LeBow

DREXEL UNIVERSITY
LEBOW COLLEGE OF BUSINESS
Department of Economics and International Business

Dear Professor Hellmann,

I am pleased to submit my application for the 5th NBER Entrepreneurship Research Boot Camp. I am a fourth year Ph.D. candidate at the Department of Economics at Drexel University. My research interests lie in the venture capital market and entrepreneurship.

Professor Konstantinos Serfes, my dissertation adviser, has sent a letter of recommendation separately in support of my application. Please find enclosed my application including my Curriculum Vitae, a list of all completed PhD courses and a two-page essay explaining my current and future research directions and how the Boot Camp would help me achieve my research objectives.

Thank you very much for your time and consideration.

Sincerely yours,



Suting Hong
Department of Economics
LeBow College of Business, Drexel University

7th Floor, 3600 Market Street

Philadelphia, PA 19104

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Email: sh484@drexel.edu

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March 31, 2012

Dear Professor Hellmann:

It is my pleasure to recommend **Suting Hong** for the NBER 2012 entrepreneurship research boot camp. I am the Ph.D. director for the economics department in the LeBow College of Business at Drexel University and I am serving as the chair of Suting's Ph.D. thesis committee.

Suting is a fourth year Ph.D. student in our Ph.D. program in economics. She has completed all the coursework, she has successfully passed the qualifying exams and she is now working on her thesis. Suting's research interests are in the area of entrepreneurship. She has already completed one theoretical paper that examines the role of incomplete information in the VC market and how this informational asymmetry affects the matching between VCs and entrepreneurs and the equilibrium contracts.

She is currently working on two projects. The first one is close to be ready and it is joint work with myself and Veikko Thiele (Queen's University). We examine, both theoretically and empirically, the effect of VC entry on the valuations of start-ups financed by incumbents and on the probability of a venture "succeeding". I and Veikko are more responsible for the theoretical part, while Suting has executed the empirical part. She has done an amazing job first understanding and cleaning the data (VentureXpert data set) and then working on the econometrics. She has also read very carefully the relevant literature in order to fully understand the techniques that have been used in the most closely related papers.

The second project Suting is working on is joint with myself and a colleague of mine (Mian Dai). We seek to understand the effect of VC multimarket contact on the likelihood of (tacit) collusion among VC firms. This project is still very preliminary, although Suting has found some empirical evidence in support of multimarket contact facilitating collusion, that is, the presence of the same VCs in more than one market leads to lower pre-money valuations (in concentrated markets).

Suting has understood the data, the econometric techniques most commonly used and the related literature very well. Therefore, Suting has the necessary preparation for the boot camp. Our Ph.D. program in

economics is small. We usually admit three students every year and the total number of our students is 10 right now. During my eight years at Drexel I have taught and interacted with approximately 100 Ph.D. students from all disciplines in the business school (e.g., econ, finance, accounting, marketing, management and decision sciences). I would confidently place Suting in the **top 5** students in terms of academic ability and performance, motivation and maturity. She is also very articulate and very confident. I must add here that Suting, being a finance undergraduate major, was interested in the field of entrepreneurship from the very beginning of her career as a Ph.D. student.

In sum, Suting is an excellent student, very motivated and extremely interested in entrepreneurship, and I am certain she will benefit tremendously from the research boot camp and will also be a positive externality for the other students in the program. I support her application without any reservations.

If I can provide any additional information, or be of any further assistance, please do not hesitate to contact me by phone, (215) 895-6816, or by e-mail ks346@drexel.edu.

Sincerely,

K. Serfes

Konstantinos Serfes

Associate Professor of Economics

SUTING HONG

7th floor, 3600 Market Street
Philadelphia, PA 19104

(267) 575-4002
sh484@drexel.edu

EDUCATION

Drexel University, Philadelphia, PA
Ph.D. in Economics (expected June 2013)

Nanjing University, Nanjing, China
Bachelor of Economics, Major: Finance, June 2006

RESEARCH FIELDS

Industrial Organization, Applied Econometrics, Entrepreneurship

RESEARCH PAPERS

"The Market for Venture Capital: Entry, Competition, and the Survival of New Firms" (with Konstantinos Serfes and Veikko Thiele)

We consider the market for venture capital (VC), and analyze how entry of new VC firms affects investments and the survival of start-ups. We first develop an equilibrium model of the VC market with heterogenous entrepreneurs and VC firms. Each VC firm matches endogenously with an entrepreneur, offering capital in exchange for an equity stake. We show that entry of new VC firms has a ripple effect throughout the entire market: All start-ups then receive more capital and become more likely to survive. Thus, entry creates a positive externality for all VC-backed start-ups. We then test these predictions using VC data from VentureXpert. We find strong empirical support for the existence of the ripple effect of entry in the VC market.

"Signaling in the Venture Capital Market"

This paper examines the motivation and mechanism for start-up entrepreneurs to use affiliation with venture capitalists (VCs) to signal their business idea qualities to outside investors. Previous studies suggest, through forming alliance with reputable VCs, entrepreneurs not only acquire external financial support and professional management advice, but also communicate their business idea qualities to outsiders. This study looks at the matching between heterogeneous entrepreneurs and VCs under different information settings between entrepreneurs and outside investors. The result shows that only reputable VCs participate in the market in the absence of information asymmetry. However, if information opaqueness exists between entrepreneurs and outside investors, a reputable VC would become more selective on the projects she finances and a less established VC would obtain access to deals. In addition, as VCs become closer in their expertise levels, the competition among VCs would be more intense and a less experienced VC would have a better chance to attract in entrepreneurs with high quality business ideas.

RESEARCH IN PROGRESS

Multimarket Contact and the Collusive Behavior of Venture Capital Firms

HONORS AND AWARDS

Graduate Assistantship, Drexel University, 2008-Now
Best HSBC Intern Award, HSBC Holdings plc, UK, 2007
People Scholarship, Nanjing University, 2002-2005

TEACHING EXPERIENCE

Instructor, Drexel University:
– Principles of Microeconomics, Winter 2011
– Intermediate Microeconomics, Summer 2011, Winter 2012

Teaching Assistant, Drexel University:
– Managerial Economics (MBA Course), 2009-2012
– Game Theory (Ph.D. course), Fall 2009, Fall 2011
– International Finance, 2008-2009

ACADEMIC PRESENTATIONS AND ACTIVITIES

Southern Economics Association Annual Meeting (Speaker, Discussant and Session Chair), Washington D.C., November 2011
Economics Department Seminar, Drexel University, 2010, 2011, 2012
Management Department Seminar, Drexel University, 2012

OTHER RESEARCH EXPERIENCE

Research Assistant to Konstantinos Serfes, 2010-2012
Research Assistant to Bang Nam Jeon, 2009-2011
Research Assistant to Mian Dai, 2011

COMPUTER SKILLS

STATA, Matlab

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List of Completed PhD Courses

Course Name	Grade
Statistics and Econometrics	
Mathematical Economics	A
Statistical Methods I	A
Statistical Methods II	A
Econometrics I (Cross Section)	A+
Econometrics II (Time Series)	A
Applied Microeconometrics	TBA
Micro and Macro Economics	
Advanced Microeconomics I	A+
Advanced Microeconomics II	B
Advanced Macroeconomics I	A
Advanced Macroeconomics II	A
Field Courses	
Industrial Organization I (Theory)	A
Industrial Organization II (Empirical)	A
Open Economy Macroeconomics	A-
Departmental Seminars	
Industrial Organization	A
Macroeconomics	A

Essay on Why I Would Like to Attend the Boot Camp

As a fourth year Ph.D. student at Drexel University, I have successfully completed all the course work and I am currently working on my thesis. In this essay, I first briefly describe my research interests and current research and then I delineate my future research directions. In the last section, I describe how the NBER Research Boot Camp would help me as I advance my research.

Research Interests and Current Research Projects

My research interests center on the key aspects of competition among venture capital (VC) firms and the impact they have on start-ups. The VC market is characterized by bilateral negotiations between VCs and entrepreneurs. Moreover, the bargaining processes between the two parties are interdependent: the outcome of one negotiation is likely to affect the terms in other negotiations. This market structure differs markedly from the typical industrial organization models that are used to study important issues such as entry and collusion. On the other hand, bilateral bargaining models usually do not model the whole market but typically focus on an isolated pair. Through my research I intend to advance our understanding on how the VC market works both theoretically and empirically. My main focus is to develop theoretical models that can capture the idiosyncrasies of the VC market and subsequently test the models on data to check the validity of the theoretical predictions.

At present, I am working on two research projects. The first one examines the effect of VC firms' entry on valuations and the survival rate of portfolio companies. In this joint work with Professors Konstantinos Serfes and Veikko Thiele, we first develop a theoretical framework which considers the endogenous matching between heterogeneous VC firms and start-ups. We find that the entry of new VC firms has a positive externality for all VC-backed start-ups: All start-ups receive more capital and higher valuations and they are more likely to survive. We test the theoretical predictions using data assembled from VentureXpert. The sample includes 9,078 VC-related deals in the U.S. from 1990 to 2006. We identify the entry of VC firms at the market level and define a market as a combination of geographic location and portfolio companies' industry group. We find that the entry of new VC firms is positively and significantly related to incumbent VC firms' valuations of start-ups. Furthermore, start-ups financed by incumbent VCs experience a significantly higher probability of survival upon higher entry level from new VC firms. Thus, entry of new VC firms improves the efficiency of *all* VC investments in the market.

Nevertheless, under the reasonable assumption that the positive externality of entry is not internalized, we can conclude that the entry of VC firms is insufficient from a social welfare perspective.

Future Research Directions

I will advance my dissertation research both theoretically and empirically to examine the competition and strategic behavior of VC firms and their implications to start-up companies. On this front, I am examining the strategic behavior of VC firms when they are present in multiple markets. Each market contains companies in the same industry and located in the same geographic state. I am interested in understanding how multimarket contact of VC firms facilitates collusive behavior and potentially affects the valuations given to entrepreneurs. So far, using the same data set from VentureXpert, I have identified the presence of frequent multimarket contact of VC firms and found suggestive evidence of collusive behavior of VC firms when they have multimarket contact in concentrated markets. My next agenda is to take a closer look at the relationship between VC firms' multimarket contact and the portfolio companies' valuations and build a theoretical model to guide the intuitions. I am particularly interested in answering the following two research questions from both theoretical and empirical perspectives:

a. *What drives the collusive behavior of VC firms and under what circumstances it is sustainable?*

b. *Given that VC firms collude on valuations of start-ups they finance, how does this affect the survival /success rate of these start-ups?*

How the Boot Camp Would Help

Professor Mazhar Islam, one of my dissertation committee members, attended the NBER Entrepreneurship Boot Camp in 2010. He strongly believes that I would be immensely benefited from the camp because my dissertation is so closely related to the topics covered in the camp. In addition, I am convinced that the camp will help me in gaining a better understanding of the creation and the financing choice of entrepreneurial ventures. I am confident that such understanding would enable me to examine how VC firms choose appropriate incentives for entrepreneurs and how such incentives affect the investment performances. Furthermore, I hope to learn about the competition and cooperation among VC firms. I believe such knowledge would greatly help my study of the competitive behavior of VC firms and the consequences to entrepreneurs. Last but not least, the camp would provide me an opportunity to learn from the leading scholars whose work influenced my dissertation immensely.