January 17, 2022

NBER Entrepreneurship Research Boot Camp

Dear Application Committee,

I write to apply to the 2022 Entrepreneurship Research Bootcamp. I am currently a third-year PhD student in financial economics at the University of Chicago with strong interests in empirical corporate finance and behavioral finance. I am eager to apply these interests to the study of entrepreneurship and associated topics, including, but not limited to, the asset pricing implications compared to standard models, contracting under uncertainty, and the dynamics of funding. Since my university offers no classes in entrepreneurship, this bootcamp seems like an ideal way to develop my understanding of entrepreneurship and furnish me with the skills to conduct research in this field.

I have attached a 2-page essay detailing my experiences, research, and interest in the program, as well as a CV that includes the courses I have taken.

As requested, the contact details of my letter writer are:

> Constantine Yannelis
> Assistant Professor of Finance
> University of Chicago Booth School of Business
> Constantine.Yannelis@chicagobooth.edu

I would be happy to provide any additional information or references on request. Thank you for your consideration.

Best,

Benjamin Marrow
PhD Student | Joint Program in Financial Economics
University of Chicago Booth School of Business
bmarrow@chicagobooth.edu
(609) 216-1059

Benjamin Marrow

Essay - NBER Entrepreneurship Research Boot Camp 2022

Dear Committee,

I am eager to attend the NBER Entrepreneurship Boot Camp this summer. Entrepreneurial ventures represent a large and growing component of US business, but differ in many important regards from standard corporate finance models of the firm. With my training in corporate and behavioral finance, I am excited to explore these differences and their implications for asset markets and contracting. Additionally, there has typically been a lack of data available for studying entrepreneurs, and I intend to bring new data to bear on the early stage investing environment.

My background and past research draw on a number of fields adjacent to and useful for the study of entrepreneurship. My main interests are in corporate finance and behavioral finance (particularly as it relates to individual financial decision-making) and I believe entrepreneurship lies squarely at the intersection of these two. Below, I detail more of my past and anticipated research.

Past Research and Experience

In my second-year paper, I studied the importance of investor heterogeneity to different types of stock-related news. I documented that the *type* of ownership matters for a stock's response to macro-news: in particular, stocks with high levels of retail ownership display comparatively stronger responses to earnings surprises, while stocks with high levels of institutional ownership respond more strongly to monetary policy surprises. Using proprietary brokerage data, I also show that retail investors are active traders around earnings news days but not around FOMC meetings. I interpreted these results through a model of the world in which overconfident retail investors pay attention to firm specific news.

I also have a paper (with Fernando Duarte) studying the dynamics of monetary policy in stochastic environments subject to zero-lower bounds. There, we show that, for a general class of processes for the natural rate of interest, optimal interest rates take a simple form: namely, the weighted-average of past output gaps. Though not directly related to entrepreneurship as such, the tools involved – including cutting-edge machine learning tools like neural networks and novel mathematical approaches for solving constrained stochastic control problems – certainly have extensions to the uncertain and constrained early stage environment.

I have a number of other experiences that would prove useful. I worked as a Capital Markets Analyst at the Federal Reserve Bank of New York for 2 years, assisting with papers on a number of topics in corporate security markets, ranging from credit default swaps to systemic risk measures. At the University of Chicago, I have served as the teaching assistant for Corporate Finance at both the undergraduate level (for Prof. Constantine Yannelis) and PhD level (for Profs. Zhiguo He and Doug Diamond), and I am TAing MBA Behavioral Finance this spring (for

Prof. Sam Hartzmark). I have also completed the full first-year sequences of PhD courses in micro, macro, and econometrics; as well as the field sequences in asset pricing and corporate finance.

Ongoing and Future Research:

I have a number of ongoing research projects on topics in corporate and behavioral finance. (Since they are in somewhat nascent stages, I will discuss them briefly). I am currently working on a project that seeks to understand the relationship between market power, inflation passthrough, and asset returns: can a firm's market power explain its stock response to inflation? Consistent with some models of Cournot competition with convex costs, I have some preliminary results showing that market power reduces returns for a given increase in inflation. In a second project (with Brandon Zborowski) I look at whether banks offer discounts on certain low margin products (e.g. revolving loan facilities) in order to obtain high margin business in future years (e.g. equity and debt issuance). Finally, I have a short paper documenting round-number bias in options prices.

My most exciting research pipeline – and a main source of my interest in this bootcamp – concerns some propriety data on early stage capital markets. I have been fortunate to obtain data from a company that serves as a two-sided platform that connects investors and entrepreneurs. This dataset includes data on nearly 100,000 applications from early-stage companies to angel investors from 2009-2020, with detailed data on the company description, (any) financial data it has, and the full contents of its application.

Using this data, I have a number of questions I intend to explore in the coming months. First, I am interested in whether agency costs are reduced by increasing the founder's equity share or the investors. In standard agency models, higher ownership among the entrepreneur can improve incentive compatibility (skin-in-the-game). But in early stage investing, this comes at the cost of the crucial monitoring ability by the investor. To investigate this tradeoff, I intend to look at the effect of (proposed) founder equity in an application on the probability of being funded. To do so, I will use variation in founder equity share driven both by the amount requested and previous fundraising. A second idea I have is to understand the non-financial determinants of funding, by analyzing the *text* content of applications. This is a more open-ended question to understand whether and how the style of applications influences funding. A third question I would like to explore with the data involves the effect of external advice on self-assessed valuation. In particular, the marketplace provides a tool to entrepreneurs that automatically "suggests" a valuation for this company based on inputs. Does such advice influence the amount that entrepreneurs ask for, and – given the documented gender gaps in fundraising – does it reduce these gaps? These are just several of the projects that could be explored using this novel data.

Benjamin Marrow

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EDUCATION

University of Chicago 2019-present
Booth School of Business & Kenneth C. Griffin Dept. of Economics
Doctoral Student, Joint PhD Program in Financial Economics

New York University 2017
Courant Institute of Mathematical Sciences
Non-Degree Student, Mathematics

Yale College 2013-2017
B.A., *magna cum laude* in Ethics, Politics & Economics (with Distinction)

RESEARCH POSITIONS

Federal Reserve Bank of New York, Capital Markets Research 2017-2019
Research Assistant for Nina Boyarchenko & Or Shachar
Research Assistant for Fernando Duarte
Research Assistant for Richard Crump 2016

Yale Department of Economics 2014-2016
Research Assistant for Aleh Tsyvinski, Lorenzo Caliendo, & Fernando Parro
Research Assistant for Michael Peters

Yale School of Management 2014
Research Assistant for Dean Edward T. Snyder

Credited for RA work:
"Distortions and the Structure of the World Economy" (R&R, *AEJ: Macro*)
"Fire Sale Spillovers & Systemic Risk (R&R, *JF*)
"The Long and Short of It: The Post Crisis CDS Market"

OTHER EMPLOYMENT

University of Chicago, TA 2021-2022
Corporation Finance (Undergrad, PhD)
Behavioral Finance (MBA)
Abdiel Capital Advisers, Summer Analyst 2016
Gust, Marketing Intern 2013

WORKING PAPERS

"The Past is Present: Monetary Policy at the Effective Lower Bound" 2020
(with F. Duarte)
"Retail, Institutions, and News-Driven Trading" 2021

HONORS AND FELLOWSHIPS

2020	CRSP Summer Research Grant
2019-2021	John and Serena Liew Fama-Miller PhD Fellowship
2018	Institute for Humane Studies, Hayek Fund Recipient
2017	Phi Beta Kappa
2016	James Tobin Research Fellowship

SKILLS

Programming: Stata, Matlab, R, SAS, Python, SQL, LaTeX, Excel, Unix
Databases/Platforms: Cloudera, WRDS, Bloomberg, CapitalIQ, Heroku, HAVER/DLX
Languages: Arabic, Latin, Ancient Greek

COURSES

Price Theory I (K. Murphy) 2019-2020
Price Theory II (P. Reny)
Price Theory III (L. Stole)
Empirical Analysis I (A. Shaikh)

Empirical Analysis II (H. Uhlig, L. Hansen)
Empirical Analysis III (M. Mogstad, J. Heckman)
Theory of Income I (N. Stokey)
Theory of Income II (M. Golosov)
Theory of Income III (F. Alvarez)

Asset Pricing I (J. Heaton, G. Constantinides) 2020-2021
Asset Pricing II (S. Nagel, R. Koijen)
Corporate Finance I (D. Diamond, Z. He)
Corporate Finance II (A. Sufi)
Bayes, AI, & Deep Learning (N. Polson)
Heterogeneity in Macro (R. Kekre, J. Vavra)
New Developments in Public Finance (E. Zwick, P. Noel, J. Gottlieb)
Behavioral Finance (S. Hartzmark)

Behavioral Economics (D. Pope) 2021-2022

INTERESTS Tennis, Chess (Yale College Chess Team; former New Jersey State Championship team); Scrabble (Placed 3rd nationally at the National Scholastic Championships), PADI-certified Scuba Diver, Sports statistics

Constantine Yannelis
University of Chicago Booth School
5807 S. Woodlawn Ave
Chicago, IL 60637

January 19, 2022

Dear Colleagues,

I am writing to very enthusiastically recommend Ben Marrow for the NBER Entrepreneurship bootcamp. In my view Ben is the top PhD student in his cohort, and likely the two adjacent cohorts. He is still relatively early on in the PhD, so there remains some uncertainty about what he will produce, but so far I am tremendously impressed by Ben and am hopeful that he will place well on the job market.

I got to know Ben talking about his research ideas, and was tremendously impressed. Ben is brimming his ideas, and he has the technical ability to put these ideas into practice. His second-year paper was terrific, and I expect him to create more top-level research and eventually publish it in top finance and economics journals. Due to my overall very high view of Ben, I invited him to become my TA. As a TA he did a really terrific job, and he is extremely clear-minded and explains things well.

Ben is an exceptional fit for for the NBER Entrepreneurship bootcamp, and I am encouraging him to go into this area. Beyond simply being brilliant and hard-working, and this being an interesting research area where there is high demand for faculty, I am encouraging Ben to go into entrepreneurship because he has a comparative advantage stemming from data. His uncle is the CEO of a company which provides a platform to match entrepreneurs with angel investors, and Ben is accessing the data. I think Ben can use the data to write several top papers, which I am confident that he can do. Thus Ben would benefit tremendously from this bootcamp, to gain exposure to the literature and research in the area.

In short, I very enthusiastically recommend Ben for the NBER Entrepreneurship bootcamp, and think he is close to the ideal candidate. I hope that you accept him, and expect him to do great things in the future.

If you want any further information about Ben, please feel free to get in touch and I am more than happy to support him further. Please note that my email address is `constantine.yannelis@chicagobooth.edu`.

Thank you very much for considering Ben.

Regards,



Constantine Yannelis