NBER Entrepreneurship Research Boot Camp
Summer, 2018

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GRADUATE STUDIES:

- Duke University Fuqua School of Business, Ph.D. in Finance, 2015 to present
  Expected Completion Date: Spring 2020

PRIOR STUDIES:

- LSE, M.Sc. in Finance & Economics, 2015
- Cornell University, B.A. in Mathematics and B.A. in Economics, 2014

ACADEMIC INTERESTS:

- private equity and venture capital
- entrepreneurial finance
- corporate finance

HONORS, AWARDS AND SCHOLARSHIPS:

- 2017: Fellow participant, Structural Estimation Summer School at University of Michigan, Ross School of Business
- 2016: Fellow Participant, UNC Tax Doctoral Seminar
- 2015-now: PhD Fellowship, Duke University Fuqua School of Business
- 2008-2010,2012-2014: Dean's list for academic excellence, Cornell University

RESEARCH EXPERIENCE AND OTHER EMPLOYMENT:

- 2016-2018: Duke University, RA for John Graham, Duke University Fuqua School of Business
- 2013-2014: Cornell University, RA for Hyunseob Kim, Cornell University Johnson School of Management

- 2013: Cornell University, RA for Lionel Levine, Cornell University College of Arts and Sciences Department of Mathematics
- 2012: Boston Consulting Group, Summer Research Assistant
- 2010-2012: Republic of Korea Army, mandatory military service

MEDIA MENTIONS:

- "The One Tax Change That Really Bites Businesses" *Wall Street Journal*, 12/19/2017

TEACHING EXPERIENCES:

- 2017-2018: TA for David Robinson, MBA Venture Capital and Private Equity
- 2016-2018: TA for Manju Puri, MBA Raising Capital
- 2016-2018: TA for John Graham, MBA Corporate Finance

PRESENTATIONS:

- 2017: Duke Fuqua Finance Brownbag

PHD COURSEWORK:

- Microeconomics I
- Econometrics I
- Econometrics II
- Discrete-Time Asset Pricing
- Theoretical Asset Pricing
- Corporate Finance Theory
- Empirical Corporate Finance (Duke Fuqua)
- Empirical Corporate Finance (UNC Kenan-Flagler)
- Empirical IO seminar - Entry Models
- Empirical IO seminar - Innovation, Productivity, and Technological Change
- Empirical IO seminar - Quantitative Dynamic Model
- Empirical Macro seminar: Macroeconomics with Heterogenous Agents

Application Essay:

My academic interest in entrepreneurial finance and private equity began after I read "A Survey of Venture Capital Research" (Da Rin et al. (2013)). My primary research objective in this area is to build quantitative industry equilibrium models of markets that entrepreneurs participate in to understand how competition and frictions in those markets shape entrepreneur's choices and equilibrium outcomes. My exposure to entrepreneurial finance has almost exclusively focused on understanding the role of VCs. I view this workshop as a great opportunity to get rigorous training in other areas of entrepreneurship and develop a sharper sense for which research questions I can most productively apply my research skills.

Recognizing that structural modelling and estimation requires intense training before I know these tools enough to apply them to research questions that I care about, I allocated substantial time during my first 3 years as PhD student to taking classes at Duke Economics department to develop sufficient background. At Duke, I took several empirical IO seminars that train students to model and estimate not only single-agent optimization problems, but also industry equilibrium models that allows researchers to quantify equilibrium effects by imposing Markov Perfect Equilibrium to the data. Beyond these courses, I also participated in the Structural Estimation Summer School held at University of Michigan Ross School of Business, organized by Prof. Toni Whited and Luke Taylor. Through the summer school, I learned how to execute Simulated Method of Moments (SMM) estimator to estimate structural parameters in empirical models. Beyond obtaining this technical knowledge, I developed a sharper sense for how to apply these quantitative modeling and estimation techniques to answer research questions through instructors' discussion of numerous applied papers.

As I accumulated technical knowledge of these tools, I began applying them to several research questions that I found worth pursuing. Thus far, my research efforts focused mostly on topics related to LBOs. For example, my 2nd year paper quantifies effects of carry tax rate on buyout fund mangers' various decisions and buyout fund performance. I recently began a new project that seeks to quantify how LBOs disrupt local markets.

From reading survey papers on private equity and entrepreneurial finance, I recognize that entrepreneurial finance and private equity encompass more than just LBOs and that I need expert knowledge in other areas of entrepreneurship before I can start to build quantitative models that address research questions in those fields. A first step toward building a model is to understand

which economic forces and institutional details quantitatively matter the most. I believe ERBC is an excellent opportunity to develop this knowledge.

In general, I believe modelling and estimating industry equilibrium models will be a useful exercise in the field of entrepreneurial finance for the following reasons. First, endogeneity problem is common in empirical research in entrepreneurship, and structural modelling and estimation overcomes this empirical hurdle by making explicit assumptions on economic agents' constrained optimization problem. Second, structural modelling allows researchers to conduct counterfactual experiments within his model to assess effects of various public policies meant to promote innovation and entrepreneurship. Third, structural modelling allows researchers to quantify industry equilibrium effects. For example, choice of VC to invest in a startup or not may be a function of choices of other VCs. It remains an open question whether this peer effect is quantitatively important. I elaborate more on this idea below.

One research question that I am interested in tackling is how competition in VC industry shapes entrepreneurship. VC industry is largely an oligopolistic industry where prestigious VCs have strong bargaining power when contracting with entrepreneurs due to their ability to add more value than less reputable VCs (Sorensen (2007)). Prior research shows that entrepreneurs have strict preference for more reputable VCs (Hsu (2004)). In this sense, choices by reputable VCs matter for optimal choices of less reputable VCs since large investments by reputable VCs leave few profitable investment opportunities for less reputable VCs. While previous research documents well that better VCs add more value to portfolio companies, no paper has yet to quantify important consequences of this skill heterogeneity in industry equilibrium. Skill heterogeneity may matter in equilibrium in the following two respects. First, skill heterogeneity may discourage entry of new VCs since potential entrants recognize that entrepreneurs prefer incumbent VCs who are more experienced. Second, this gives incumbent VCs more market power and incumbents may extract more rents from entrepreneurs. This in turn discourages entrepreneurship. In summary, my project seeks to address *both* the bright side and dark side of VC skill heterogeneity. Bright side is that more experienced VCs add more value to their portfolio companies, which encourages entrepreneurship since entrepreneurs know that they will gain more from initiating relationships with VCs. Dark side is that VC skill heterogeneity lowers competition in VC industry and incumbent VCs extract more rents from entrepreneurs, which discourages entrepreneurship.

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March 19, 2018

David Robinson
Academic Coordinator
NBER Entrepreneurship Boot Camp

Dear David,

I am writing this recommendation letter on behalf of YoungJun Song, a doctoral student in finance at the Fuqua School of Business.

I have known YoungJun over the last two years and have interacted with him often. YoungJun has served as my teaching assistant for my MBA elective on "Raising Capital." I am also advising him on his research.

YoungJun is is extremely interested in entrepreneurial finance. He is proactive in seeking new ideas and getting involved in research. Over the last year he has been working on structural models on how competition in the VC industry shapes entrepreneurship. YoungJun has a lot of energy and enthusiasm and has invested heavily in learning structural techniques through a number of IO courses. He has also invested heavily in learning the VC industry and volunteered to serve as a TA for the MBA Venture capital and private equity class in order to better understand the VC industry and institutional details.

YoungJun has some ideas that he is currently working on, but would benefit enormously from attending the boot camp. It is sure to influence his thinking and research path in a first order way, as it has for my past students who have attended.

Overall, I think YoungJun has excellent potential and I urge you to give him your serious consideration. If you have any questions, please feel free to call me.

Yours sincerely,

Manju Puri