Sathya P. Ramesh
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Professors Bloom, Lerner, Robinson, Schoar, and Stern
National Bureau of Economic Research
1050 Massachusetts Avenue
Cambridge, MA 02138

Dear Professors,

My name is Sathya Ramesh and I am a Finance PhD Student at the Stern School of Business at New York University. I am writing to express my interest in participating in the NBER Entrepreneurship Research Boot Camp. Professor Petra Moser from NYU Stern has kindly agreed to write me a letter of recommendation for this boot camp application.

Participating in the bootcamp will help me learn more about emerging research questions from leading scholars and enable me to network with my peers. I am convinced that my academic preparation, research interest, and industry experience make me a good fit for the Entrepreneurship Research Boot Camp.

I graduated with two undergraduate degrees in Statistics and Mathematical Economic Analysis with University Honors in Research from Rice University. Additionally, I earned a Masters in Statistics from Rice University with a 4.0 GPA. I completed my undergraduate and graduate education in four years. Before joining NYU Stern as a Finance PhD student, I worked at the Federal Reserve Board of Governors for two years as a research assistant.

I have interned and worked at a variety of firms and government institutions. Each experience has played a significant role in shaping my research interests. From working at startups, I became interested in the field of entrepreneurship. From working at an asset manager and options market maker, I became interested in the field of asset pricing. From interning with a judge, I became interested in understanding more about the intersection of finance and the legal system. The combination of these experiences has made me interested in learning more about the intersection of asset pricing and entrepreneurship, which is why I'm currently working on a paper that looks into the equity performance of firms that repeatedly infringe on other firms' patents.

Due to my academic background, research interests, and work experiences, I know I could benefit greatly from participating in the NBER Entrepreneurial Research Boot Camp. I look forward to hearing from you and thank you for your time and consideration.

Sincerely,
Sathya Ramesh

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EDUCATION

New York University – Stern School of Business **New York, New York**
Ph.D. Finance August 2020 - Present

- **Relevant Coursework:** Microeconomics, Macroeconomics, Econometrics, Math for Economists, Economics of Innovation, Asset Pricing Theory, Empirical Corporate Finance, Empirical Household Finance, Empirical Asset Pricing, Corporate Finance Theory, Continuous Time Finance
- **Papers in Progress:** The Benefits of Habitual Line-Stepping: Repeated Patent Infringers, Insurers and Asset Volatility, Predicting Stock Market Crashes via Machine Learning

Rice University **Houston, Texas**
M.S. Statistics December 2017 - May 2018
B.A. Statistics & B.A. Mathematical Economic Analysis August 2014 - December 2017

- **Masters GPA:** 4.0; Undergrad GPA: 3.64
- **Honors**: *Distinction in Research; Honor Roll; Law, Justice and Society Scholar; Masters Spotlight*
- **Relevant Coursework:** Time Series and Forecasting; Advanced Statistical Methods; Computational Finance; Quantitative Financial Risk Management; Multivariate Analysis; Non-Parametric Density Estimation

WORK & LEADERSHIP EXPERIENCE

Volt Protocol **New York, NY**
Consultant November 2021 – Present

- Providing feedback on stress test simulations
- Designing collateralized loan liquidation algorithms

Federal Reserve Board of Governors **Washington, DC**
Senior Research Assistant: Risk Analysis July 2018 – August 2020

- Compiled cdsDTCC R package to monitor Credit Default Swap exposures of various banks and firms
- Wrote code to advance four papers (Spectral Backtests of Forecast Distributions with Application to Risk Management; The Bank as Grim Reaper: Debt Composition and Bankruptcy Thresholds; Variance Disparity and Market Frictions; Information in Yield Spread Trades)

Howard University Econ 181: Data Analysis and Financial Literacy in R **Washington, DC**
Lecturer and Module Leader January 2019 – May 2020

- Revamped the course lecture structure and content via rewriting lectures, homework assignments, and quizzes
- Wrote and presented three lectures on data wrangling, functions, and debugging
- Assist students during biweekly office hours at Howard University

Rice University Statistics Department **Houston, Texas**
Teaching Assistant January 2016 – May 2018

- STAT 310: Introduction to Probability and Statistics (Dr. John Dobelman)
- STAT 385: Methods of Data Analysis and Optimization (Dr. John Dobelman)
- STAT 419/519: Statistical Inference (Dr. David Scott)
- STAT 449/649: Quantitative Financial Risk Management (Dr. Kathy Ensor)
- STAT 486/686: Market Models (Dr. John Dobelman)

Group One Trading **Chicago, Illinois**
Options Trading Intern May 2017 - August 2017
- Actively learned options theory, hedging, and risk management concepts
- Built tools to help identify lucrative trading opportunities
- Supported traders by performing intrafirm trades

Texas First Court of Appeals **Houston, Texas**
Judicial Intern January 2017 – May 2017
- Worked closely with Justice Evelyn Keyes and her staff at the Texas First Court of Appeals
- Analyzed legal briefs and court reporters' records to write fact sections for judicial opinions
- Performed citation checks for judicial opinions, attended oral arguments

Dimensional Fund Advisors **Austin, Texas**
Portfolio Management Intern May 2016 – August 2016
- Created a portfolio risk monitoring report via Python for the Emerging Markets desk ($60 billion AUM)
- Supported portfolio managers by providing decision making framework for corporate actions
- Created fact sheet for $15 billion dollar portfolio

Simple Kicking Solutions LLC **Dallas, Texas**
Director of Analytics August 2015 – August 2020
- Used data analytics to advise football coaching staffs for special teams
- College Team Client List: Oklahoma, Georgia Tech, Oregon State, Texas, Rice, TCU, SMU
- NFL Client List: Dallas Cowboys, Chicago Bears

CAPTARGET LLC **San Diego, California**
M&A Research and Marketing Intern May 2015 – August 2015
- Compiled and analyzed client and internal data for M&A transactions
- Performed regression analyses to optimize marketing results
- Edited pitch books for several middle market companies

SKILLS, AWARDS & INTERESTS

Technical Skills: R, Python, SAS, SQL, Matlab, VBA, git, bash, Linux, LaTeX, Bloomberg
Awards: 1st Place in Algorithmic Sales and Trading Case at 2016 UChicago Trading Competition, Best Research Poster at 7th Annual Eubank Conference, NSF Travel Grant for 34th Annual QPRC Conference, Teen Jeopardy! Alternate
Interests: Fantasy Football, Running, Kayaking

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Research Interests

My current and future research interests lie in the intersection of asset pricing and entrepreneurial finance. My academic background and work experience have largely shaped these research interests. I look forward to participating in the NBER Entrepreneurship Research Boot Camp to learn more about emerging research questions from leading scholars and to network with my peers.

Working in a variety of financial and non-financial firms has helped me develop my research interests. My very first internship was at Captarget, a Mergers and Acquisitions startup based out of San Diego, CA. My boss at Captarget left to work at Carta, a cap table management and valuation software company. He recommended me for a product management internship at Carta for my sophomore summer. During the interview process at Carta, I learned about cap tables, funding rounds, and how startups are financed. I ended up declining Carta's offer and worked instead as a portfolio management intern at Dimensional Fund Advisors, where I learned about traditional factor asset pricing models from Ken French and Eugene Fama's seminars. Currently, I'm hoping to learn more about decentralized finance and cryptocurrencies by working as a consultant for Volt Protocol, a crypto stablecoin.

I also worked for two years as a research assistant in the Risk Analysis section at the Federal Reserve Board of Governors and interned at the First Texas Court of Appeals with Judge Evelyn Keyes. At the Fed, I worked on a paper now published in the JFE (The Bank as Grim Reaper: Debt Compositions and Bankruptcy Thresholds) and improved my programming skills. As a legal intern, I learned how to use WestLaw and NexisLexis to analyze legal briefs and perform citation checks for judicial opinions. While I'm not interested in law school, I did gain a desire to learn more about the intersection of finance and law.

Taking Professor Petra Moser's PhD class on the economics of innovation exposed me to many influential papers and helped me get started thinking about my own research papers. After presenting Sabrina Howell's AER on Financing Innovation, I started wondering about the impact of the changing Venture Capital landscape on firm financing. Tiger Global differs from traditional VC firms as they do due diligence very quickly, deploy larger sums of capital at higher valuations, and are hands-off as investors. Through using Crunchbase's database of Tiger Global's VC investments and waiting a few years for the funded startups to exit, I could quantify the impact that Tiger Global had on all VC funded firm valuations, and see whether the firms Tiger Global funded were more successful or if these firms had any salient characteristics that set them apart.

The second research idea I have was inspired by Moderna's patent infringement on Arbutus Biosciences' liquid nanoparticle patents. I'm interested in looking at patent litigation involving publicly traded firms. I'm using the dataset from Kogan, Papanikolaou, Seru, and Stoffman QJE paper (discussed

in Petra's class) which links patents with publicly traded firms. Combining this dataset with the patent litigation datasets from the USPTO and the University of Iowa Law School enables me to see what firms repeatedly infringe on patents. My hypothesis is that controlling for industry, a firm that repeatedly infringes on patents will outperform other firms in the same industry that do not infringe as often. The economic rationale behind this idea is that lawsuits are expensive, and willful patent infringement can include treble damages. The identification strategy derives from a US Supreme Court decision in 2016 (Halo Electronics v. Pulse Electronics) which revived the punishment of treble damages for willful patent infringement. I could see what firms used to infringe repeatedly and see how that firm behavior has changed after the 2016 decision.

I have two ongoing coauthored research projects that are more asset pricing in flavor. The first project is joint with Professor Emil Siriwardane from Harvard Business School. We're looking to predict stock market drawdowns by utilizing machine learning on a large dataset of macroeconomic and daily stock/bond/derivative data. From looking at some of Bryan Kelly's recent papers that use machine learning to predict future asset returns, I believe that we should be able to build a decent model to predict market corrections. From Johannes Stroebel's household finance seminar, I learned that there is some literature in the household finance field that uses machine learning to predict mortgage defaults. So far, we've been able to predict pullback episodes decently well, but separating a small pullback from a disastrous crash has been remarkably challenging.

The second project is joint with Professor Renxuan Wang at CEIBS. We find similar results to Chodorow-Reich, Ghent, and Haddad's 2021 JF paper that shows that insurance companies act as asset insulators. We find that percentage of a firm's debt held by an insurance company is a significant predictor of the firm's future equity volatility, asset volatility, and debt volatility. On a macroeconomic level, we show that the aggregate holdings of insurance companies are predictive of the credit spread and also of future volatility. Currently, I'm implementing the Gabaix and Koijen Granular Instrumental Variables technique to provide our paper with a nice identification strategy. I've been fortunate to have excellent coauthors who have taught me quite a few skills related to economics and writing a paper.

My research ideas are a direct result of myself participating in seminar style classes at Stern where I've been exposed to fantastic papers and excellent faculty members. Learning about new papers from leading academics at the NBER Entrepreneurship Research Boot Camp will definitely help me generate new research ideas. I am also looking forward to meeting my fellow boot camp participants, learning new tricks from them, and potentially coauthoring a project in the future.

NYU STERN

PETRA MOSER
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January 17, 2022

Dear David, Nick, Josh, Antoinette, and Scott,

It is a pleasure to recommend **Sathya Ramesh** for the NBER's Entrepreneurship Summer Bootcamp. Sathya is a smart and ambitious second-year PhD student in Finance at Stern. He took my PhD course in applied microeconomics last fall and is enthusiastic about research on entrepreneurship. From working in a start-up, at the Fed, and as a legal intern Sathya has a lot of institutional knowledge about finance and entrepreneurship. I expect that he'd be a great addition to the bootcamp.

I got to know well Sathya last fall when he took my PhD class in Applied Microeconomics. After the first class, a supervising professor asked him drop the class to focus on asset pricing. Sathya wanted to keep continue attending though because he is interested in entrepreneurship and wanted to learn more about empirical microeconomics. I was happy to let him sit in on our class for as long as it was useful and didn't expect to see him for much longer. Sathya, however, did not miss a single class, did all the readings, plus the presentations, and even completed his final project.

Sathya was a joy to teach; he was consistently well prepared and asked insightful questions. When materials were new and unfamiliar, he would ask for review articles and arrive having read not only the assigned paper but also one or two other important papers in the field. For instance, when we discussed structural estimates of the welfare effects of global patent protection (Chaudhury, Goldberg and Jia, AER 2003), Sathya worked his way through Steve Berry and Phil Haile's (2021) handbook chapter on the "Foundations of Demand Estimation," just to understand the basics of structural demand estimates. He works hard and is a quick study.

In addition to two co-authored papers on asset-pricing Sathya has started to work on two projects on entrepreneurship. For the first project, he plants to investigate the impact of venture capital (and specifically, Tiger Global) on startup performance. Compared with traditional VC firms tiger Global deploys larger sums of capital at higher valuations and are more hands-off as investors. Sathya uses Crunchbase to identify Tiger Global's VC investments and examine whether funding from Tiger Global contributed to firm growth. I can help him with the identification part of his project, but it would be extremely helpful for him to learn from other faculty who know the VC industry and who are active in that literature.

I have not been able to observe Sathya's teaching but I've seen him present four times, including two of his research presentations; all his presentations were clear and engaging. Given his extensive teaching experience, this is probably no surprise. Before coming to NYU, Sathya served as a teaching assistant for three different undergraduate classes in statistics and two in finance. While he was working at the Fed, he doubled as a lecturer at Howard University, teaching Data Analysis and Financial Literacy in R.

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Sathya is also a fun, smart, and enthusiastic person to be around. If you were to invite him, I'd expect him to ask lots of great questions, make new friends among the other students, and maybe even find another co-author.

To sum up, Sathya has my highest recommendation for the Entrepreneurship Bootcamp. He is smart, hard-working, and extremely excited about entrepreneurship. His infectious enthusiasm and insightful questions would be an asset to the bootcamp. In turn, he would benefit immensely from exposure to faculty and students in entrepreneurship.

Please do not hesitate to contact me with further questions (pm119@nyu.edu).

Best regards,