Milan, 24th March, 2021

Cover Letter for the application in

NBER Entrepreneurship Research Boot Camp 2021
Virtual Workshop - August 2-13, 2021

Dear Organizers of the NBER Entrepreneurship Research Boot Camp 2021,

My name is Benedetta Montanaro, I am a third-year PhD student in Management, Economics and Industrial Engineering at Politecnico di Milano, Italy. I hereby present my application for the NBER Entrepreneurship Research Boot Camp 2021.

My application is organized as follows. After this cover letter, I enclose my curriculum vitae with the complete list of the courses included in my PhD program. Then, I attach the two-page essay that explains the reasons why I am applying to the Boot Camp, together with information on my current and future research directions. Last, I include in the application the recommendation letter written by my PhD supervisor, Prof. Massimo Gaetano Colombo (Politecnico di Milano). Massimo G. Colombo is Full Professor of Innovation Economics, Entrepreneurship and Entrepreneurial Finance at the School of Management of Politecnico di Milano. He is also Vice-Dean for Research and Rankings of the School of Management.

Thanks in advance for your attention to my application.

With best wishes,



Benedetta Montanaro
PhD student in Management, Economics and Industrial Engineering
Department of Management, Economics and Industrial Engineering (DIG)
Politecnico di Milano
Via Lambruschini 4/b, 20156, Milano (MI), Italy
benedetta.montanaro@polimi.it

Curriculum Vitae

BENEDETTA MONTANARO

Personal Information

Surname		**Montanaro**
Name		**Benedetta**
Email		**benedetta.montanaro@polimi.it**

Nationality		Italian

Date of birth		20 December 1994

Education and Training

Date (from – to)		November 2018 – now (final discussion in 2022)
Name and type of organisation		Politecnico di Milano
Duration of the program of study		3 years
Principal subjects/ occupational skills covered		**PhD in Management Engineering** - Research area: Entrepreneurial Finance PhD topic: "Understanding the Determinants of Entrepreneurial Ventures Valuation at Acquisition" **Member of EFI** (Entrepreneurship, Finance and Innovation) research group of the Department of Management, Economics and Industrial Engineering of Politecnico di Milano. **Tutor of PhD students** in Management Engineering in the academic year 2019 - 2020. In charge of mentoring and supporting other PhD students in study plan compilation, choice of elective courses and interaction with administrative offices in the department. From April 2021: **visiting period at University of Gent** under the supervision of prof. Sophie Manigart. The visiting period will start as an online collaboration due to Covid-19 pandemic.

Date (from – to)		October 2016 – October 2018
Name and type of organisation		Politecnico di Milano
Duration of the program of study		2 years

Principal subjects/ occupational skills covered		Management Engineering, Finance stream. All the courses were taught in English. Main courses attended: **Accounting, Finance & Control** (30/30 cum laude); **Strategy & Marketing** (29/30); **Corporate Finance** (30/30 cum laude); **Investment Banking** (29/30); **Entrepreneurial Finance** (28/30); **Financial Markets & Macroeconomics of Finance** (30/30 cum laude)
Title of qualification awarded		**Master's degree in Management Engineering**
Final mark obtained		110/110 cum laude

Date (from – to)		April 2017 – August 2017
Name and address of university		Technische Universität Berlin
Type of business or sector		Industrial Engineering
Type of activity		**Exchange semester** (part of MSc degree) within the framework of "Free- mobility in Management and Industrial Engineering", offered by Alliance4Tech (Alliance4Tech consists of four Top Engineering Institutions of different European cultures, located in Milan, Paris, Berlin and London, aiming to form a European Campus without borders - alliance4tech.eu).
Main activities		Attended courses*: Technology Management (1.3), Strategic Innovation Management (1.0), Experimental and Behavioural Economics (1.0), Simulation of Production Systems (1.0). * German valuation system: 1.0 = max, 4.0 = min

Date (from – to)		October 2013 – July 2016
Name and type of		Politecnico di Milano
organisation		
Duration of the program of study		3 years
Principal subjects/ occupational skills covered		Management Engineering. Economics and Business Administration, Logistics and Production Systems Management, Information systems, Management and Organizational Design.
Title of qualification awarded		**Bachelor's degree in Management Engineering**
Final mark obtained		110/110

Courses Attended Within the Scope of the PhD Program

Course name, description and grade obtained		
		Advanced Interaction Skills for Academic Professionals (5 ECTS - **30/30 cum laude**). The course aims at improving presenting, interview and negotiation skills.

		Academic Publishing (5 ECTS - **30/30 cum laude**). The course aims at developing the writing skills of PhD students researching is social sciences, encompassing different epistemological approaches.
		Entrepreneurship & Entrepreneurial Finance (5 ECTS - **30/30 cum laude**). The aims at discussing the most recent debates in Entrepreneurship research and identifying interesting research questions related to these themes.
		Survey & Experimental Research Methodology (5 ECTS - **30/30 cum laude**). The course aims at applying the principal methodology behind Survey Research and Experimental Research.
		Research Skills (5 ECTS - **30/30 cum laude**). The course aims at building up knowledge in research fields with regards to communication, management, funding and soft skills.
		Literature Review in Social Sciences and Engineering (5 ECTS - **30/30 cum laude**). The course aims at developing the ability to identify meaningful research questions in the fields of economics, management and industrial engineering, by means of a methodologically appropriate and well-developed literature review.
		Scientific Communication in English (5 ECTS - **30/30 cum laude**). The course aims at improving scientific writing and presentation ability.
		Innovation Management & Economics (5 ECTS - **29/30**). The course aims at discussing the most recent debates in Innovation Management & Economics research.

Summer Schools and International Courses Attended – Extra-curricular

Course name and venue		
		Italian Econometric Association: Side, 2020. "**Panel Data Econometrics: theory and applications**"
		AiIG Summer School, 2019, Palermo. "**Teaching in Management Engineering: scope, methods and practices**"
		EUSPRI **Entrepreneurial Finance** Summer School, 2019, Torino.
		EIASM, 2018, Bruxelles. "**EDEN Doctoral Seminar on Methods, Techniques and Theories in Entrepreneurship and Innovation**"

Research Interests

Areas of Research Interest		Entrepreneurial Finance and Entrepreneurship, Entrepreneurial Ventures' Valuation, Acquisition, IPO, Venture Capital, Signalling Theory and the interpretation of sequences of signals under bounded rationality assumption, Theory Integration

Working Papers

Title		
		Colombo, M. G., Montanaro, B., & Vismara, S. (2021). The Drivers of the Valuation of Entrepreneurial Ventures along their Lifecycle: a Map to Navigate the Literature and Suggest Future Research Directions. Working paper. To be submitted to Journal of Technology Transfer (April 2021)
		Colombo, M. G., & Montanaro, B. (2021). Signal sequences: Venture Capital, IPO and Startup Valuation at Acquisitions. Working paper.
		Colombo, M. G., & Montanaro, B. (2021). Signals' Effectiveness in an Auction Setting: the Impact of Acquirers' Information on Target Valuation at Acquisition. Working Paper.
		Cavallo, A., Ghezzi, A,, Giudici, G., & Montanaro, B. (2020). Determinants of exit value in the European startup market. Working paper.

Presentation at Conferences, Workshops and Seminars

Conference name, venue and presented paper		
		RISIS Research Seminar, 13th January 2021, Online Event. Colombo, M. G., & Montanaro, B. (2020). Signal sequences: Venture Capital, IPO and startup valuation at acquisitions. Working paper.
		Research Methods Paper Development Workshop, SMS 40th Annual Conference, 2020, Online Event. Colombo, M. G., & Montanaro, B. (2020). Signal sequences: Venture Capital, IPO and startup valuation at acquisitions. Working paper.
		SEI Doctoral Consortium, 2020, Bologna. Colombo, M. G., & Montanaro, B. (2020). Signal sequences: Venture Capital, IPO and startup valuation at acquisitions. Working paper.

		DRUID Academy, 2020, Odense. Colombo, M. G., & Montanaro, B. (2020). Signal sequences: Venture Capital, IPO and startup valuation at acquisitions. Working paper.
		IAFDS, 2019, Milano. Cavallo, A., Ghezzi, A,, Giudici, G., & Montanaro, B. (2020). Determinants of exit value in the European startup market. Working paper.
		RSA AiIG, 2019, Torino. Cavallo, A., Ghezzi, A,, Giudici, G., & Montanaro, B. (2020). Determinants of exit value in the European startup market. Working paper.
		EUSPRI ECC, 2019, Torino. Cavallo, A., Ghezzi, A,, Giudici, G., & Montanaro, B. (2020). Determinants of exit value in the European startup market. Working paper.

Acted as Referee for Conferences

Conferences		EURAM Annual Conference
Academic Journal		Small Business Economics, Industrial Marketing Management

Teaching Experience

• Date (from – to)		September 2020 - now
• Name of university		Politecnico di Milano
• Type of employment		**Teaching assistant for the course of Entrepreneurial Finance edition 2020/2021** (MSc course for Management Engineering degree - Finance stream) - taught in English
• Main activities and responsibilities		Assist the Professor in teaching activities, in organising guest lectures, in preparing didactic material and in assessing students.

• Date (from – to)		September 2019 - now
• Name of university		Politecnico di Milano
• Type of employment		**Teaching assistant for the course of Corporate Finance editions 2019/2020, 2020/2021** (MSc course for Management Engineering degree - Finance stream) - taught in English
• Main activities and responsibilities		Assist the Professor in teaching activities, in preparing didactic material and in assessing students.

• Date (from – to)		March 2019 - September 2019
• Name of university		Politecnico di Milano

• Type of employment		**Academic tutor** for students writing their BSc thesis in Management Engineering.
• Main activities and responsibilities		Individual meetings with students, review of final works.

• Date (from – to)		February 2019 - now
• Name of university		Politecnico di Milano
• Type of employment		**Teaching assistant for the course of Economics and Business Organisation editions 2018/2019, 2019/2020** (BSc course for Computer Engineering degree) - taught in Italian
• Main activities and responsibilities		Assist the Professor in teaching activities, in preparing didactic material and in assessing students.

Supervision of Students

2020/2021		Fabio Bronzin (co-supervision with Prof. Massimo Colombo (Politecnico di Milano)), MSc in Management Engineering, Thesis Title: "Valuation of Entrepreneurial Ventures in Acquisitions: Interplay of Human Capital and Previous Financing Signals"
2019/2020		Tommaso Brambilla (co-supervision with Prof. Massimo Colombo (Politecnico di Milano)), MSc in Management Engineering, Thesis Title: "Signals' Effectiveness in Acquisitions: the Impact of Acquirers' Information and Human Capital Signals on Target Valuation at Acquisition"
2018/2019		Shadì Feyzgiu (co-supervision with Prof. Massimo Colombo (Politecnico di Milano)), MSc in Management Engineering, Thesis Title: "Valuation at M&A: the effects of Human Capital and VCs' Signals"
2018/2019		Federica Angrisano (co-supervision with Prof. Massimo Colombo (Politecnico di Milano)), MSc in Management Engineering, Thesis Title: "The Interplay of Venture Capital and Initial Public Offering Signals on Entrepreneurial Ventures' Valuation in Acquisitions"
2018/2019		Leonardo De Castro (co-supervision with Prof. Giancarlo Giudici (Politecnico di Milano)), MSc in Management Engineering, Thesis Title: "The Determinants of Exit Value in the Italian Startup Market"
2018/2019		Paolo Ciampoli (co-supervision with Prof. Giancarlo Giudici (Politecnico di Milano)), MSc in Management Engineering, Thesis Title: "The Determinants of Exit Value in the Italian Startup Market"

Certifications

Certifications of language knowledge		TOEFL iBT – 17/09/2016 – 109/120
Other certifications		Introductory Certificate in Project Management (IPMA Italy), obtained in October 2016.

Personal skills and competences

Mother tongue		**Italian**

		English
• reading		excellent
• writing		excellent
• speaking		excellent

		French
• reading		elementary
• writing		elementary
• speaking		elementary

Technical skills and competences		- Microsoft Office: good knowledge; - Dev C++: academic knowledge; - MySQL: academic knowledge; - Stata: good knowledge.

In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Milan, 26th March 2021
Benedetta Montanaro



Motivation essay supporting the application in

NBER Entrepreneurship Research Boot Camp 2021
Virtual Workshop - August 2-13, 2021

Since the beginning of my PhD, I have always been fascinated by Entrepreneurial Finance. In my PhD experience, I have been working mainly in the domain of Corporate and Entrepreneurial Finance, and I combine my research activity with regular teaching duties in the same fields in both BSc and MSc engineering programs' courses.

My main research interest lies on the study of the valuation of entrepreneurial ventures observed when their equity is exchanged between two parties, e.g. in venture capital rounds, IPO or an M&A. I decided to investigate valuation because it is a highly challenging topic. Entrepreneurial ventures are characterized by high uncertainty, predominantly intangible assets, lack of track records and reluctance of insiders to divulge information due to the risk of knowledge misappropriation. This makes investors rely on their gut feeling when they need to evaluate a company. Improving our understanding of venture valuation has proved extremely challenging for scholars as well. Indeed, the related literature encompasses studies in entrepreneurship, finance, management and economics and is highly fragmented. For this reason, the first aim of my PhD thesis is mapping the drivers of ventures' valuation across the different financial milestones that ventures go through, and the theoretical lenses that scholars use to interpret the drivers' effects on valuation.

Furthermore, within the scope of my PhD thesis I had the chance to focus on the acquisition phenomenon. Moving from the assumption that information asymmetry can be mitigated using signaling theory (Spence, 1973), I am currently exploring how entrepreneurial ventures' valuation in acquisition can be impacted by signals. Starting from evidence in the IPO domain, I verify whether signals valid for homogeneous and non-diversified markets investors characterizing IPOs are effective also in acquisitions, that require a match between one target and one buyer. In particular, the acquisition context provides room for theory integration. I build on studies that model acquisitions as auctions, wherein competition between multiple bidders for a target venture increases its price (e.g. Betton et al., 2009). However, bidders often have different information sets on the target, and this information asymmetry makes them more cautious in their offerings, undermining competition and negatively influencing valuation. I integrate auction and signaling theory to investigate how signals can restore a high level of competition among bidders. This setting enables me to extend signaling theory by introducing into its construct a measure for information asymmetry, as suggested by Connelly et al. (2011). Moreover, I challenge the assumption of perfect rationality behind signaling theory, and cast light upon how different signal receivers notice, use, and interpret signals.

On top of that, I am also interested in investigating how the financial sequences of entrepreneurial ventures influence their valuation, and I am planning to develop my future research in this direction. Traditional corporate finance studies have modelled firm financing mainly through a "classical" sequence, from business angels and VC investments to IPOs (or acquisitions). However, firms are increasingly evolving through non-traditional and non-linear paths. For example, some ventures raise VC after going through an equity crowdfunding campaign, while others do the opposite. Other firms are acquired soon after going public. Since equity financing is a repeated game in which entrepreneurial ventures interact with different investors across different timeframes, valuations at different financial milestones are linked to each other. This implies a higher risk that

firms' valuation will be inflated. According to Gornall and Strebulaev (2020), VCs overvalue post-money valuations by almost 50% on average. The inflation generated in this way may have negative consequences. For example, firms' valuation may grow at every VC round up to the IPO and then deflate soon after going public, as in the case of WeWork, Uber and Lyft[1]. At the same time, however, obtaining high valuations allows institutional investors such as VCs to make their business sustainable. Indeed, VCs need to liquidate their initial investments after a few years, obtaining sufficiently high returns. This dilemma deserves further research and is part of a bigger debate on whether the Silicon Valley model, based on high tech venture capital–funded companies (Lerner, 2012), is still valid to address the most urgent economic issues nowadays, involving economic and social disparities and inequality in the distribution of wealth and income (e.g. Audretsch, 2021).

My desire to engage in challenging and dilemmatic research makes me a valuable candidate for the NBER Entrepreneurship Research Boot Camp 2021. I can benefit from debates on the new frontiers of Entrepreneurship and Entrepreneurial Finance for several reasons.

First, it is of crucial importance for me to settle now the boundaries of my future research in a way that allows me to address and contribute to solve some of the new problems that the modern society will go through due to the current crisis. Being halfway through my third and final year of PhD in such a dramatic moment that can become a turn point in academia and especially in the entrepreneurship arena, I truly feel the need to push my research to the next level.

Second, these years as doctoral student, I had the chance to discuss and start cooperating with prominent international scholars in the field, although they are all based in Europe. Participating to the Boot Camp would allow me to come into contact with researchers from other socio-economic contexts, and give a further boost to my career.

Last, since I am also highly engaged in teaching activities in courses related to some of the topics covered in the Boot Camp, being involved in this event would give an edge to my lectures and my didactic approach.

References

Audretsch, D. B. (2021). Have we oversold the Silicon Valley model of entrepreneurship? Small Business Economics, 56, 849–856.

Betton, S., Eckbo, B. E., & Thorburn, K. S. (2009). Merger negotiations and the toehold puzzle. Journal of Financial Economics, 91 (2), 158–178.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling Theory: A review and assessment. Journal of Management, 37(1), 39–67.

Gornall, W. & Strebulaev, I. A. (2020). Squaring venture capital valuations with reality. Journal of Financial Economics, 135, 120–143.

Lerner, J., Leamon, A., & Hardymon, F. (2012). Venture capital, private equity, and the financing of entrepreneurship. New York: John Wiley & Sons, Inc.

Spence, M. (1973). Job market signalling. Quarterly Journal of Economics, 87, 355–374.

[1] For further details: https://www.nytimes.com/2019/09/26/business/tech-ipo-market.html

Milan, 23rd March 2021

Dear Organizing Committee of the 2021 NBER Entrepreneurship Research Boot Camp,

I am pleased to recommend Ms. Benedetta Montanaro for the participation to the NBER Entrepreneurship Boot Camp 2021 edition.

Benedetta Montanaro is a third year PhD student in Management Engineering at Politecnico di Milano, Italy.
Her research interests are mainly related to Entrepreneurial Finance topics. In her thesis, she investigates the determinants of the valuation of entrepreneurial ventures in acquisitions. She discussed her research proposal in October 2019, she has successfully completed all the courses included in her PhD program and she plans to end the PhD in 2022. Her dissertation comprehends a literature review on the drivers of entrepreneurial venture valuation at different milestones in firms' lifecycle and the related underlying theoretical mechanisms, and two empirical works. The empirical papers aim at improving our understating of ventures' valuation in acquisitions by integrating signaling theory with (1) auction theory, to study how signal works in the target–bidders relationships characterizing acquisitions, and (2) problemistic search theory, to examine the impact on valuation of the temporal sequencing of signals. Her thesis is positioned in the intersection between economics and management literature. Indeed, although the origins of signaling theory lie in economics, her work challenges the assumption of perfect rationality behind the way signal receivers process information, stressing that receivers do not perceive all signals equally.

Beyond working on her dissertation, Benedetta actively cooperates with our research group. She has been involved in different side projects among which the maintenance of VICO, a proprietary database developed within the framework of RISIS2 project, funded by the European Union under Horizon 2020. She has successfully collaborated by collecting and organizing geographical, industry, accounting and investment information on all the European, UK and Isreali start-ups that received at least one venture capital round in the period 2010-2018.

Moreover, she shows interest and passion for her research topics also through her engagement in teaching activities. Since the beginning of the PhD, she has been involved as lecturer and teaching assistant in courses on Entrepreneurial Finance, Corporate Finance and Business Administration, both at BSc and MSc level. She fruitfully prepared part of the courses' material, held classes, managed interactions with students, arranged guest lectures inviting prominent practitioners in the field such as Venture Capitalists and Business Angels, organized exam calls and assessed students. She has received positive feedbacks from courses' participants.

Last, Benedetta is eager to move forward in her career and enlarge her network. Indeed, she is about to start cooperating with other prominent international scholars in entrepreneurial finance.

In the next weeks, she will start an online visiting period at University of Ghent under the supervision of professor Sophie Manigart.

In light of her experiences and attitude, I enthusiastically support Ms. Montanaro's application to participate to NBER Entrepreneurship Boot Camp. Thanks to her eagerness and assiduity as a student, along with her desire to always positively contribute to discussions and build connections with other researchers, her presence to the consortium can be beneficial both to her and to all participants.

If I can be of further assistance, or provide you with more information on Ms. Montanaro experiences and achievements, please do not hesitate to contact me at massimo.colombo@polimi.it.

Best wishes,



Massimo G. Colombo

Full Professor of Entrepreneurship and Entrepreneurial Finance
Vice-dean for Research,
Politecnico di Milano School of Management