Chenqi Zhu
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March 29, 2018

Dear NBER Entrepreneurship Research Boot Camp Organizing Committee:

I am writing to apply for the NBER Entrepreneurship Research Boot Camp 2018. I am currently pursuing a Ph.D. in Accounting at New York University, and expect to complete my dissertation by the summer of 2019.

Enclosed with this letter are the following materials:

(1) Curriculum vitae
(2) Two-page Essay
(3) Reference letter by Professor Baruch Lev, who can be reached by blev@stern.nyu.edu, (212) 998-0028, or 44 West 4th Street, Suite 10-92, New York, NY 10012.

I am interested in innovation, big data, and accounting/disclosure issues in high-tech companies. My dissertation topic is in this vein, exploring firms' real and accounting policies in response to changes in patent litigation risk induced by the adaptation of Leahy-Smith America Invents Act. Two of my working papers touch on the impact of timely patent disclosure on knowledge diffusion to inventors and on risk perceptions of R&D activities by investors. I have another working paper focusing on the information efficiency of fin-tech companies in consumer lending market. I am eager to develop a deeper understanding of the economics of entrepreneurship and entrepreneurial finance so that I can produce more compelling research in the future.

Please contact me should you have any questions about my application or require further information.

Sincerely,
Chenqi Zhu

Chenqi Zhu

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Telephone (212)998-0012

Mailing Address
44 East 4th Street, Room 10-184,
NYC, NY 10012, U.S.

EDUCATION

New York University (NYU), *Ph.D. in Accounting* Sep 2014-

Dissertation Topic: Patent Litigation and R&D-related Disclosures
Committee: Mary Brooke Bilings, Yiwei Dou, Baruch Lev(Chair), Deepak Hegde, Stephen G. Ryan
PhD Courses listed in Page 3.

The Chinese University of Hong Kong (CUHK), *M.Phil. in Economics* Aug 2012-Jul 2014

Renmin University of China (RUC), *B.A. in Finance and B.S. in Mathematics* Sep 2008-Jul 2012

RESEARCH INTEREST

Innovation, big data, accounting issues in high-tech companies, banking and securitization

WORKING PAPERS

"Patent Disclosure and Investors' R&D Risk Perceptions", joint with Baruch Lev
The best paper (finance/accounting track) at Wharton Innovation Doctoral Symposium (WINDS) 2017
Presented at NYU, CUNY Baruch, WINDS 2017

"Patent Disclosure ", joint with Deepak Hegde and Kyle Herkenhoff
Presented by co-author at Northwestern and NYU law school

"FinTech Isn't So Different from Traditional Banking: Trading off Aggregation of Soft Information for Transaction Processing Efficiency", joint with Stephen Ryan
Scheduled to be presented at Trans-Atlantic Doctoral Conference

"Innovation, Social Connections, and the Boundary of the Firm", joint with Sudipto Dasgupta and Kuo Zhang

The third-prize best paper at 2017 China Finance Annual Meeting
Presented at Cambridge University, Erasmus University Rotterdam, HKU, HKUST, the 6th FMCG Conference in Perth, CEPR First Annual Spring Symposium, Entrepreneurial Finance and Innovation Conference (EFIC), 2016 CICF, 2016 EFA.

WORKING IN PROGRESS

Patent Litigation and R&D-related Disclosures

Does the Market Discipline Originators of Securitized Mortgages: Evidence from Repurchase Request Disclosure, joint with Yiwei Dou

SELECTED PUBLICATIONS

"Investing In The Car Batteries Space, 2018, *Seeking Alpha*, joint with Baruch Lev.

"Financial Development and the Pattern of Industrial Specialization: Evidence from China", 2017, *Review of Finance* 21(4): 1593-1638, joint with Qing He and Chang Xue.

"Bankers on the Boardroom and Firm Performance in China", 2016, *Emerging Market Finance and Trade* 52(8), 1850-1875, joint with Qing He and Oliver Meng Rui.
GTA Best Paper at Conference in Shanghai Jiaotong University

TEACHING EXPERIENCES

- Instructor, *Principles of Financial Accounting, NYU* *Rating: 6.5/7* *2017 Jul-Aug*
- Part-Time TA, *Public Finance, Money and Banking, CUHK* *2012 Sep-2014 May*

HONORS & AWARDS

- NYU Center for Global Economy and Business PhD Research Grant ($6,000) 2017 Fall
- 2017 Deloitte Foundation Doctoral Fellowship Award 2017
- Ph.D. Fellowship at NYU 2014-
- Postgraduate Studentship at CUHK 2012-2014
- Excellent Undergraduate Thesis Award 2012
- National Scholarship of Special Award (TOP 1%) 2011
- Outstanding Learning Scholarship at RUC (TOP 5%) 2010
- First Prize in China Undergraduate Mathematical Contest in Modeling (CUMCM)
  An Assessment of the Social Influence of 2010 Shanghai World Expo 2010

OTHER EXPERIENCES

- AAA/Deloitte Foundation/J Michael Cook 2018 Doctoral Consortium scheduled
- 2018 Trans-Atlantic Doctoral Conference scheduled
- JAE Conference 2017
- Wharton Innovation Doctoral Symposium 2017
- Chinas Financial Markets and Growth Rebalancing 2017
- NYU Summer Camp 2015-2017
- AAA 2016
- Cornell Accounting Summer Minicamp 2016
- Reviewer or discussant for AAA, FARS 2016, 2017, 2018
- Intern at Assurance Department, Ernst &Young 2011

SKILLS & OTHERS

- Language: Mandarin(Native), English(Fluent)
- Computer: Proficient in Stata, SAS, Python, Matlab, C language

Completed PhD Courses

Semester	**Course**	**Instructor**
Fall 2014	Micro Economics	Luis Cabral
Fall 2014	Econometrics I	William Greene
Fall 2014	Empirical Research Accounting I	Stephen G. Ryan
Fall 2014	Theory and Research in Managerial Accounting I	Joshua Ronen
Spring 2015	Financial Theory III	Xavier Gabaix and Philipp Schnabl
Spring 2015	Corporate Restructuring & Reorganization	David Yermack
Spring 2015	Empirical Research in Financial Accounting II	Baruch Lev
Fall 2015	Financial Theory II	Kose John and Holger Mueller
Fall 2015	Seminar in Financial Institution	Kose John and Ron Masulis
Spring 2016	Empirical Methods of Corporate Finance	Alexander Ljungqvist
Spring 2016	Topics: Financial Crisis	Holger Mueller
Spring 2016	Theory and Research in Managerial Accounting II	Tim Baldenius
Spring 2016	Empirical Research in Financial Accounting III	Apirl Klein

I am a fourth-year accounting Ph.D. student at New York University with a B.S. in mathematics, B.A. in finance, and a M.S. in economics. In my opinion, accounting is a system to track business and translate economic events into data through a structured framework. In the age of Big Data, unstructured data like online messages, images, and footprints on the internet are re-organized using artificial-intelligence technologies such as natural-language processing, pattern recognition, and machine learning. Conceptually, both accounting and Big Data are solving the same problem—summarizing the past and/or forecasting the future. Accounting, despite continuous changes in its implementation, remains old-fashioned at its core and faces fundamental challenges brought by an unprecedented surge of big data and new technology. Consequently, I have been thinking or working on questions such as: how new data and technology will improve firms' information environment, accounting quality, auditing quality or financial accounting fraud detection; what are the source and consequences of frictions that are holding back entrepreneurs and high-tech firms. I am eager to learn more in the NBER Entrepreneurship Research Boot Camp to develop a better understanding of the economics of entrepreneurship and entrepreneurial finance so that I can produce more compelling research in the future.

Broadly speaking, my research interest lies in the interaction of the economics of entrepreneurship and the information economics. I have two working papers examining the "real" as well as the "cap

ital market" impact of patent disclosure. The patent system is built on the grand bargain of disclosing proprietary knowledge in exchange for exclusive rights. Both papers exploit the enactment of the American Inventors Protection Act (AIPA) which requires patent applications to be published 18 months after filing and advances the disclosure of most U.S. patents by about two years. To demonstrate the real impact of timely patent disclosure, we focus on knowledge diffusion to inventors for follow-up innovation. We compare US patents to their equivalent applications filed in the European patent office in a difference-in-differences framework and find that timely patent disclosure (1) increases the rate and magnitude of knowledge diffusion measured by citations from subsequent patents and the time lag to receive these citations; (2) increases overlap between technologically distant patents (*knowledge diffusion channel*) and decreased overlap between similar patents (*duplicative research reduction channel*). Our study provides the first large-scale evidence that demonstrates and quantifies the importance of timely patent disclosure.

The other paper focuses on the risk perception of R&D by investors in the capital market. R&D is risky in nature, which motivates accounting standard setters to expense R&D outlays immediately rather than capitalizing it as an asset on the balance sheet. We find that with timely patent disclosure after AIPA, investors' risk perception of R&D investment (measured by the sensitivity between stock return volatility and R&D) is significantly reduced. Such a reduction cannot be explained by changes in the macroeconomic environment, as the timing of actual patent disclosures is staggered over time. The reduction in investors' risk perception of R&D further alleviates the cost of capital of R&D-intensive firms. This study identifies an unintended yet benign effect of AIPA in the capital market.

My dissertation focuses on patent litigation. Patent lawsuits have increased almost fivefold (average annual growth rate of 6%) since 1990. The unprecedented surge in patent litigation spikes

great interest and debate among entrepreneurs, law practitioners, researchers, and regulators. To curb patent litigation, foster innovation, and keep the U.S. competitive globally, Congress passed Leahy–Smith America Invents Act (AIA) on September 16, 2011, the most significant changes to patent law since 1952. Linking detailed patent lawsuits data from RPX with Compustat, I first show that AIA significantly reduces litigation burden as reflected in the lower likelihood to be sued and faster settlement if sued. Moreover, stock return plummets in a small sample of public "patent trolls" (companies that do not have real operating activities but build their business on suing other companies), consistent with AIA reducing litigation risk faced by operating firms. Then I conduct difference-in-differences analysis on how litigation risk affecting firms' R&D investment and information disclosure policies. Comparing firms with high ex-ante patent litigation risk to those with low risk, I do not find significant changes in R&D investment after the adoption of AIA in the whole sample. Interestingly, companies become more open to share their R&D-related information in press releases and SEC filings. My interpretation is that firms keep a "low profile" about their R&D strategies and accomplishment in face of high patent litigation risk.

Although patent lawsuits involving public companies often hit newspaper headlines, startup companies are presumably the most vulnerable to patent litigation. In the second chapter of my dissertation, I plan to study the impact of patent litigation on startups' survival and success. Linking patent lawsuit data from RPX to startup data from CrunchBase, I find some preliminary evidence that plaintiffs target startups opportunistically as startups are more likely to be sued by "patent trolls" (non-practicing entities) within the short window of receiving external funding or when they are in the spotlight of media. My next step is to see whether targeted startups receive next round funding, if so, how long it takes, and whether they survive or even succeed after all, compared to matched but untargeted startups.

Innovation is multi-disciplinal in nature. I always look for opportunities to broaden my horizon and expand my knowledge base beyond my own discipline. For example, I have taken Ph.D. courses/seminars in finance, economics, and law. I attended Wharton Innovation Doctoral Symposium where I presented and discussed research ideas with doctoral students from various disciplines. These experiences keep me abreast of recent developments in different fields and enable me to have a deeper understanding of the real world. NBER Entrepreneurship Research Boot Camp is a perfect opportunity for me to study the cutting-edge research related to innovation and entrepreneurial finance, which can improve my current research and spark new ideas. More importantly, the Boot Camp is taught by established professors from whom I can gain some insights and advice for my future career. In addition, I can meet and exchanges ideas with Ph.D. students who have similar research interest. With solid training in analytics, statistics, and programming, as well as research experience in innovation, patents, and startups, I am sure I can be an excellent candidate for the Boot Camp. With my background in accounting and expertise in information disclosures, I also endeavor to bring a new perspective and contribute to the discussion we will have.

NYU STERN

BARUCH LEV

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March 28, 2018

To Whom It May Concern:

Re: Ms. Chenqi Zhu, attending the NBER Entrepreneurship Research Boot Camp 2018

I have known Chenqi for three years. She has been a student of mine in an advanced Ph.D. seminar, a research assistant, and coauthor on a paper examining the impact of the 18 month (from filing) disclosure of patent application documents on investors' R&D uncertainty. I am also chairing Chenqi's Ph.D. dissertation committee at NYU. I know Chenqi well.

Chenqi is among the top five Ph.D. students I worked with throughout my long academic career at Berkeley and NYU. Her work focuses on innovation, R&D, patents and entrepreneurship, and is empirical in nature. She has extensive knowledge of the related fields: economics, finance and accounting, and is very comfortable with advanced statistical methodologies required for empirical research. In short, she is a very accomplished researcher with high intellectual curiosity and drive. She is now in her last year of the Ph.D. program.

Attending the Entrepreneurship Boot camp, with its emphasis on the economics and finance of entrepreneurship, will be of great help to Chenqi whose research interests in innovation, R&D, and patents overlap substantially with entrepreneurship economics and finance. Attending the lectures by the leading researchers presenting in the Boot Camp will be invaluable to Chenqi. A rare opportunity of enrichment.

I, therefore, highly recommend without reservations enabling Ms. Chenqi Zhu to attend the 2018 NBER Entrepreneurship Boot Camp.

With thanks and Best Wishes,

Baruch Lev