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Digitization in the Market for Entrepreneurial Finance: Innovative Business Models and New Financing Channels

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Abstract

Digitization creates new financial channels that complement traditional intermediaries, but may raise concerns over fraud, cybersecurity, or bubbles. Artificial intelligence and machine learning change the way in which traditional investors work. This special issue focuses on economic, cultural, and regulatory determinants of fintech development, and on the new forms of information production and processing engendered by digital entrepreneurial finance. We provide a general overview of digitization in the market for entrepreneurial finance, illustrate how the different articles in the special issue contribute to advance our knowledge, and identify promising avenues for research.

Keywords

entrepreneurial finance, crowdfunding, initial coin offering, digitalization, angel

Introduction

Digitization, the process of creating a digital representation of a product or a process, is probably the most important transformation of the global economy since the industrial revolution. Entrepreneurial business models are changed as inherently digital products and services are designed to compete on a global scale (Monaghan et al., 2020). Scalability and growth disproportionately reward founders and investors, igniting a cycle of increased attention by traditional and nontraditional investors.

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Taking a financial industry perspective, digitization is disrupting the traditional financial services sector, including banking and insurance, driven by a new breed of entrepreneurial companies. These fintech and insurtech companies aim to either offer a better experience to the end customer, including offering totally new services, or improve the efficiency of their delivery of financial services (Bollaert et al., 2021; D'Acunto et al., 2019). Payment systems have started being digitized decades ago with the widespread adoption of credit and debit card. Yet, these early developments did not truly challenge the strength of the incumbent players' monopolistic rents and largely kept the industry unaltered. With digital transformation, the financial industry has seen radical changes in all areas: smaller more agile players, pioneered by PayPal, have brought game-changing technologies to the payment market. Innovative start-ups have broken the seemingly unconquerable domain of currency exchange. Ingenious players have started using artificial intelligence (AI) and machine learning (ML) to provide tailored management services and advanced trading tools in areas previously simply non existing such as for instance bond trading. Finally, the very essence of finance and banking—lending and capital provision—has been similarly and deeply affected by this phenomenon (Chen et al., 2019; Cong & He, 2019; Thakor, 2020). Banks, while still subject to regulatory supervision, have reacted to the threat of newcomers by venturing into previously unexplored territories (Buchak et al., 2018).

While billions of dollars have been invested in the fintech industry around the globe, there are significant gaps in our understanding of their specific role, and of their impact on customers, other entrepreneurial companies, and incumbents, and about what drives their success (Allen et al., 2021; Goldstein et al., 2019). These are critical questions especially in the light of the COVID-19 pandemic that has massively hit the global economy, challenging traditional sources of start-up capital (Howell et al., 2021) but also spurred digitization at an unprecedented rate.

Second, digitization also alters the type and timing of finance that support entrepreneurs. It has opened alternative financing channels like crowdfunding and initial coin offerings (ICOs), which now complement traditional venture capital (VC) and business angel (BA) funding. This fast and disruptive process has led to a new environment in which the proliferation of innovative funding sources for new ventures has substantially increased the complexity of the start-up financing eco-system. Equity underwriting is considerably simplified and disintermediated (Hervé & Schwienbacher, 2018), offering start-ups the opportunity to obtain finance from a crowd of small retail (i.e., nonprofessional) investors. Moreover, alternative financing channels provide start-ups with a different type of value added (e.g., market test) from the one offered by VC and BA, and funding opportunities that might be particularly useful when other sources are not available (Walthoff-Borm et al., 2018).

Finally, digitization also rejuvenates traditional entrepreneurial finance intermediaries like BA and VC investors, for example, by offering new target search technologies or new methods to assess risk, which is now data driven and significantly more granular (Bartlett et al., 2019).

Within this context of radical change in the entrepreneurial finance ecosystem (Sussan & Acs, 2017), this special issue aims at improving our understanding of the impact of digitization on the market for entrepreneurial finance. We explore how digitization has spurred fintech entrepreneurship, developed new types of players in the entrepreneurial finance ecosystem, and transformed traditional entrepreneurial finance channels. We elaborate the overarching framework of analysis of the special issue in the next section, and discuss the specific contributions selected for this issue in the following section.

A Framework of Analysis

Fintech and New Providers of Financial Services

The process of digitization has found ideal grounds in the financial services industry, giving rise to the notion of fintech sector. Broadly defined, fintech refers to companies leveraging on technological solutions to expand and improve the offering of financial services at large. Fintech is a global phenomenon. In the US, VC investments in fintech grew from $7.8 billion in 2017 to more than $20 billion in 2020 (NVCA, 2021). China is home to some of the most highly valued fintech companies in the world (e.g., Ant Financial, JD Digits, and Du Xiaoman Finance). In Europe, London (UK), Berlin (Germany), Amsterdam (Netherlands), and Stockholm (Sweden) are among several active hotspots of fintech activity (e.g., Adjen, Revolut, Mollie, Klarna). And interestingly, fintech companies are also revolutionizing financial systems in developing countries such as India, which is home to several fintech unicorns (e.g., Paytm, Zerodha), and Africa, where mobile payment and banking systems are boosting financial inclusion (e.g., Paystack, Paga). The size of the underlying markets and niches and the possibility of taking advantage of slow responses by incumbents have led to an exponential rise of fintech deals. Despite the pandemic slowdown in the first half of 2020, fintech deals almost doubled in just 4 years: global VC activity in fintech was $42.3 bn (+81% on 2017), global private equity activity in fintech was $2.7bn (+145% on 2017), and global mergers and acquisition (M&A) activity in fintech was $61.3bn (+77% on 2017; source: KPMG, 2021).

While this growth has been largely welcomed as a much-awaited channel through which oligopolistic rents that reduced efficiency for the consumers are weakened (e.g., Robinhood, a commission-free investment platform that attracted the largest VC fintech investment in 2020), its distribution is extremely heterogeneous and very little is known about the consequences of such innovations.

For example, after decades of relative stagnation, the multi-trillion USD financial advisory market has been abruptly shaken by the emergence of robo-advisors. Robo-advisors are expected to manage more than $2 trillion of assets by the end of 2020 and more than $16 trillion by 2025 (Deloitte, 2016). New entrepreneurial companies such as Betterment, Nutmeg, or FutureAdvisors have raised billions in VC financing and have transformed the approach to financial advisory by introducing rapid communication, AI and ML tools and, importantly, by and large automating a process that was inherently personal. Stolper and Walter (2019) and Foerster et al. (2017) have shown that human-managed financial advisory is profoundly, for good or for worse, influenced by the affinity between investors and advisors, measured as homophily. Robo-advisors remove the human component from the equation. Is this a harmless change? Robo-advice mitigates some investment biases (Rossi & Utkus, 2020) and, at least to some extent, democratizes access to financial investments (Reher & Sokolinski, 2021). However, robo-advice could also change investors' exposure to risk: Loos et al. (2020) find that after joining a robo-advising service, investors hold more risky assets but have better diversified portfolios across regions and industries. Changes in the behavior of consumers of Fintech services such as consumer lending (Affirm) and trading (Robinhood) have also been documented. In aggregate, this evidence indicates a compelling need to investigate the—intended and unintended—effects and consequences of such transformative processes in finance.

New Channels for Entrepreneurial Finance

The rise of alternative financial channels is probably the most visible outcome of the digitalization of entrepreneurial finance ecosystem. The last 10 years, we have witnessed the emergence of equity crowdfunding, peer-to-peer (P2P) lending, and ICOs, which have profoundly changed

the entrepreneurial finance ecosystem, offering a more granular sequencing of capital provision (Block et al., 2018; Bonini & Capizzi, 2019). Excluding China, the volume of alternative financial markets grew from $89 billion to $91 billion in 2019 (+3%), and to $113 billion in 2020 (+24%) (Cambridge Centre for Alternative Finance, 2021). China, which represented a substantial portion of the global alternative finance market until 2018, has instead seen a considerable slowdown following the introduction of stricter regulation: the Chinese market, which, accounted for 48% of the global volume in 2019, is only 1% of the global volume in 2020 (Cambridge Centre for Alternative Finance, 2021).

Equity crowdfunding involves the sale of firms' equity shares through an online platform. Its global volume was $1.5 billion in 2020, which is 15% of the total seed and venture stage equity investments (Cambridge Centre for Alternative Finance, 2021). P2P lending matches crowd of lenders with borrowers who are seeking loans through an online platform, and is still the largest type of global alternative financial market, despite the significant slowdown due to new regulation introduced in China (Cambridge Centre for Alternative Finance, 2021). The growth of these alternative financial channels has been made possible by the introduction and diffusion of digital platforms that have dematerialized and streamlined the process of distributing information, accessing investors, transferring securities, and making payments. The spectacular rise (and partial decline) of ICOs, whose global volume (reflected in ICO proceeds) increased form $7 billion in 2017 up to $20 billion in 2018 (PWC, 2020), and then down to $3 billion in 2019 (Haffke & Fromberger, 2020), has clearly indicated the possibility of a complete digitization of the process of not only funding but also developing a company in a decentralized setting. With an ICO, entrepreneurs have been able to overcome these boundaries cutting out intermediaries and regulators alike and directly catering to individual investors. Yet, this increased complexity also poses significant challenges in selecting the optimal source of financing, in matching investors with companies and in reaching the broadest possible investor base.

The Transformation of the "Traditional" Entrepreneurial Finance Industries

A similarly relevant question points at the consequence of the digital transformation of traditional entrepreneurial finance providers. AI and ML have vastly enriched investors' decision-making practices, resulting not only in faster decisions but also in more accurate and complete analysis based on a wider set of information, even when this information has a degree of structure and is rapidly changing (Jordan & Mitchell, 2015; Thakor, 2020).

AI-driven platforms, for example, help VC funds or angel investors scout opportunities and select the most promising deals, as shown by the examples of SocialCapital and InReach Ventures that have largely automated the process of screening and due diligence. The adoption of AI in entrepreneurial finance is accompanied by significant ethical, regulatory, and economic problems, however, that call for further scrutiny.

Key Questions

In this special issue, we set to provide much-needed evidence on digitization and the market for entrepreneurial finance. We focus on some open questions with far-reaching consequences on the ongoing transformation of the entrepreneurial finance ecosystem and its future growth trajectory. In particular: how the availability of VC and credit markets in affects the development of fintech ventures across different countries; the interdependencies between country-level regulation of digital finance channels, with special reference to ICOs; the change in the boundaries of fundraising following the introduction of blockchain currencies; the disrupting role of P2P lending in

replacing traditional banks; the rising role of crowdfunding platforms as digitally distributed information discovery mechanisms; the automation of investment decision in early stage financing through ML selection models; and the link between entrepreneurs' human capital and the innovativeness of VC-backed high-tech start-ups.

In the following subsections, we will present a more detailed overview of each topic as how papers included in this special issue contribute to its understanding.

Fintech and Start-Up Formation

The exponential growth of a technology-fueled industry that was essentially nonexistent before the global financial crisis raises several interesting questions about a more general topic: the institutional determinants of startup formation and the development of entrepreneurial industries (Shane, 2008). Fintech startups are not evenly distributed around the globe, and hence we might question how the availability of funding sources for entrepreneurial ventures in a particular region drive the emergence of fintech startups.

One of the key tenets of entrepreneurial finance is that entrepreneurship can benefit from a well-functioning financial market. A substantial number of studies in the literature support the fact that financial markets, and especially the availability of VC and credit, are one of the key institutional factors influencing the quality and quantity of entrepreneurship (Deloof et al., 2019; Chowdhury et al., 2019; Popov & Roosenboom, 2013; Samila & Sorenson, 2011). The literature however also shows that the availability of capital alone is not sufficient to start the virtuous cycle of entrepreneurial finance (e.g., Florida & Smith, 1990), and that it is difficult, if not impossible, for governments to single-handedly kickstart a well-functioning entrepreneurial finance market (see Lerner, 2012).

Kolokas et al. (2021) contribute to this debate by focusing on how the availability of VC and credit in a country has differently contributed to the growth of local fintech start-ups. The starting point of their analysis, and their main contribution to the existing literature on this subject (e.g., Cumming & Schwienbacher, 2018: Haddad & Hornuf, 2019), is that they incorporate and explicitly focus on the fundamental nonlinearity of the relationship between financing and entrepreneurship. This nonlinearity derives in part from the complex interaction between formal and informal elements of a national innovation system (e.g., Li & Zahra, 2012), and specifically by the interaction between different types of providers of entrepreneurial finance. But nonlinearity also derives from the fact that the norms and practices of entrepreneurial finance investors require a critical mass of investment activity to become fully functional. The authors argue that this "phase transition" is fundamental for VC financing, and it will result in a weaker positive impact of the availability of VC on fintech entrepreneurship in those countries with limited fintech entrepreneurship. In contrast, the norms and practices of banks should expose them less to this externality, limiting the nonlinearity.

When looking at the "median country," the authors find that the relationship between VC availability and fintech entrepreneurship is weaker (stronger) in countries with less (more) fintech entrepreneurship. As expected, these differences are not observed for credit availability. Finally, the authors look at the interaction between VC and credit and find that the two sources of financing are in substitution. This contribution is particularly relevant because the literature tends to be segmented along different sources of financing (Cumming & Johan, 2017; Cumming & Vismara, 2017).

This work raises several additional questions that we hope future research will be able to answer. First, the authors study the interplay between two fundamental sources of financing (VC and credit) for start-ups, but the landscape of financing sources is much broader and includes both traditional sources such as subsidies, grants, and BAs as well as more recent forms of

financing such as crowdfunding and ICOs. The interaction among, and potential nonlinearities of, these different sources of financing has not been explored yet. Second, the authors study startup formation at the national level, but a more fine-grained level of analysis would be interesting. As mentioned earlier, fintech companies tend to cluster in hotspots, often around existing successful initiatives (e.g., a whole ecosystem of fintech companies has grown around Ant Financial in Hangzhou, China). This is clearly a phenomenon that is not unique to fintech and has a more general interest for research in entrepreneurship and regional studies. Finally, the cases of mobile banking (Van der Boor et al., 2014) and shadow banking (Buchak et al., 2018) clearly illustrate that fintech companies not only represent investment opportunities for, but they are also potential competitors of traditional entrepreneurial finance investors (see also Stulz, 2019; Thakor, 2020). To this extent, financing gaps could harm fintech entrepreneurship through the mechanisms described in Kolokas et al. (2021), but they could also provide interesting business opportunities for fintech companies. This makes the relationship between fintech and incumbent investors even more complex and interesting to study.

The Boundaries of Financing Mechanisms

Advances in digitization have spurred the emergence of ICOs, which has profoundly changed the way in which some start-ups raise capital. This has given rise to the question to which extent ICOs are eliminating the boundaries of sovereign regulations? On the one hand, the decentralized nature of blockchain-based tokens seems to be incompatible with a specific country's regulation. On the other hand, though, the country of investors may claim rights to impose constraints on investors residing in its territory. The patchy record of transparency of many issuers and a strict crackdown by some countries, the United States and China in particular, on ICOs have cooled off this phenomenon in the second half of 2019. However, the COVID-19 pandemic has had a very heterogeneous impact on individual economies across the world and has determined a sharp decline in access to finance for entrepreneurial ventures especially in Europe and the United States (Howell et al., 2021). The disintermediated, direct-financing nature of ICOs has the potential of leading to a comeback of such source of financing for new ventures in an even more digital, post-pandemic environment.

While dealing with the issues of regulation in ICOs may involve revisiting the entire concept of boundaries of the firm, addressing these questions is clearly an urgent priority. To this end Bellavitis et al. (2021) provide a compelling empirical analysis of (a) how regulatory changes may have spillover effects in other countries and (b) how these regulatory spillover effects are different in the short term versus the long term. Their results indicate that following a ban on ICOs in China and Korea, other countries have experienced a sudden drop in offerings that however led to an increase in the quality of the offering flow to the market. These results are viewed in the light of an innovative institutional theory of regulatory spillovers, which suggests that regulatory bans in specific countries can have far-reaching effects in other countries that policymakers need to clearly factor in their regulatory design. In particular, the authors note that "national regulators and policymakers cannot operate independently in a vacuum without regard to other countries' policies towards ICOs." Differently, in a highly digital world where the boundaries between individual countries' regulation and financial markets become increasingly porous, policymakers should frame their interventions keeping in mind the inbound and outbound effects on other countries, but similarly be attentive to external regulatory choices as they might reflect in unexpected domestic changes. Similarly, entrepreneurs necessarily may afford—but also need—to take a more holistic view to fundraising that extends significantly beyond their domestic setting.

Information Production in Equity Crowdfunding

While the first two papers in this special issue analyze how country-level institutions and policy interventions impact how digitization affects the market for entrepreneurial finance, Cumming et al. (2021) focus on how one particular policy intervention impacts the functioning of equity crowdfunding campaigns. The equity crowdfunding market is fraught with information opacity on the one hand and small, unprofessional investors with limited incentives and/or capabilities to produce information on the other hand (Vismara, 2018a). It hence offers ample opportunities to design practices that alleviate information asymmetries.

Cumming et al. (2021) exploit the possibility of the French law to allow a "testing the waters" policy in equity crowdfunding campaigns, that is, soliciting nonbinding indications of investor interest prior to filing disclosure material. This policy is prohibited in the U.S.A. because it might induce investors to invest without proper disclosure (Cumming et al., 2021). In contrast, proponents highlight the desirable feature that this practice may increase information production, which might be especially useful in environments where information is opaque, like crowdfunding campaigns. This information may be valuable to actual investors in this campaign but also to the crowdfunding platform managers. They show that individual investors who indicated their willingness to invest 1 EUR in a campaign tend to invest only 0.18 EUR and hence that the initial indication of interest is highly hypothetical, suggesting that the information provided by these indications of interest might be limited. They explain this discrepancy as a "hypothetical bias," which is a situation whereby "what people say is different from what they do" (Hausman, 2012). This concept is widely used in consumer research. This phenomenon is driven by the fact that in a hypothetical distant context, desirability is driving individuals' answers but in a real, close situation, feasibility dominates (Liberman & Trope, 1998). Cumming et al. (2021) further show that this hypothetical bias in testing-the-waters situations in crowdfunding campaigns is significantly less pronounced among women but higher among investors living in higher income areas or in areas with higher levels of education, which are hampered by lower levels of social trust, which negatively affects the likelihood of fulfilling commitments.

Importantly, despite the high level of hypothetical bias, campaigns that attract a higher initial indication of interest have, on average, a higher probability of success and aggregate intended and realized investments are quite close. Allowing for testing the waters in equity crowdfunding, hence, allows to reveal information on the campaign outcome: initial indications of interest are a strong signal of ultimate campaign success, even when they are nonbinding. This is consistent with the notion that the crowd can forecast the collective behavior of investors, in line with earlier findings that nonexpert investors are good at predicting financial outcomes in financial markets (Avery et al., 2015; Jame et al., 2016). These results are not only important for policy makers to guide them into regulating equity crowdfunding, but also for entrepreneurs and crowdfunding investors.

P2P Lending as a Nexus of Trust

What has boosted the growth of alternative financial markets? This is a crucial research question that has somehow been neglected by the extant entrepreneurial finance literature. Indeed, most previous studies have initially concentrated attention on the factors that drive the success of fundraising campaigns, in reward-based crowdfunding (e.g., Butticè et al., 2017; Colombo et al., 2015; Mollick, 2014), equity crowdfunding (e.g., Ahlers et al., 2015; Vismara, 2018b), P2P lending (Morse, 2015), and more recently in ICOs (e.g., Fisch, 2019; Giudici & Adhami, 2019). A growing literature has also considered post-campaign outcomes, and notably has investigated whether and under what conditions running a successful campaign in an alternative financial

market increases the probability of obtaining finance from traditional channels, especially VC (e.g., Butticè et al., 2020; Colombo & Shafi, 2019; Roma et al., 2017; Signori & Vismara, 2018). Conversely, the drivers of the diffusion of alternative financial markets have received relatively less attention.

Saiedi et al. (2021) tackle this issue in P2P lending. They consider drivers of the supply of funds (i.e., the lender side), and focus attention on the role of distrust in banks and other traditional financial institutions arising from individuals' perception of these institutions as incapable, unreliable, and/or opportunistic. They show that in states where individuals have higher distrust in banks, there is higher participation in funding P2P loans and the amounts committed to P2P loans are greater. Moreover, the positive relation between distrust in banks and the inclination to subscribe P2P loans is stronger for borrowers who reside in areas with limited access to banks and for smaller loans that presumably are too small for banks.

These results expand our understanding of the motivations of crowd investors. Previous studies have highlighted (extrinsic and intrinsic) "positive" motivations that are related to the expected increase of the personal utility of crowd investors in P2P lending (e.g., Lin et al., 2013). Saiedi et al. (2021) point to a "negative" motivation of P2P lenders, distrust in banks, that reduces their opportunity cost of making a bid to P2P loans.

Their results are also complementary to evidence provided by previous studies that considered the demand side of P2P lending, showing that borrowers view P2P platforms as an alternative to local banks. For example, Tang (2019) provides evidence that P2P platforms operate as substitutes for banks. Butler et al. (2017) find that borrowers located in areas with poorer access to banks seek loans on Prosper.com at higher interest rates, especially when they are relatively high risk and seek small loans. These findings again suggest that banks and P2P platforms are viewed by borrowers, especially marginal ones, as substitutes. The results of Saiedi et al. (2021) point to a reinforcing mechanism on the supply side. Indeed, many prospective lenders are attracted to P2P platforms because of their distrust in banks, and these lenders are favorably inclined to finance marginal borrowers.

The Automation of Investment Decisions

The opportunity to adopt AI and ML algorithms for investment decisions in entrepreneurial finance remains still largely unexplored. Blohm et al. (2021) address this issue by exploring how AI-aided investment decision-making compares with investment decisions of BAs and angel investment organizations (AIOs), two major providers of early-stage funding (e.g., ACA, 2019; EIF, 2020). Differently from more structured and formal investors such as venture capitalists, BAs are individual investors, typically high-net-worth individuals investing their own wealth in young ventures and providing portfolio companies also with nonmonetary contributions (such as coaching, mentoring, relationship network, reputation). Over time, BAs have been increasingly professionalizing more and more their investment practices and some organized themselves in AIOs—also referred to as groups, networks, or clubs, depending on their internal structures. However, BAs and AIOs still tend to base their investment decisions on heuristics, soft information, and intuition, though honed by experience. This induces cognitive biases—such as local bias, overconfidence, and loss aversion—in their decision-making (Huang & Pearce, 2015; Tversky & Kahneman, 1974).

Therefore, Blohm et al. (2021) investigate whether ML can support BAs' investment decisions—especially those of less experienced BAs and those more affected by cognitive biases—to maximize the efficiency as well as the profitability of their investment process. The authors compare the investment returns of a state-of-the-art ML algorithm with the investment returns of 255 BAs who invested via a large angel investment organization.

The first major finding is that, on average, ML-based investment decisions lead to higher early-stage investment returns than those achieved by human BA investors. Second, BAs' decision biases are the reason ML algorithms generally outperform, presumably because the latter are unbiased, in that they do not suffer from cognitive resource limitations when processing and interpreting a large amount of complex data and they are unaffected by possible misjudgments emerging in a human-based decision-making process. This finding emphasizes the role of BAs' human capital as a fundamental decision driver in complex and uncertain contexts, such as investing in the entrepreneurial finance ecosystem. Interestingly, Blohm et al. (2021) found that experienced BAs are able to suppress their decision biases and thereby achieve higher investment performance than ML algorithms. This implies a possible selective human advantage in early-stage decision-making. Future research will have to face the challenge of understanding how to set new and more efficient investment practices leveraging on both the advantages of AI with the strengths of BAs' human capital.

Human Capital and Innovation

It is a stylized fact in the entrepreneurship literature that the human capital of start-ups' founders and of the members of their top management teams ("top management quality") stands out as a critical determinant of the creation and success of entrepreneurial firms (Colombo & Grilli, 2005; Mosey & Wright, 2007).

It is well known that venture capitalists and other early-stage investors pay special attention to the top management team quality of private firms before investing in them (Bernstein et al., 2017; Colombo & Grilli, 2005; Gompers et al., 2020). However, there has been relatively little analysis in the literature on the relationship between the top management quality of VC-backed private firms and their capacity to innovate successfully, therefore boosting the growth of economic and social systems. Chemmanur et al. (2021) use a hand-collected dataset on the characteristics of the top management teams of VC-backed private firms to fill this gap in the literature by empirically analyzing two related research questions. First, how does the top management quality of private firms affect their innovation productivity and innovation strategies in the years immediately before going public? The authors make use of various measures of top management quality and relate them to measures of innovation inputs, such as R&D expenses, and measures of innovation outputs such as the number of patents awarded to firms (quantity of innovation) and the number of citations per patent (quality of innovation), as well as measures of their innovation strategies. Second, how does the market for initial public offerings (IPOs) reward greater innovativeness and various innovation strategies of private firms in terms of the market valuation of their equity (both at the IPO and in the immediate post-IPO secondary market)?

Chemmanur et al. (2021) hypothesize that higher quality management teams hire higher quality scientists and other researchers, invest in more innovative projects, and manage these projects more ably, leading to higher innovation productivity. Consistent with this, the authors show that firms with higher top management quality are associated with higher innovation productivity in their pre-IPO years. The above relationship holds for measures of input to innovation (R&D expenses) and for measures of innovation output such as the number of patents (innovation quantity) and citations per patent (innovation quality). Further, the empirical analysis shows that firms with higher quality top management teams are more likely to produce explorative rather than exploitative innovations and are more likely to hire higher quality inventors. Finally, as for the second research question, the authors find that the financial market rewards firms with greater pre-IPO innovation productivity and with explorative rather than exploitative innovation strategies with higher valuations (both at IPO and in the immediate post-IPO equity market).

Discussion and Conclusions

The disruption that digitization is causing to financial intermediation opens a number of key questions on public welfare, financial inclusion, discrimination, cybersecurity, and regulation (Allen et al., 2021; Bollaert et al., 2021; Goldstein et al., 2019). Even if we restrict the analysis to the relatively narrower field of digital entrepreneurial finance, the challenges and opportunities for researchers are enormous.

First, as suggested by Farag and Johan (2021), new forms of intermediation in entrepreneurial finance can give us a new way of looking at central themes in corporate finance from new angles. New players differ in the way they produce and process information, which creates opportunities for researchers. This is for instance the case with crowdfunding (Le Pendeven et al., 2021), where the flow of information between firms and investors is much easier to observe and quantify than in other entrepreneurial finance settings. Distributed ledger technology can also provide an unparalleled level of transparency over customer engagement and investor transactions in startups, which opens interesting opportunities to research the effects of financial events (such as M&A and VC rounds) on operating activities.

Second, our understanding of the relations between digital and traditional financial channels for entrepreneurial ventures is still rather limited. Some previous studies show a positive association between digital and traditional financing sources (Drover et al., 2017). Other studies highlight boundary conditions under which access to digital financial channels makes the receipt of follow-on financing from professional investors more likely (Butticè et al., 2020; Roma et al., 2017). In this special issue, Saiedi et al. (2021) suggests a substitutive relation. We need further research adopting a more fine-grained lens that distinguishes between different types of alternative (equity crowdfunding, P2P lending, ICOs) and traditional (independent VC, corporate VC, governmental VC, BAs) financing channels. Moreover, while conventional wisdom associates alternative financing channels with ventures' seed stage, there are ventures that use digital finance after the receipt of finance from traditional sources (Colombo & Shafi, 2019). Considering that the financing of entrepreneurial ventures is path dependent, in that their early funding choices persist over time (Samuelsson et al., 2021; Vanacker et al., 2014), it is important to understand how digital finance has changed the sequences through which entrepreneurial ventures receive financing and what are the implications for the performance of these firms, as reflected in their ability to grow and/or go through a successful exit (through an IPO or an acquisition). Moreover, one wonders whether firms created by entrepreneurs who traditionally experience difficulties in obtaining external finance from professional investors, for example, because of their gender (Marlow & Patton, 2005) or because of their firm's location in peripheral areas far from VC hubs (Colombo, D'Adda, et al., 2019; De Prijcker et al., 2019), exhibit different patterns in terms of sequences of use of digital and traditional financial channels. Do these new players help to alleviate financing constraints for these ventures, leading to a further democratizing of entrepreneurial finance? Further, we currently lack an understanding of what the performance consequences are of these funding differences, both in types of funding and in the timing and sequence of funding.

Third, the proliferation of AI- and ML-driven solutions to virtually every economic activity makes it natural to expect a quick and disruptive application to the complex task of project selection by professional investors, where large swaths of data can be utilized to identify dominant opportunities. However, the potential of a large-scale adoption of big data and ML algorithms opens important operating and ethical questions. From an operating standpoint, we need to understand better whether the identification of future successful trends and ventures is the type of high-signal-to-noise ratio application where ML excels (Israel et al., 2020), or whether the entrepreneurial finance context is too noisy and dynamic to generate reliable outcomes. The

paper by Blohm et al. (2021) provides initial evidence of superior performance of data-driven techniques over traditional approaches, especially when investors lack relevant experience. We expect however this area to spur substantial more research that can further probe the existence of an upcoming transformation of investment selection practices.

From an ethical perspective, the success in the adoption of AI/ML investment selection tools won't be determined solely by its financial performance. A rich and growing literature has recently highlighted how gender and race biases are surprisingly widespread in the financing of ventures (Gornall & Strebulaev, 2020; Hebert, 2021; Zhang, 2021). These biases translate in a systematic underfunding of female and minority start-ups and related vigorous calls to address such differential access (e.g., Lang & Van Lee, 2020). While algorithmic approaches may be expected to be unaffected by these kind of human distortions, the empirical evidence has shown otherwise, identifying a surprising presence of biases that machine supervisors often fail to spot (Manyika et al., 2019; Obermeyer et al., 2019). This evidence has far-fetched implications: from ethical and legal considerations with regard to nondiscriminatory decisions, to the economic effects of hampering the development of new ventures. Broad interdisciplinary considerations with regard to algorithm usage and design are therefore urgently required to ensure equal and unbiased access to funding for early-stage companies.

Finally, the digital revolution poses interesting policy questions. The extent to which the disintermediation of entrepreneurial finance is welfare improving is a matter of debate and, as such, is the extent to which regulators should intervene to curb or promote it. Brummer and Yadav (2019) discuss several regulatory issues with fintech's trilemma, including regulatory sandboxes and pilot programs. The fact that regulators are tackling fintech issues differently also allows researchers to determine the effectiveness (and unwanted effects) of the different choices (Bellavitis et al., 2021; Cumming et al., 2021 partly build on this in this special issue). Interestingly, some of the new players happen to provide finance to the small and highly innovative firms that policymakers particularly care about, sometimes displacing existing intermediaries. This means that regulators will need to understand how these new players work and possibly reconsider the effectiveness of policies based on subsidizing or facilitating financing via more traditional intermediaries (e.g., SME guaranteed loans).

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References

ACA. (2019). Aca Angel Funders Report, Angel Capital Association. http://angelcapitalassociation.org/angel-funders-report-2020/

Ahlers, G. K. C., Cumming, D., Günther, C., & Schweizer, D. (2015). Signaling in equity crowdfunding. *Entrepreneurship Theory and Practice*, *39*(4), 955–980. https://doi.org/10.1111/etap.12157

Allen, F., Gu, X., & Jagtiani, J. (2021). A survey of fintech research and policy discussion. *Review of Corporate Finance*, *1*(3-4), 259–339. https://doi.org/10.1561/114.00000007

Avery, C. N., Chevalier, J. A., & Zeckhauser, R. J. (2015). The "CAPS" prediction system and stock market returns. *Review of Finance*, *204*, 1363–1381.

Bartlett, R., Morse, A., Stanton, R., & Wallace, N. (2019). *Consumer-lending discrimination in the FinTech era*. National Bureau of Economic Research Working Paper 25943.

Bellavitis, C., Cumming, D., & Vanacker, T. (2021). Ban, boom, and echo! Entrepreneurship and initial coin offerings. *Entrepreneurship Theory and Practice*, this issue. https://doi.org/10.1177/1042258720940114

Bernstein, S., Korteweg, A., & Laws, K. (2017). Attracting early-stage investors: Evidence from a randomized field experiment. *The Journal of Finance*, *72*(2), 509–538. https://doi.org/10.1111/jofi.12470

Block, J. H., Colombo, M. G., Cumming, D. J., & Vismara, S. (2018). New players in entrepreneurial finance and why they are there. *Small Business Economics*, *50*, 239–250.

Blohm, I., Antretter, T., Sirén, C., Grichnik, D., & Wincent, J. (2021). It's a peoples game, isn't it?! A comparison between the investment returns of business angels and machine learning algorithms. *Entrepreneurship Theory and Practice*, this issue. https://doi.org/10.1177/1042258720945206

Bollaert, H., Lopez-de-Silanes, F., & Schwienbacher, A. (2021). Fintech and access to finance. *Journal of Corporate Finance*, *68*(2), 101941. https://doi.org/10.1016/j.jcorpfin.2021.101941

Bonini, S., & Capizzi, V. (2019). The role of venture capital in the emerging entrepreneurial finance ecosystem: Future threats and opportunities. *Venture Capital*, *21*(2–3), 137–175. https://doi.org/10.1080/13691066.2019.1608697

Brummer, C., & Yadav, Y. (2019). Fintech and the innovation Trilemma. *Georgetown Law*, 235–307.

Buchak, G., Matvos, G., Piskorski, T., & Seru, A. (2018). Fintech, regulatory arbitrage and the rise of shadow banks. *Journal of Financial Economics*, *130*(3), 453–483. https://doi.org/10.1016/j.jfineco.2018.03.011

Butler, A. W., Cornaggia, J., & Gurun, U. (2017). Do local capital market conditions affect consumers' borrowing decisions? *Management Science*, *63*(12), 4175–4187.

Butticè, V., Colombo, M. G., & Wright, M. (2017). Serial crowdfunding, social capital, and project success. *Entrepreneurship Theory and Practice*, *41*, 183–207.

Butticè, V., Di Pietro, F., & Tenca, F. (2020). Is equity crowdfunding always good? Deal structure and the attraction of venture capital investors. *Journal of Corporate Finance*, *65*, 101773.

Cambridge Centre for Alternative Finance. (2021). *The 2nd global alternative finance benchmarking report*.

Chemmanur, T. J., Gupta, M., & Simonyan, K. (2021). Top management team quality and innovation in venture-backed private firms and ipo market rewards to innovative activity. *Entrepreneurship Theory and Practice*, this issue. https://doi.org/10.1177/1042258720918827

Chen, M. A., Wu, Q., & Yang, B. (2019). How valuable is FinTech innovation? *The Review of Financial Studies*, *32*(5), 2062–2106. https://doi.org/10.1093/rfs/hhy130

Chowdhury, F., Audretsch, D. B., & Belitski, M. (2019). Institutions and entrepreneurship quality. *Entrepreneurship Theory and Practice*, *43*(1), 51–81. https://doi.org/10.1177/1042258718780431

Colombo, M. G., D'Adda, D., & Quas, A. (2019). The geography of venture capital and entrepreneurial ventures' demand for external equity. *Research Policy*, *48*(5), 1150–1170.

Colombo, M. G., Franzoni, C., & Rossi-Lamastra, C. (2015). Internal social capital and the attraction of early contributions in crowdfunding. *Entrepreneurship Theory and Practice*, *37*, 75–100.

Colombo, M. G., & Grilli, L. (2005). Founders' human capital and the growth of new technology-based firms: A competence-based view. *Research Policy*, *34*(6), 795–816. https://doi.org/10.1016/j.respol.2005.03.010

Colombo, M. G., & Shafi, K. (2019). Receiving external equity following successfully crowdfunded technological projects: An informational mechanism. *Small Business Economics*, *56*, 1507–1529.

Cong, L. W., & He, Z. (2019). Blockchain disruption and smart contracts. *The Review of Financial Studies*, *32*(5), 1754–1797. https://doi.org/10.1093/rfs/hhz007

Cumming, D., Hervé, F., Manthé, E., & Schwienbacher, A. (2021). Testing-the-waters policy with hypothetical investment: Evidence from equity crowdfunding. *Entrepreneurship Theory and Practice*, this issue. https://doi.org/10.1177/1042258720932522

Cumming, D., & Johan, S. (2017). The problems with and promise of entrepreneurial finance. *Strategic Entrepreneurship Journal*, *11*(3), 350–370.

Cumming, D. J., & Schwienbacher, A. (2018). Fintech venture capital. *Corporate Governance an International Review*, *26*, 374–389.

Cumming, D. J., & Vismara, S. (2017). De-segmenting research in entrepreneurial finance. *Venture Capital*, *19*(1-2), 17–27. https://doi.org/10.1080/13691066.2016.1225910

De Prijcker, S., Manigart, S., Collewaert, V., & Vanacker, T. (2019). Relocation to get venture capital: A resource dependence perspective. *Entrepreneurship Theory and Practice*, *43*(4), 697–724.

Deloitte. (2016). *The expansion of Robo-Advisory in wealth management*.

Deloof, M., La Rocca, M., & Vanacker, T. (2019). Local banking development and the use of debt financing by new firms. *Entrepreneurship Theory and Practice*, *43*(6), 1250–1276.

Drover, W., Wood, M. S., & Zacharakis, A. (2017). Attributes of angel and crowdfunded investments as determinants of VC screening decisions. *Entrepreneurship Theory and Practice*, *41*(3), 323–347.

D'Acunto, F., Prabhala, N., & Rossi, A. G. (2019). The promises and pitfalls of robo-advising. *The Review of Financial Studies*, *32*(5), 1983–2020. https://doi.org/10.1093/rfs/hhz014

EIF. (2020). *European small business finance outlook 2020: The impact of COVID-19 on SME financing markets*.

Farag, H., & Johan, S. (2021). How alternative finance informs central themes in corporate finance. *Journal of Corporate Finance*, *67*, 101879.

Fisch, C. (2019). Initial coin offerings ICOS to finance new ventures. *Journal of Business Venturing*, *34*(1), 1–22.

Florida, R., & Smith, D. F. (1990). Venture capital, innovation, and economic development. *Economic Development Quarterly*, *44*, 345–360.

Foerster, S., Linnainmaa, J. T., Melzer, B. T., & Previtero, A. (2017). Retail financial advice: Does one size fit all? *The Journal of Finance*, *72*, 1441–1482.

Giudici, G., & Adhami, S. (2019). The impact of governance signals on ICO fundraising success. *Journal of Industrial Business Econonomics*, *46*, 283–312.

Goldstein, I., Jiang, W., & Karolyi, G. A. (2019). To fintech and beyond. *The Review of Financial Studies*, *32*(5), 1647–1661.

Gompers, P. A., Gornall, W., Kaplan, S., & Strebulaev, I. A. (2020). How do venture capitalists make decisions? *Journal of Financial Economics*, *135*(1), 169–190.

Gornall, W., & Strebulaev, I. A. (2020). Gender, race, and entrepreneurship: A randomized field experiment on venture capitalists and angels. https://ssrn.com/abstract=3301982 or http://dx.doi.org/10.2139/ssrn.3301982

Haddad, C., & Hornuf, L. (2019). The emergence of the global fintech market: Economic and technological determinants. *Small Business Economics*, *53*(1), 81–105.

Haffke, L., & Fromberger, M. (2020). ICO Market Report 2019/2020 – Performance analysis of 2019's initial coin offerings. *Journal of Banking Regulation*, *21*(2), 125–138.

Hausman, J. (2012). Contingent valuation: From dubious to hopeless. *Journal of Economic Perspectives*, *26*(4), 43–56.

Hebert, C. (2021). Gender stereotypes and entrepreneur financing. *Journal of Finance*, forthcoming.

Hervé, F., & Schwienbacher, A. (2018). Crowdfunding and innovation. *Journal of Economic Surveys*, *32*, 1514–1530.

Howell, S. T., Lerner, J., Nanda, R., & Townsend, R. (2021). *How resilient is venture-backed innovation? Evidence from four decades of US. Patenting*. Harvard Business School Entrepreneurial Management Working Paper No 20-115.

Huang, L., & Pearce, J. L. (2015). Managing the unknowable: The effectiveness of early-stage investor gut feel in entrepreneurial investment decisions. *Administrative Science Quarterly*, *60*(4), 634–670.

Israel, R., Kelly, B., & Moskowitz, T. (2020). Can machines "learn" finance? *Journal of Investment Management*, *18*(2), 1–18.

Jame, R., Johnston, R., Markov, S., & Wolfe, M. C. (2016). The value of crowdsourced earnings forecasts. *Journal of Accounting Research*, *54*(4), 1077–1110.

Jordan, M. I., & Mitchell, T. M. (2015). Machine learning: Trends, perspectives, and prospects. *Science*, *349*(6245), 255–260. https://doi.org/10.1126/science.aaa8415

Kolokas, D., Vanacker, T., Veredas, D., & Zahra, S. A. (2021). Venture capital, credit, and fintech start-up formation: A cross-country study. *Entrepreneurship Theory and Practice*, this issue.

KPMG. (2021). Pulse of Fintech. https://home.kpmg/xx/en/home/industries/financial-services/pulse-of-fintech.html

Lang, I. H., & Van Lee, R. (2020). Institutional investors must help close the race and gender gaps in venture capital. *Harvard Business Review*, August.

Le Pendeven, B., Bardon, T., & Manigart, S. (2021). Explaining academic interest in crowdfunding as a research topic. *British Journal of Management*. https://doi.org/10.1111/1467-8551.12486

Lerner, J. (2012). *The boulevard of broken dreams: Why public efforts to boost entrepreneurship and venture capital have failed-and what to do about it*. Princeton University press.

Li, Y., & Zahra, S. A. (2012). Formal institutions, culture, and venture capital activity: A cross- country analysis. *Journal of Business Venturing*, *27*, 95–111.

Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology*, *75*(1), 5–18.

Lin, M., Prabhala, N. R., & Viswanathan, S. (2013). Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending. *Management Science*, *59*(1), 17–35. https://doi.org/10.1287/mnsc.1120.1560

Loos, B., Previtero, A., Scheurle, S., & Hackethal, A. (2020). *Robo-advisers and investor behavior*. Unpublished Working Paper.

Manyika, J., Silberg, J., & Presten, B. (2019). *What do we do about the biases in AI?* Harvard Business Review.

Marlow, S., & Patton, D. (2005). All credit to men? Entrepreneurship, finance, and gender. *Entrepreneurship Theory and Practice*, *29*(6), 717–735. https://doi.org/10.1111/j.1540-6520.2005.00105.x

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing*, *26*, 1–16.

Monaghan, S., Tippmann, E., & Coviello, N. (2020). Born digitals: Thoughts on their internationalization and a research agenda. *Journal of International Business Studies*, *51*(1), 11–22.

Morse, A. (2015). Peer-to-Peer crowdfunding: Information and the potential for disruption in consumer lending. *Annual Review of Financial Economics*, *7*(1), 463–482. https://doi.org/10.1146/annurev-financial-111914-041939

Mosey, S., & Wright, M. (2007). From human capital to social capital: A longitudinal study of technology–based academic entrepreneurs. *Entrepreneurship Theory and Practice*, *316*, 909–935.

NVCA. (2021). NVCA 2021 yearbook. https://nvca.org/wp-content/uploads/2021/03/NVCA-2021-Yearbook.pdf

Obermeyer, Z., Powers, P., Vogeli, C., & Mullainathan, S. (2019). Dissecting racial bias in an algorithm used to manage the health of populations. *Science*, *25*, 447–453.

Popov, A., & Roosenboom, P. (2013). Venture capital and new business creation. *Journal of Banking & Finance*, *37*(12), 4695–4710.

PWC. (2020). 6th ICO/STO report: A strategic perspective. https://www.pwc.com/ee/et/publications/pub/Strategy&_ICO_STO_Study_Version_Spring_2020.pdf

Reher, M., & Sokolinski, S. (2021). Does automation democratize asset management? http://dx.doi.org/10.2139/ssrn.3515707

Roma, P., Petruzzelli, A. M., & Perrone, G. (2017). From the crowd to the market: The role of reward-based crowdfunding performance in attracting professional investors. *Research Policy*, *46*(9), 1606–1628.

Rossi, A. G., & Utkus, S. P. (2020). Who benefits from robo-advising? Evidence from machine learning. http://dx.doi.org/10.2139/ssrn.3552671

Saiedi, E., Broström, A., & Shafi, K. (2021). Distrust in banks and fintech participation: The case of peer-to-peer lending. *Entrepreneurship Theory and Practice*, This issue. https://doi.org/10.1177/1042258720958020

Samila, S., & Sorenson, O. (2011). Venture capital, entrepreneurship, and economic growth. *The Review of Economics and Statistics*, *93*(1), 338–349.

Samuelsson, M., Söderblom, A., & McKelvie, A. (2021). Path dependence in new ventures' capital structures. *Entrepreneurship Theory and Practice*, *452*, 319–349.

Shane, S. A. (2008). *The illusions of entrepreneurship: The costly myths that entrepreneurs, investors, and policy makers live by*. Yale University Press.

Signori, A., & Vismara, S. (2018). Does success bring success? The post-offering lives of equity-crowdfunded firms. *Journal of Corporate Finance*, *50*, 575–591.

Stolper, O., & Walter, A. (2019). Birds of a feather: The impact of homophily on the propensity to follow financial advice. *The Review of Financial Studies*, *32*(2), 524–563.

Stulz, R. M. (2019). Fintech, Bigtech, and the future of banks. *Journal of Applied Corporate Finance*, *31*, 86–97.

Sussan, F., & Acs, Z. (2017). The digital entrepreneurial ecosystem. *Small Business Economics*, *49*(1), 55–73.

Tang, H. (2019). Peer-to-peer lenders versus banks: Substitutes or complements? *The Review of Financial Studies*, *32*(5), 1900–1938. https://doi.org/10.1093/rfs/hhy137

Thakor, A. V. (2020). Fintech and banking: What do we know? *Journal of Financial Intermediation*, *41*(2), 100833. https://doi.org/10.1016/j.jfi.2019.100833

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*(4157), 1124–1131. https://doi.org/10.1126/science.185.4157.1124

Van der Boor, P., Oliveira, P., & Veloso, F. (2014). Users as innovators in developing countries: The global sources of innovation and diffusion in mobile banking services. *Research Policy*, *43*(9), 1594–1607.

Vanacker, T., Meuleman, M., & Manigart, S. (2014). Path-dependent evolution versus intentional management of investment ties in science-based entrepreneurial ventures. *Entrepreneurship Theory and Practice*, *38*(3), 671–690.

Vismara, S. (2018a). Signaling to overcome inefficiencies in crowdfunding markets. In D. Cumming & L. Hornuf (Eds.), *The economics of crowdfunding* (pp. 25–56). Palgrave Macmillan.

Vismara, S. (2018b). Information cascades among investors in equity crowdfunding. *Entrepreneurship Theory and Practice*, *42*(3), 467–597.

Walthoff-Borm, X., Schwienbacher, A., & Vanacker, T. (2018). Equity crowdfunding: First resort or last resort? *Journal of Business Venturing*, *33*(4), 513–533.

Zhang, Y. (2021). *Discrimination in the venture capital industry: Evidence from two randomized controlled trials*. Working paper, arXiv:2010.16084.

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