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Subject: Application NBER Entrepreneurship Research Boot Camp 2021

To whom it may concern:

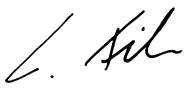
I am currently in the third year of the PhD in Finance at Columbia Business School and am writing to apply for admission to the *NBER Entrepreneurship Research Boot Camp 2021* in August. Enclosed you'll find the following documents:

- current academic CV
- list of completed courses
- essay outlining my research interest and motivation

I am grateful to Professor Xavier Giroud who is writing a letter of recommendation on my behalf, which you should have received from him directly.

Please let me know if there are any other documents you need or if you have any questions pertaining to my application.

Sincerely,



Lukas Felix Fischer

Lukas F. Fischer

CONTACT INFORMATION

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EDUCATION

Columbia University in the City of New York — New York (NY), USA
Columbia Business School

Ph.D. in Finance, 2020 - present
M.Phil. in Finance, 2018 - 2020

University of St. Gallen (HSG) — St. Gallen, Switzerland
School of Finance (SoF-HSG)

M.A. in Banking in Finance, 2016-2018
UNC Chapel Hill, *Kenan-Flagler,* Exchange Student, 2018 — Chapel Hill (NC), USA

University of Mannheim — Mannheim, Germany
Business School

B.Sc. in Business Administration, 2013-2016
University of Toronto, *Rotman,* Exchange Student, 2015 — Toronto (ON), Canada

RESEARCH INTERESTS

Empirical Corporate Finance, Political Economy, Entrepreneurial Finance, Innovation

WORK IN PROGRESS

Government Contracting, R&D Spending, and Patenting

The U.S. government is the single largest buyer of U.S. products and services. However, evidence on the impact of these contracting activities on the private sector is limited. Previous research indicates that entering a federal procurement contract leads to a reduction in default risk for the contractor. Using transaction-level data, I aim to isolate the causal effect of federal contracting on private sector innovation and patenting. Ex-ante it is ambiguous whether becoming a contractor will lead to an increase or decrease in innovation. Since R&D projects are highly risky, there are two countervailing forces. On the one hand, entering federal contracts might increase risk bearing capacity and thus lead to higher levels of R&D. On the other hand, federal contracts are a stable source of revenue, making risky projects less profitable to equity owners (akin to gambling for resurrection).

Digital Banking Services in Germany with Frederic Schlackl

More and more banks are moving from a brick-and-mortar to an online-focused business model. This change has been further accelerated by the ongoing COVID-19 pandemic. At the same time, an increasing number of banks face competition from online banks, driving down margins even further. The drivers of these fundamental shifts in the banking environment have not been sufficiently explored yet. We intend to use data on the introduction of broadband internet connections in Germany to identify the causal link between household internet access speeds and the use of online financial services. We intend to not only speak to the extensive margin (i.e. migration to online banks), but also the intensive margin (e.g. financial awareness and stock market participation).

R&D Tax Credits in the United States with Xavier Giroud

Twitter Networks of U.S. Executives with Naz Koont and Brian J. Lee

Presentations

2021: Columbia Business School (PhD seminar, *scheduled*)
2020: Columbia Business School (brown bag)

Research Experience

Columbia University in the City of New York — New York (NY), USA
Columbia Business School

Research Assistant, Summer 2019
– *Advisor:* Xavier Giroud, Ph.D.

University of Mannheim — Mannheim, Germany
University of Mannheim, Business School

Research Assistant, Summer 2016
– *Advisor:* Prof. Dr. Christoph Spengel

Teaching Experience

Columbia University in the City of New York — New York (NY), USA
Columbia Business School

Teaching Assistant, MBA Courses
– International Finance, Professor Laura Veldkamp (Spring 2020, Spring 2021)
– Managerial Economics, Professor Amit Khandelwal (Fall 2020, Fall 2021)

Summer Schools

NBER Summer Institute, 2020
Princeton Initiative (Macrofinance), 2020

Honors, Awards, & Fellowships

Roger F. Murray Fellowship, merit-based scholarship, 2020-21
Boston Consulting Group Award for *Best Final Thesis*, 2018
Deutsche Bank Fellowship, merit-based scholarship, 2016-2018
Ernst & Young Award for *Outstanding Final Thesis*, 2016
Mannheim Forum Accounting & Taxation for *Outstanding Final Thesis*, 2016
German Academic Exchange Service (DAAD) PROMOS scholarship, 2015

Non-Academic Employment

zeb consulting gmbh — Muenster, Germany
Finance & Risk Consulting, Intern, 2018

KPMG AG — Dusseldorf/Frankfurt, Germany
Deal Advisory Financial Services, Intern, 2016
Audit Financial Services, Intern, 2015

Senacor Technologies AG — Frankfurt, Germany
Business IT Consulting, Intern, 2015

Computer Skills

R, Python, Stata, LaTeX, SQL (PostgreSQL, MySQL), Office

Languages

German (Native), English (Fluent), French (Intermediate), Mandarin (Elementary)

COURSEWORK

Economics

GR6211 Microeconomic Analysis I (Dean, Sadler)
GR6212 Microeconomic Analysis II (Che, MacLeod)
GR6213 Macroeconomic Analysis I (Sala-i-Martin, La'O)
GR6215 Macroeconomic Analysis I (Bouscasse)
GR6254 Industrial organization II (Backus)

Econometrics

B9323 Introduction to Econometrics and Statistical Inference (Sinha)
B9325 Financial Econometrics: Time-Series (Johannes)
B9326 Financial Econometrics: Panel Data (Giroud)

Finance

B9302 Finance Theory I (Veldkamp)
B9304 Models & Methods of Continuous Time Finance (Wang)
B9317 Corporate Finance Theory (Bolton, Wang)
B9319 Asset Pricing I (Mamaysky)
B9320 Empirical Asset Pricing II (Van Nieuwerburgh)
B9329 Empirical Corporate Finance (Giroud)
B9330 Microstructure Theory (Glosten)
B9335 Information in Financial Markets (Veldkamp)
B9336 Introduction to Continuous Time Finance (Johannes)

Other

B9122 Computing for Business Research
B9334 Big Data in Finance
B9653 Machine Learning
B9654 Artificial Intelligence

I am currently in my third year of the PhD in Finance at Columbia Business School. My main research interest lies in empirical corporate finance, more specifically innovation, entrepreneurial finance, and corporate governance. My interests are motivated by the importance of corporations in driving economic growth. In this regard, the role entrepreneurs play in innovating is much more pronounced today than it has ever been. The cost of turning a brilliant idea into a thriving business has never been lower. Examples of startups which have been able to fundamentally change an industry are plentiful. Among the most prominent and recent ones are Elon Musk's ventures (e.g. Tesla and SpaceX) but also those corporations that managed to keep individuals connected throughout the pandemic (e.g. Zoom and Clubhouse). Going forward the relevance of small firms that found their niche will only become greater. In light of this development, there are many opportunities for research in entrepreneurship, some of which I would love to pursue in the future. To increase my exposure to this research area and develop a more structured understanding of where the literature stands I am applying for admission to the *NBER Entrepreneurship Research Boot Camp 2021.*

As participant in the boot camp I will not only be able to listen to the most influential researchers in the field of entrepreneurship discuss the area but also create valuable connections with peers from other schools. Being in the third year of the PhD I am seeking exposure to the frontier of research in the areas I am interested in and am constantly looking for opportunities to discuss ideas wherever possible. To that end, attending the boot camp would hit two birds with one stone. It's no secret that forming connections with students from other schools, especially across fields, is harder than ever due to COVID. While I obviously am in touch with PhD students from my university on a daily basis and work on joint projects with some of them, the exchange of ideas across schools has been hampered by the pandemic. I am looking forward to bouncing ideas off of my peers from other schools and develop ties that will not only be mutually beneficial but might also result in fruitful joint projects in the future. Ultimately, the diversity of ideas and backgrounds is what makes research and academia such an exciting profession.

In terms of current research projects, I am working on topics in a fairly wide range of fields, most prominently innovation, household finance, and corporate governance. While these projects do cover a broad range of research areas, they do have a lot of common features which are representative of my current interests and indicative of my future research agenda. Generally speaking, my interest lies in the importance of (oftentimes considered 'atomistic') agents in our economy. In my current projects I am specifically looking at inventors (some of which obviously are entrepreneurs), CEOs, and households. However, ever since having taken Xinxin Wang's course on entrepreneurial finance at UNC I've also been on the hunt for ideas in that field more directly. These projects not only share the micro-character of the agents under consideration but also are similar in terms of the data I use. As a data-driven person, I take particular interest in underused or outright novel datasets (e.g. transaction-level government contracting data for the U.S., data on the expansion of high-speed internet access in Germany, or user and tweet data from Twitter) in answering first order questions.

The main project I am working on at the moment is titled *Government Contracting, R&D Spending, and Patenting*, in which I aim to identify the impact of government contracting on the U.S. private sector. As the U.S. government

is the single largest buyer of U.S. products and services, purchasing decisions of its agencies (e.g. the Department of Defense) can have a large impact on the private sector. One important way in which the government tries to directly influence corporations is in terms of innovation. While the direct procurement of innovation has been the subject of previous studies (e.g. Howell, 2017), the bulk of direct transfers from the U.S. government to the private sector include the delivery of a product or service, where innovations necessary to fulfill the contract are mere byproducts. In this project I put these front and center and try to identify the actual impact contracting has on innovation production and spillovers. Unlike other recent work (Moretti et al., 2019), I am able to directly link patents originating from government contracts all the way back to the contract they relate to as well as the original solicitation, allowing me to establish a much tighter link between government contracting and R&D outcomes.

Another project that has started taking shape recently is on *Digital Banking Services in Germany*. My coauthor and I are currently in the process of acquiring access to data on the availability of high-speed internet in Germany. Once we have been granted access, we will be able to measure the maximum connection speeds available in Germany on the grid cell level (250m×250m). Unarguably, the access to high-speed internet has become increasingly valuable throughout the pandemic. While many employers offered their employees to work from home, a stable internet connection has proven to be vital in being able to socially distance. With this in mind, there are many potential applications of these data in answering first order questions other than the one we had in mind when starting the project (online banking and stock market participation). Specifically, I am already working on a way to use this incredibly detailed dataset to think more about the selection into entrepreneurship.

The question of what drives entrepreneurship is more relevant than ever before. What came as a surprise to many is the spike in entrepreneurship over the pandemic. Using Census data, we can estimate the number of new startups in the United States by looking at the applications for Employer Identification Numbers (EINs). From 2019 to 2020, the total number of applications grew by 24% from 3.9mn to 4.4mn (Djankov and Zhang, 2021). While this number in itself is not necessarily meaningful, since it doesn't speak to the net effect, it shows a clear trend. Anecdotally, a majority of these start-ups are software focused or app-based, making them crucially dependent on the internet connection in the location of the entrepreneur. This naturally begs the question, what is driving the geographic heterogeneity in start-up formation during the pandemic. Following the rationale of Fos et al. (2019) it is conceivable that founders are entrepreneurs by circumstance rather than by choice, starting their own business after having suffered a termination of their employment. This might be facilitated by local internet access, an area that has been left unexplored until now.

Given my strong interest in research in entrepreneurship I would love to be granted the opportunity to attend the *NBER Entrepreneurship Research Boot Camp 2021*. The interdisciplinary nature of this field sets it apart from many other areas in Finance. Being able to interact with professors who do research in this field and connect with students that share my fascination for it will be the perfect environment to develop a much better understanding of the literature and generate ideas for future research.

References

Djankov, S. and Zhang, E. Y. (2021). Startups boom in the united states during covid-19. *Peterson Institute for International Economics*.

Fos, V., Hamdi, N., Kalda, A., and Nickerson, J. (2019). Gig-labor: Trading safety nets for steering wheels. *SSRN Electronic Journal*.

Howell, S. T. (2017). Financing innovation: Evidence from r&d grants. *American Economic Review*, 107(4):1136–1164.

Moretti, E., Steinwender, C., and Reenen, J. V. (2019). The intellectual spoils of war? defense r&d, productivity and international spillovers. Technical report.

Columbia Business School
Xavier Giroud
Roger F. Murray Associate Professor of Finance
Research Associate, NBER
Research Fellow, CEPR

Columbia Business School
AT THE VERY CENTER OF BUSINESS™

March 19, 2021

Lukas Fischer's Application to the NBER Entrepreneurship Research Boot Camp 2021

Dear David:

I am delighted to write this letter in support of Lukas Fischer's application to the NBER Entrepreneurship Research Boot Camp.

Lukas is a 3rd year PhD student in finance at Columbia Business School, where I serve as his main advisor. Lukas is interested in entrepreneurial finance and innovation. He would be a great fit to the boot camp.

In his 3rd year paper, entitled "Government Contracting, R&D Spending, and Patenting," Lukas examines how the award of government procurement contracts affects firms' innovation. From a theoretical perspective, the relationship is ambiguous. On one hand, having a safe customer could reduce incentives to engage in risky, innovative activities. On the other hand, the safety net from stable revenues may encourage "tolerance for failure," which is often seen as a key determinant of innovation. To examine this question empirically, Lukas uses a clever identification strategy that exploits the winner vs. runner-up candidates in the award of procurement contracts. He is currently completing the data collection process for this project, and I am eager to see his results.

Lukas is one of our very best PhD students. Recently, he was awarded the Roger F. Murray Fellowship that recognizes the most promising student in a given cohort (this is a strictly merit-based fellowship). Also, Lukas attended both of my PhD courses at Columbia and was the top student in both.

In short, I strongly recommend Lukas. There is no doubt he will benefit a lot from the boot camp. At the same time, I believe the boot camp will benefit from having him. In my PhD classes, he was one of the key contributors, making thoughtful comments throughout. Having him in the classroom enhanced the learning experience for all participants.

Thank you for considering him. If I can provide you with any additional information, please do not hesitate to contact me by phone at (212) 854-2431 or by email at xavier.giroud@gsb.columbia.edu.

Best wishes,



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