impact of angel investors on start-up's patenting activities and inventor flows. I have published one paper in the *Review of Finance* analyzing the effect of a Chinese place-based policy on local innovation and entrepreneurship. My solo-authored paper analyzes how angel investors impact local firms' innovation, sales, and employment, and it is under revision at the *Journal of Financial and Quantitative Analysis.* I have presented my paper in leading economics and finance conferences, including the AEA and AFA.

I sincerely hope to have the opportunity to participate in the 2022 NBER Innovation Research Boot Camp and get to know the leading topics and scholars in the area! Please let me know if you have any questions. You can reach me by phone at 857-361-9833 or by email at jiajie.xu@bc.edu.

Sincerely,

Jiajie Xu
Ph.D. Candidate in Finance
Carroll School of Management
Boston College

Jiajie Xu

Finance Department | Carroll School of Management | Boston College
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EDUCATION

Boston College, Carroll School of Management *2017 – 2022*
Ph.D. in Finance
Dissertation Committee:
Thomas Chemmanur (Chair), Francesco D'Acunto, Ran Duchin, Hassan Tehranian, and Xuan Tian

Peking University, Guanghua School of Management *2015 - 2017*
M.A. in Finance

Fudan University, School of Economics *2011 - 2015*
B.A. in Economics *(Class of Mathematical Economics)*

AREAS OF INTERESTS

Entrepreneurial Finance, Innovation, Empirical Corporate Finance, and Urban/Real Estate

RESEARCH PAPERS

1. "**The Effect of Tax Incentives on Local Private Investments and Entrepreneurship: Evidence from the Tax Cuts and Jobs Act of 2017**" (*Single-Authored*)
   - *Conferences: 2022 AEA, 2022 MFA, 2021 UEA, 2021 FMA Doctoral Student Consortium, 2021 FMA Job Market Paper Session*
2. "**Is There a Trade-Off between Protecting Investors and Promoting Entrepreneurial Activity? Evidence from Angel Financing**" (*Single-Authored*)
   - **R&R at *Journal of Financial and Quantitative Analysis***
   - *Featured in World Bank Blogs*
   - *Conferences: 2021 AFA (Poster), 2021 MFA, 2021 EasternFA, 2021 WEFI-Student*
3. "**Angels and Venture Capitalists: Complementarity versus Substitution, Financing Sequence, and Relative Value Addition to Entrepreneurial Firms**" with Thomas Chemmanur and Harshit Rajaiya
   - *Semi-Finalist for the FMA Best Paper Award, 2021*
   - *Featured in The CLS Blue Sky Blog*
   - *Conferences: 2021 NFA, 2021 FMA*
4. "**Do Place-Based Policies Promote Local Innovation and Entrepreneurship?**" with Xuan Tian
   - **Accepted at *Review of Finance***
   - *Conferences: 2019 WFA, 2019 CICF, 2019 CFRC*
5. "**Product Life-Cycle and Initial Public Offerings**" with Tina Oreski
   - *Conferences: 2022 AFA (Poster), 2021 ENTFIN, 2021 AFFI, 2021 SFI Research Day*
6. "**Trading Restriction as a Channel of Financial Contagion: Evidence from China's Stock Market**" with Laura Xiaolei Liu and Ninghua Zhong
   - *Featured in VoxChina*
   - *Conferences: 2021 CMES, 2020 Guanghua School of Management Alumni Research Forum, 2017 CICF*

HONORS & AWARDS

2021 Mitsui Center Summer School on Structural Estimation in Corporate Finance
2019 NBER Entrepreneurship Research Summer Boot Camp
2019 AFA Ph.D. Student Travel Grant
2017 Boston College Carroll School of Management Ph.D. Scholarship
2016 China National Scholarship

CONFERENCE & SEMINAR PRESENTATIONS

*(including scheduled; *= presented by co-author)*

2022 American Economic Association (AEA) Annual Meeting (Virtual)
Midwest Finance Association (MFA) Annual Meeting (Virtual)
AFA Ph.D. Student Poster Session (Virtual)*

2021 AFA Ph.D. Student Poster Session (Virtual)
Midwest Finance Association (MFA) Annual Meeting (Virtual)
Eastern Finance Association (Eastern) Annual Meeting (Virtual)
Urban Economics Association (UEA) Annual Meeting (Virtual)
Financial Management Association (FMA) Annual Meeting (Denver)
Workshop on Entrepreneurial Finance and Innovation (WEFI) - Student Workshop (Virtual)
Northern Finance Association (NFA) Annual Meeting (Virtual)*, China Meeting of the Econometric Society (CMES) (Shanghai)*, French Finance Association (AFFI) Annual Meeting (Virtual)*, 5th Entrepreneurial Finance Conference (Virtual)*, SFI Research Day*
Boston College, University of Iowa, Iowa State University, Tulane University, Washington State University, University of Delaware, University of Tennessee, University of Oklahoma, University of Arizona, University of Arkansas, University of Hong Kong, Hong Kong Polytechnic University

2020 Guanghua School of Management Alumni Research Forum (Virtual)
Boston College

2019 Western Finance Association (WFA) Annual Meeting (Huntington)
China International Conference in Finance (CICF) (Guangzhou)*, China Financial Research Conference (CFRC) (Beijing)*
Boston College

2017 China International Conference in Finance (CICF) (Hangzhou)*

PROFESSIONAL ACTIVITIES

Referee:

- *Journal of Banking and Finance*

Discussant:

- 2021 FMA, "*Amazon Is Coming to Town: Private Information and Housing Market Efficiency*" by Yifan Chen, Sean Wilkoff, and Jiro Yoshida
- 2021 UEA, "*Direct, Spillover and Welfare Effects of Regional Firm Subsidies*" by Sebastian Siegloch, Nils Wehrhofer, and Tobias Etzel
- 2021 EasternFA, "*Syncing Innovation to Avoid Sinking: Supplier Response to Customer Covenant Violations*" by Srinivasan Selvam and Kelvin Tan

TEACHING EXPERIENCE

2021 Fundamentals of Finance (Undergrad), Teaching Assistant for Prof. Hassan Tehranian
2021 Fundamentals of Finance (Undergrad), Teaching Assistant for Prof. Ran Duchin
2020 Investment Banking (Undergrad), Teaching Assistant for Prof. Darren Kisgen
2020 Corporate Finance (MBA), Teaching Assistant for Prof. Andrey Malenko
2018 Corporate Finance (Undergrad & MBA), Teaching Assistant for Prof. Rawley Heimer

INDUSTRY EXPERIENCE

2014 American Securities, Shanghai - Intern
2013 Bain & Company, Shanghai - Intern

LANGUAGES & SKILLS

Languages: English (fluent) and Chinese (native)
Computer skills: Stata, Python, R, LaTeX, Linux, Matlab

Course History

Jiajie Xu, Boston College

Course	Course Title	Credit	Term	Instructor(s)
MFIN889501	PhD Seminar: Advanced Topics In Corporate Finance II	3	Spring 2019	Fos, Vyacheslav
MFIN886301	PhD Seminar: Empirical Asset Pricing	3	Spring 2019	Balduzzi, Pierluigi
ECON885501	Empirical Methods In Applied Microeconomics	3	Spring 2019	Sweeney, Richard L Murry, Charles T
MFIN888801	PhD Seminar	1	Spring 2019	Balduzzi, Pierluigi Malenko, Nadya
MFIN889601	PhD Seminar: Advanced Topics In Corporate Finance I	3	Fall 2018	Malenko, Nadya
ACCT889101	PhD Seminar: Empirical Topics In Accounting I	3	Fall 2018	Roychowdhury, Sugata
MFIN889903	Directed Study	1	Fall 2018	Balduzzi, Pierluigi
MFIN888501	PhD Seminar: Advanced Topics In Asset Pricing	3	Fall 2018	Albuquerque, Rui
ECON774101	Microeconomic Theory II	4	Spring 2018	Segal, Uzi Unver, M Utku
ECON777201	Econometric Methods	3	Spring 2018	Lewbel, Arthur
MFIN888101	Advance Corporate Finance	3	Spring 2018	Chemmanur, Thomas
MFIN889101	Doctoral Seminar In Corporate Finance	3	Spring 2018	Chemmanur, Thomas
MFIN889903	Directed Study	1	Spring 2018	Sadka, Ronnie
ECON774001	Micro Theory I	3	Fall 2017	Kraus, Marvin C Konishi, Hideo
ECON777001	Statistics	3	Fall 2017	Xiao, Zhijie
MFIN115104	Investments	3	Fall 2017	Pontiff, Jeffrey
MFIN889001	Ph.D. Seminar: Capital Markets	3	Fall 2017	Marcus, Alan
MFIN889903	Directed Study	1	Fall 2017	Balduzzi, Pierluigi

Essay

Jiajie Xu, Boston College and University of Iowa

I am Jiajie Xu, a fifth-year Ph.D. student in Finance at Boston College and I will join the University of Iowa's Tippie College of Business as an Assistant Professor in Finance in the summer of 2022. My research interests are entrepreneurial finance and corporate innovation. I have done some research projects focusing on the financing of innovation and the role of government in promoting local innovation and entrepreneurship. As I have written my dissertation in the area of innovation and entrepreneurship and I am going to continue to do research in the area, I sincerely hope to get in the 2021 NBER Innovation Research Boot Camp to get exposure to the frontier research and leading topics in innovation. I will introduce my related research experience in the area of innovation in the following.

My dissertation consists of three papers that analyze how early-stage funding impacts the birth and performances of entrepreneurial firms. A critical aspect of start-up performance is its innovation outputs. In my sole-authored paper, "Is There a Trade-Off between Protecting Investors and Promoting Entrepreneurial Activity? Evidence from Angel Financing," I analyze how changes in investor protection regulations affect local entrepreneurial activity including successful exits and innovation, relying on the heterogeneous impact of a 2011 SEC regulation change on the definition of accredited investors across US cities. I show that cities more affected by the regulation change experienced a significantly greater decrease in local angel financing, entrepreneurial activity, innovation output, employment, and sales. My cost-benefit analysis suggests that the costs of protecting angel investors through the 2011 regulation change outweigh its benefits. This paper has received a third-round revision request from the *Journal of Financial and Quantitative Analysis*.

In my paper coauthored with Xuan Tian, published at one of the top finance journals, *Review of Finance,* we study how a prominent place-based policy in China, the national high-tech zones, affects local innovation and entrepreneurial activities. Relying on staggered establishments of national high-tech zones across China and using a difference-in-differences approach, we find that establishing national high-tech zones has a positive effect on local

innovation output and entrepreneurial activities. We show that access to financing resources, reductions in administrative burdens, and talent cultivation are three plausible underlying channels that enable national high-tech zones to affect local innovation and entrepreneurship positively.

I have another working paper with Prof. Thomas Chemmanur, my dissertation committee chair and in the Finance Department of Boston College, and Harshit Rajaiya at the University of Ottawa. We study how angel investors are different from venture capitalists in adding value to US start-ups and influencing the successful exit, the quantity and quality of patents, and the inventor net inflows of these start-ups. The paper has been selected as the Semi-Finalist for the 2021 FMA Best Paper Award and presented at leading finance conferences, including the 2021 Northern Finance Association Annual Meeting.

I plan to explore two ideas related to innovation in the future. The first project would use a machine learning approach to show whether and how frivolous class-action lawsuits in the public market discourages corporation innovation and investments in research and development. In the second project, I will study the research and development in the orphan drug industry and understand the market frictions that lead to the underinvestment in profitable orphan drugs.

To conclude, my research is focused on innovation and entrepreneurial finance. I have a few projects analyzing how to better finance innovation, especially innovation generated by young firms, using data from the US and China. I sincerely hope to have the opportunity to participate in the 2021 NBER Innovation Research Boot Camp and get to know the frontier research and discuss research with scholars in the area. Thank you for the consideration of my application!



BOSTON COLLEGE

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The Wallace E. Carroll School of Management
Chestnut Hill, MA 02467

Thomas J. Chemmanur
Professor of Finance and Hillenbrand Distinguished Fellow
Carroll School of Management
Boston College
Chestnut Hill, MA 02467
Phone: (617) 552-3980
E-mail: chemmanu@bc.edu

To: The Finance Recruiting Committee

January 17, 2022

Dear Professor:

It is my pleasure to recommend Jiajie Xu, one of our doctoral students, for the NBER Innovation Boot Camp this summer. I am the chair of her Ph.D. dissertation committee (main advisor). Jiajie is in her fifth year in the Boston College Ph.D. program in Finance, and is joining the University of Iowa's Tippie College of Business as an Assistant Professor in Finance this summer.

Jiajie has been focused on doing research in the area of entrepreneurial finance and innovation in the past few years. Jiajie has six completed papers, including one published paper and five working papers. Below, I will describe four of Jiajie's completed papers that are relevant to innovation. Jiajie's solo-authored paper, **"Is There a Trade-Off between Protecting Investors and Promoting Entrepreneurial Activity? Evidence from Angel Financing,"** studies how changes in investor protection regulations affect local entrepreneurial activity, relying on the heterogeneous impact of a 2011 SEC regulation change on the definition of accredited investors across U.S. cities. Using a difference-in-differences approach, Jiajie shows that cities more affected by the regulation change experienced a significantly larger decrease in local angel financing, entrepreneurial activity, innovation output, employment, and sales. In the cost-benefit analysis, Jiajie shows that the SEC regulation change imposed a real cost on the local economy due to loss of patents, employment, and sales generated by angel-backed firms that were not financed due to the regulation change. The paper has been presented at numerous conferences, including the *2021 American Finance Association Ph.D. Student Poster Session, 2021 Midwest Finance Association Annual Meetings*. This paper is under third round review at the *Journal of*

Financial and Quantitative Analysis, and based on my reading of the last referee report and decision letter (which Jiajie shared with me), has a good chance of being accepted there soon. I believe that it is likely to be well-cited in the future, given its important contribution to entrepreneurial finance and its policy implications.

Jiajie's second completed paper is co-authored with me and Harshit Rajaiya (a former finance doctoral student of mine from Boston College, now starting his second year as an Assistant Professor of Finance at the University of Ottawa), and is titled, **"Angels and Venture Capitalists: Complementarity versus Substitution, Financing Sequence, and Relative Value Addition to Entrepreneurial Firms."** In this paper, Jiajie, Harshit and I use a large sample of angel and venture capital (VC) financing data from the Crunchbase and VentureXpert databases, patent data from the USPTO, and private firm data from the NETS database to address three important research questions. First, we analyze the relative extent of value addition by angels versus VCs to startup firms. Second, we analyze the question of whether VC and angel financing are complements or substitutes. Third, we analyze how the financing sequence (order of investments by angels and VCs across rounds) of startup firms is related to their probability of successful exit. The paper was presented at the recent *2021 Northern Finance Association Annual Meetings.* I am confident that this paper will eventually be published in a top finance journal.

Jiajie's third paper is co-authored with Xuan Tian of the PBC School of Finance at Tsinghua University and is forthcoming at the *Review of Finance*. The paper is titled **"Do Place-Based Policies Promote Local Innovation and Entrepreneurship?"** In this paper, Jiajie and Xuan make use of data from China to study how a prominent place-based policy in China, the national high-tech zones, affects local innovation and entrepreneurial activities. Relying on a plausibly exogenous variation in place-based policies caused by staggered establishments of national high-tech zones and using a difference-in-differences approach, they find that the establishment of national high-tech zones has a positive effect on local innovation output and entrepreneurial activities. Additional tests show that access to financing resources, reductions in administrative burdens, and talent cultivation are three of the underlying channels that allow the establishment of national high-tech zones in China to positively affect local innovation and entrepreneurship.

Jiajie's fourth completed paper is co-authored with Tina Oreski, a doctoral student from the Swiss Finance Institute (and a visiting doctoral student at the Boston College Finance Ph. D. program while this paper was initiated), and is titled, **"Product Life-Cycle and Initial Public Offerings."** This paper examines how firms' product life-cycle (PLC) influences their trade-off between benefits and costs of going public. Jiajie and Tina construct their product life-cycle measure by performing a textual analysis on the IPO prospectuses of firms going public. They show that firms with a more product-innovative PLC are more likely to complete the IPO even though they face higher underpricing and offer a lower fraction

of equity at IPO. Further, these firms conduct more seasoned equity offerings, payout fewer dividends, and conduct fewer acquisitions after IPO. To establish causality, they use an instrumental variable approach with the average PLC of similar public firms as the instrument for an IPO firm's PLC as well as a difference-in-differences approach.

In summary, I would say that Jiajie could benefit greatly from the NBER Innovation Boot Camp Program, since she is a very smart and diligent researcher working in the area of innovation and entrepreneurship. I therefore feel comfortable in recommending her strongly for the NBER Innovation Boot Camp. If you have any questions about Jiajie, please feel free to call (Phone: 617 552 3980) or e-mail me (chemmanu@bc.edu).

Sincerely,



Thomas J. Chemmanur