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Inclusive digital finance: the industry of equity crowdfunding

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Abstract

Nowadays equity crowdfunding plays an important role in the entrepreneurial finance markets. To better understand the functioning of the industry, it is important to consider the entire equity crowdfunding process and all the actors involved. Equity crowdfunding platforms match indeed the demand of capital from entrepreneurial ventures with the supply of capital by investors. This manuscript is a first step in this direction, by (1) comparing equity crowdfunding with traditional sources of entrepreneurial finance; (2) discussing the potential and the perils of equity crowdfunding for inclusivity and democratization; (3) highlighting the role of visual information in digital finance; and (4) providing first insights on the industrial dynamics in equity crowdfunding. The paper gives researchers and practitioners orientation about recent developments in equity crowdfunding literature and provides relevant research directions.

Keywords Crowdfunding · Platforms · Financial inclusivity · Digital markets

JEL Classification G30

1 Introduction

An extensive literature has stressed the relevance of financial constraints for young firms (e.g., Audretsch et al., 2016; Cosh et al., 2009). Information asymmetry and agency problems create severe frictions in the capital market that make it difficult for these firms to raise financing (Myers & Majluf, 1984; Stiglitz & Weiss, 1981). The entrepreneurial finance market has evolved to fill this capital gap. Historically, venture capital (VC), business angels, and other private equity funds have been the major sources of risk capital for young firms (Colombo et al., 2016). Nowadays, digitalization has brought to the entrepreneurial finance arena several new players (Allen et al., 2021; Block et al., 2018a, 2020).

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Within this rapidly changing entrepreneurial finance landscape, equity crowdfunding has recently emerged as an appealing funding method for young firms (Belleflamme et al., 2014). In equity crowdfunding, entrepreneurs make an open call to sell a predetermined amount of their firm equity shares via Internet, through an online platform that provides the means for the transactions. Investors often participate in these campaigns to realize a financial return. In line with this view, Vismara (2016) finds that offering rewards to investors does not increase the probability of success of equity crowdfunding campaigns. Relatedly, Cholakova and Clarysse (2015), find that non-financial motives play no significant role in equity crowdfunding investment decisions. As a matter of fact, equity crowdfunding is a fully-fledged new source of risk capital. The average size of campaigns in the UK platforms is about 250 thousand pounds (Vismara, 2016). In this country, an estimated 20% of all early-stage investments is already made through equity crowdfunding (Barnett, 2015).

Considering the relevance of equity crowdfunding for securing risk capital, the goal of this paper is to identify research needs and opportunities in this field. In doing so, we compare equity crowdfunding to traditional risk capital providers to identify three major areas of academic inquire.

First, in comparison to traditional risk capital providers, the online dimension of equity crowdfunding offerings reduces the costs for entrepreneurial ventures to raise funds. Accordingly, equity crowdfunding provides a great opportunity to increase financial inclusion of classes of entrepreneurs that have typically encountered severe challenges to access financing. Equity crowdfunding is, hence, seen, by many decision-makers as an important lever to support job creation, economic growth, and competitiveness.[1] The inclusionary nature of equity crowdfunding extends also to small investors (Bruton et al., 2015; Cumming et al., 2019a), who, for the very first time, have the opportunity to invest also in small private firms. While traditional private equity deals, such as venture capital and business angel financing, are limited to a small group of sophisticated investors, equity crowdfunding allows issuers to broadly solicit and advertise their securities to a big, new pool of small investors (Drover et al., 2017), i.e. the crowd. Increasing financial participation is frequently considered among the aims of regulators (Cummings et al., 2020). However, the involvement of a large number of small investors raises also concerns related to the protection of these investors and their ability to provide value-added to the young firms.

Second, traditionally, early-stage finance involves professional investors negotiating deals with entrepreneurs. In contrast, in equity crowdfunding small investors make decisions based mainly on a rich set of information disclosed online. This setting allows to observe their decision-making process; as well as to study whether—and to what extent—visual cues play a role. At the same time, it raises caution considering that moral hazard problems—and risk of frauds—may indeed be high in these disintermediated contexts; eventually making investors reluctant to engage in the market (Ahlstrom et al., 2018; Cumming et al., 2021b).

Third, we point out that, in essence, equity crowdfunding and initial public offerings (IPOs) have strong similarities, as they both involve public equity offerings, where firms raise risk capital from external investors. In the IPO literature, studies typically focus on the behavior of stock market participants, not the behavior of market operators, and have understudied how the operators behave [see, for example, Pagano et al. (2001)]. In equity crowdfunding, we observe a similar trend, with equity crowdfunding platforms that have

[1] See e.g. the Report on Crowdfunding in the EU Capital Markets Union, https://ec.europa.eu/info/system/files/crowdfunding-report-03052016_en.pdf. Accessed on May 7th, 2021.

received very limited attention, so far. Accordingly, we stress the importance to study equity crowdfunding as an industry; and discuss its evolution and consolidation trends. In doing so, the focus on equity crowdfunding platforms becomes fundamental.

The remainder of the paper is divided into five sections. Section 2 describes the equity crowdfunding process and compares equity crowdfunding with traditional sources of entrepreneurial finance. Section 3 discusses crowdfunding and entrepreneurial finance inclusivity. Section 4 describes the role of visual information in equity crowdfunding. Section 5 focuses on the industrial dynamics in equity crowdfunding. For each of these sections, we highlight relevant areas for further research. Section 6 concludes the work.

2 The investment process in equity crowdfunding

Traditionally, entrepreneurs raising external equity face two types of opportunities, namely private and public equity. In private equity, the deal is between the entrepreneur and a restricted number of providers of capital. The latter can either directly invest their own money, such as in the case of business angels, or act through intermediation. This is the case of venture capitalists and other types of private equity funds, where the investment decisions are made by general partners (money managers) on behalf of other limited partners. In any case, in private equity deals, entrepreneurs can choose who they deal with and can negotiate the terms of the contract, including the price and the number of shares. When valuing to take an equity position in startups, venture capitalists and business angels rely heavily on due diligence predicated on face-to-face interactions and personal relationships. Such private deals typically are "pitched" in person to investors who engage in significant due diligence and may seek an ongoing management role within the company to protect their investment.

As an alternative, entrepreneurs can raise external equity by listing on a stock exchange. The capital inflow takes place by the means of an open offering. In IPOs, the ownership base of firms going public is opened to the general public. Issuers broadly solicit and advertise their securities to investors, without the possibility to discern and select who is going to receive the shares of their company (Cumming et al., 2020). Investment banks serving as IPO underwriters are in charge of the pricing and allocation of shares. Once the offering is listed on the stock exchange, the price is fixed and the ownership structure is solely defined by investors' demand for shares. A primary role in these offerings, therefore, is covered by investment banks, whose function is to match and balance the objective of the demand and the supply of capital. Although the perception of crowdfunding is often distant from that of traditional stock markets, stock exchanges have established a number of entrepreneurial public markets targeting specifically small and medium enterprises (Vismara et al., 2012; Bernstein et al., 2020). The type and size of firms going public on these second-tier markets is not very different from those approaching equity crowdfunding platforms. If we consider that there have been equity crowdfunding offerings in the UK raising 20 £m and that firms going public on London's Alternative Investment Markets raise on average 14.6 m£ (6.9 £m in median, Vismara et al., 2012), the comparison between these markets seems appropriate (Cumming et al., 2021a).

Equity crowdfunding is distinct from both IPOs, VC and business angel investments, as it occupies a middle space between public and private finance. Similar to traditional private deals, equity crowdfunding provides issuers with a method for obtaining equity financing without bearing the full costs of registering the securities with the national security and exchange commissions. While traditional private deals are limited to a relatively small group of private investors, equity crowdfunding allows issuers to involve small investors. This diversity is reflected in the variety of businesses seeking crowdfunding finance. Venture capitalists typically invest in companies with scalable business models in high-growth industries and located in specific geographic locations. This focus limits their appeal for entrepreneurs in human capital-intensive or anyway with business models lacking the ability to easily scale. On the contrary, equity crowdfunding offerings are mostly in traditional sectors (Vismara, 2016), making the entrepreneurial finance landscape more inclusive.

Equity crowdfunding platforms list offerings open to the public, similar to traditional stock exchanges. Thus, crowdfunding platforms allow anyone to view projects posted online, allowing for a more heterogeneous population of small investors (e.g. Cumming et al., 2019a). However, unlike traditional public offerings, which are subject to a host of regulations designed to protect the interests of investors, equity crowdfunding is available to a wide variety of early-stage firms and is substantially less costly for issuers. Relatedly, one significant downside of equity crowdfunding is the lack of liquidity in secondary markets. Although crowdfunding provides small investors with a disintermediated "entry" into venture financing, the prospects for exiting a successful venture are less clear.

Equity crowdfunding markets synthesize the transition from offline to online entrepreneurial finance. What most differentiates equity crowdfunding from other sources of early-stage funding is, indeed, the online dimension of the offerings. Because of the online nature of platform-mediated interactions, it is very unlikely that crowdfunding investors will personally meet the issuers from whom they purchase securities, which differs quite considerably from the hands-on approach typically taken by venture capitalists and angel investors. Equity crowdfunding markets are arguably less equipped to overcome information asymmetry problems than other entrepreneurial finance settings. The functioning of traditional private equity markets relies heavily on the screening ability and on the due diligence done by professional investors. Business angels and venture capitalists are typically involved in the management of the firm after the investment, while crowd investors are rather passive investors whose control rights are either ineffective or not exercised (Hornuf et al., 2021). Due to fixed costs, equity crowdfunding investors have limited opportunities to perform due diligence and ongoing monitoring. In IPOs, investment banks are in charge of pricing and allocating shares. Crowdfunding investors cannot either rely on the certification of such intermediaries, or their services or those of financial analysts. This may generate reluctance to invest in crowdfunding projects, with potential investors being willing to do so only if compensated by a discount. This could eventually ingenerate an Akerlof-type of market failure, resulting in vanishing markets because the only equilibrium price would be zero.

Small investors in equity crowdfunding are less equipped to perform due diligence relative to professional investors and investment bankers. They cannot rely on the role of financial analysts and have limited incentives to actively engage in due diligence, due to the fixed costs incurred relative to the small size of their investment. Additionally, the valuation of the type of firms that they are asked to finance is likely to be difficult. Firms seeking equity funds through crowdfunding, indeed, often lack a track record and are launched by first-time entrepreneurs. The set of information available out of the crowdfunding platforms about these companies is therefore extremely scarce. For these reasons, the information displayed online on the crowdfunding platform is likely to play a major role for small investors. Platform themselves, despite, so far, they have remained, mainly, in the background of academic research, may be crucial to overcoming investors' information asymmetries. Investors limited capabilities, limited opportunities to reduce information asymmetry, and the complexity of the task make the understanding of the behavior of small investors confronting a crowdfunding offering of great interest. For the same reasons, the investigation of the role of platforms appears a priority in the research agenda.

3 Equity crowdfunding and financial inclusion

The rise of equity crowdfunding has provided the opportunity for a large pool of small investors to gain access to the entrepreneurial finance arena (Drover et al. 2017). These investors, typically labeled as crowd investors (e.g. Block et al., 2018a), are likely to differ from traditional ones, in terms of motivations (Vismara, 2018); incentives, and power to conduct extensive due diligence (Ahlers et al., 2015). Allegedly, crowd investors' may take different funding decisions with respect to professional investors, like business angels and VCs (Fisher et al., 2017). Previous studies have shown that accessing external finance from traditional channels is challenging for firms located in peripheral areas (i.e. far from great metropolitan areas where VC investors are concentrated, Chen et al., 2010; Colombo et al., 2019) and for minority entrepreneurs (e.g. female and ethnic entrepreneurs, Verheul & Thurik, 2001). Crowd investors, being moved by different investment logics (Fisher et al., 2017; Vismara, 2019), may contribute to increasing the inclusivity of the financial markets, by letting entrepreneurs from these categories gain access to financing. For instance, recent research has highlighted that on equity crowdfunding platforms female and ethnic entrepreneurs are not discriminated (Cumming et al., 2021a), i.e. they can achieve crowdfunding performances similar or better performances compared to male or local entrepreneurs. Thus, initial evidence may suggest that equity crowdfunding comes with the opportunity to increase financial inclusion. However, this debate is far from being conclusive and further research is needed to understand whether equity crowdfunding is actually as inclusive as it has been often portrayed. To contribute to this debate, we believe that three major interlinked aspects should be taken into account. First, for which categories of entrepreneurs equity crowdfunding increases financial inclusion. Second, who are the investors, actually involved, and what they can provide to the equity crowdfunded firms. Third, what are the perils associated with the financial inclusions of these investors and entrepreneurs.

3.1 Equity crowdfunding and entrepreneurs' inclusivity

Related to the categories of entrepreneurs that can gain access to equity crowdfunding, the literature has focused mainly on comparing the performances of male vs. female entrepreneurs (e.g. Bapna & Ganco, 2020; Cumming et al., 2021a; Mohammadi & Shafi, 2018; Vismara et al., 2017). Similar to the findings of Fisch et al. (2020) in the context of initial coin offerings and blockchain finance, Cumming et al. (2021a) conclude that female entrepreneurs do not have higher chances to raise funds in equity crowdfunding. In a study with a large dataset of 3576 initial equity crowdfunding offerings in the UK and US markets, Rossi et al. (2021) document that there is no difference in the amount of capital raised by female and male entrepreneurs, conditional on female founders setting lower targets in UK markets. Comparatively, fewer studies have investigated other relevant entrepreneurial categories. We stress the urgency to introduce in the academic debate these categories.

3.1.1 Silver entrepreneurs

Age discrimination might limit older people's opportunity to entry into entrepreneurship. Despite its importance, especially in times of increasing retirement ages and restricted early exit options, "silver entrepreneurship" has been so far under-investigated, with most attention devoted to young entrepreneurship. While entrepreneurial propensity might decrease with age, due to the increasing opportunity cost of time with age, it might increase with age because of higher accumulated physical, social, and human capital. Zhang and Acs (2018) find that the entrepreneurial propensity of novice entrepreneurs has a U-shaped age trend dipping around age 60, while the propensity of full-time (versus part-time) declines since age 30 s. Cumming et al. (2021a) find that companies with younger top management team (TMT) members are more likely to launch equity crowdfunding offerings and have higher chances of a successful outcome. However, their evidence is based on a sample of 167 equity offerings in just one equity crowdfunding platform (i.e. Crowdcube). Future research might shed light on the possible relationship between age and barriers to entrepreneurial finance, and on the covariates of such relationship (e.g. gender).

3.1.2 Immigrant entrepreneurs

Immigrant entrepreneurship can be defined as the process whereby immigrants (i.e., individuals born in a given country, who subsequently moved to a different country at some point in their lifetime) identify, create, and exploit economic opportunities to start new ventures in their country of destination (Dheer, 2018). Immigrant entrepreneurs represent a non-negligible part of entrepreneurship activity (e.g. Brzozowski et al., 2017; Fairlie, 2012; Kerr & Kerr, 2018). These entrepreneurs can recognize and pursue different opportunities than their native-born counterparts (Hart & Acs, 2011). However, since access to financial resources depend on the networks in which the entrepreneur is embedded (Chemmanur & Fulghieri, 2014), immigrant entrepreneurs face compelling difficulties to access financing (e.g. Fairlie, 2012). Equity crowdfunding may represent an opportunity for these entrepreneurs to fill their financial gap, by reaching their home-country network. However, the literature has not investigated extensively whether this presumption is confirmed (for two exceptions see Cumming et al., 2020; Venturelli et al., 2020). Future research might shed light on the use of equity crowdfunding by immigrant entrepreneurs.

3.1.3 Entrepreneurs in rural or peripheral areas

Small and medium enterprises operating in most rural and peripheral areas constitute an integral part of the local economy and a major source of employment (Maccheri & Pelloni, 2006; Amoros et al., 2013). However, compared with entrepreneurs in metropolitan and more central areas, these entrepreneurs face additional challenges when accessing financial resources (e.g. Lee & Brown, 2017). Equity crowdfunding is expected to increase the opportunity of financing for these remotely located and less connected individuals, by reducing distance-related costs that hamper the attraction of early-stage investments (Agrawal et al., 2015). Nevertheless, initial evidence suggests that also in the context of crowdfunding, it exists a tendency to finance geographically proximate entrepreneurs. Agrawal et al. (2015) find that investors in reward-based crowdfunding are often located in the same geographical area as the proponent. Guenther et al. (2018) find that very few investors and companies are located in rural areas. Burtch et al. (2014) confirm that P2P lenders prefer culturally similar and geographically proximate borrowers. At the same time, Cumming et al. (2021a), found that remotely located entrepreneurs are more likely to launch equity crowdfunding offerings and to successfully close the funding crowdfunding campaign. Understanding under which conditions equity crowdfunding may facilitate access to financing for entrepreneurs in rural or peripheral areas remains, hence, an open question that requires further investigation. Relatedly, scholars can investigate how the characteristics of the area in which entrepreneurs are located influence fundraising to determine factors that moderate the relation between rural entrepreneurs and crowdfunding success. In this respect, for instance, previous studies have shown, in the context of reward crowdfunding, that investors' contributions are influenced by local environment characteristics, such as the level of local religiosity (Di Pietro & Masciarelli, 2021) or immigration diversity (Di Pietro, 2021). Similar factors can be investigated in the context of equity crowdfunding as well.

3.2 Equity crowdfunding and investors' inclusivity

If, on the one hand, it may allow entrepreneurs, who have been historically discriminated, to gain access to financing, on the other hand, equity crowdfunding allows small -retail-investors to access the entrepreneurial finance arena (Drover et al. 2017). Crowdfunding platforms allow anyone to view projects posted online, allowing for a more heterogeneous population of investors which includes small investors. "For the first time," proclaimed President Obama when he signed the JOBS Act, "ordinary Americans will be able to go online and invest in entrepreneurs that they believe in". Without equity crowdfunding, these crowd investors too would hardly be able to fund early-stage ventures directly and individually.

3.2.1 Individual characteristics and motivation of equity crowdfunding investors

At the moment, we know little about the characteristics of these investors and to what extent underrepresented categories are actively investing in digital finance markets. We still lack a basic understanding of why individuals become crowdfunding investors in the first place and why so many others do not. Considering that both the success of crowdfunding offerings and crowdfunding platforms depends on the number of investors, this gap in the literature needs to be addressed. A first attempt to shed light on this important aspect comes from the study by Vaznyte et al. (2020). Using a sample of 1042 individuals in Flanders (Belgium), they find that individuals' crowdfunding awareness depends on whether they are male or female, as well as on their socioeconomic environment. Their evidence shows that women are less aware of crowdfunding than men might explain why there are fewer women among crowdfunding investors (Hervé et al., 2019; Mohammadi & Shafi, 2018; Vismara et al., 2017) and be related to the outcome of offerings launched by female-led businesses, as there seems to be strong homophily between the investors and the entrepreneurs (Bapna & Ganco, 2020; Vismara et al., 2017).

3.2.2 Equity crowdfunding investors and financial market efficiency

The understanding of crowd investors' characteristics and behavior is of interest as they are central to the function of this type of market and, broadly, for economic development.

Financial inclusion, typically defined as the use of formal financial services, especially by the disadvantaged, has become a subject of growing interest. Indeed, the positive relationship between financial development and economic development, documented by literature on financial-growth nexus, is suggestive of a positive association between finance and poverty alleviation (Beck et al., 2007). Moreover crowd investors are likely to differ from traditional early-stage investors in terms of motivations to invest (Vismara, 2018), financial background, and their ability to provide value-added services after the financing round (Vanacker et al., 2019; Walthoff-Borm et al., 2018; Di Pietro et al., 2018). The increased diversity of investors in crowdfunding compared to the shareholders of traditional public companies (for instance, the most recent IPOs—such as those on London's AIM—target only institutional investors), may increase market efficiency. The expectation is that replacing a small set of homogeneous experts with a diverse crowd increases efficiency, as the complementarities in the information set of diverse investors should also benefit the information aggregation role of the market.

3.2.3 Equity crowdfunding investors value-added

The literature has also discussed that, compared to traditional entrepreneurial finance investors, equity crowdfunding has a distinctive value proposition that is based on the provision of different value-added services. Unlike traditional investors, crowd-investors provide limited *coaching* to startups, however, at the same time, amassing a large pool of small investors may serve as a market testing or a channel to collect user feedback (Schwienbacher & Larralde, 2012).

3.3 Equity crowdfunding and the perils of inclusivity

Opening the entrepreneurial finance arena to small investors and to categories of entrepreneurs who are typically excluded from fundraising brings also challenges, that scholars should consider in their research agendas.

3.3.1 Frauds

A recent contribution (Meoli et al., 2020), has shown that crowd investors are heterogenous in their level of financial literacy. Consequently, there are concerns about the potential risk for these investors investing in equity crowdfunding (Schwienbacher, 2018). In particular, there is the possibility that sophisticated investors—or the platforms themselves—take advantage of their presence. This is a real danger, if we think that an increase in market participation by small, novice, investors has been documented to be among the causes of the increased frequency of misreporting accounting information in the Nineties (Goldman & Slezak, 2006). Some preliminary evidence already suggests that occasionally platforms and campaign proponents took advantage of small investors actively engaging in fraudulent activities (Goethner et al., 2021), such as investors data selling or funding misappropriation.

3.3.2 Low-quality projects

Small investors have limited capacity to assess the prospects of a business—and little incentives to perform due diligence—which is a fixed cost. Often, they rely—among other signals—on the information content of the behavior of other investors, including prior financing (Kleinert et al., 2020). Relatedly, recent papers on information cascades have shown that crowdfunding investors also consider the behavior of previous investors, when making investment decisions (Vismara, 2018), so that, a higher number of early investments increases the participation of subsequent investors. Information cascades may introduce a market distortion, in the guise of resources that are not allocated to the most qualified entrepreneurs. At the same time, the presence on equity crowdfunding platforms of a large number of entrepreneurial initiatives may increase also the number of "low-quality" initiatives available on this market. If investors are not able to discriminate between *good* and *bad* crowdfunding campaigns, likely adverse selection dynamics may initiate, leading to the crowding-out of high-quality startups (Johan & Zhang, 2020). If so, equity crowdfunding may be relegated as the last resort, available for firms that have been discarded by all other sources of financing (Walthoff-Borm et al., 2018a, 2018b; Blaseg et al., 2021). Understanding under which conditions these dynamics are more or less likely to initiate becomes crucial to ensure the long-term feasibility of equity crowdfunding. So far, a few studies have focused on what happens after a successful equity crowdfunding offering (e.g. Coakley et al., 2021a, 2021b; Cumming et al., 2019a; Hornuf et al., 2018; Signori & Vismara, 2018).

4 Equity crowdfunding, digital markets, and information abundancy

Equity crowdfunding markets synthesize the transition from offline to online entrepreneurial finance. What most differentiates equity crowdfunding from other traditional sources of early-stage funding is, indeed, the online dimension of the offerings. This setting provides the opportunity, to observe, for the very first time, the decision-making process of small investors and to isolate what attracts their attention. Traditionally, entrepreneurial finance scholars have adhered to "classical" signaling theory in assuming that prospective investors are fully rational and correctly interpret the complementary or overlapping signals sent by high-quality firms looking for finance to make investment decisions. However, recent management research claims that prospective investors may find it difficult to correctly process and interpret multiple signals (Drover et al., 2018). The analysis of videos, images, and—more broadly—visual cues could deliver important insights about how investors process signals and what signals they look at. Research designs and approaches from other domains—such as psychology or marketing—should provide useful in this respect. See, for example, Shane et al. (2020) for a recent example of a functional magnetic resonance imaging (fMRI) study and several studies deriving psychophysiological measures from entrepreneurs' facial expressions (e.g., Warnick et al., 2021).

4.1 Information attention

Because of the online nature of platform-mediated interactions, it is very unlikely that crowdfunding investors will personally meet the issuers from whom they purchase securities, which differs quite considerably from the hands-on approach typically taken by venture capitalists and angel investors. Traditionally, these investors interact repeatedly with the entrepreneur to conduct due diligence and to negotiate the terms of the deals. In equity crowdfunding, instead, small investors make investment decisions based on a rich set of information disclosed online. Accordingly, the digitalization of the entrepreneurial finance market requires that entrepreneurs provide a vast amount of information available through the web, emails, and social media. This abundance of information may become a distraction for investors from the processing of more relevant information, as "attention is a scarce resource" (Simon, 1957, p. 167). Facing a multitude of signals of varying strength, prospective investors likely suffer from information overload. Being unable to pay attention to all the information available, they adopt a satisficing behavior and filter off relevant signals to limit their cognitive effort and make decisions more quickly. Understanding under which conditions the multiple signals sent by entrepreneurs (e.g. relating to their technological or market achievements, the composition of the entrepreneurial team, or affiliation with prominent organizations) attract the attention of prospective investors without generating information overload is compelling. A few studies have started exploring this domain. For instance, Butticè et al., (2021), has used remote eye-tracking technology, to investigate investors' attention to signals. The paper shows that investors do not attend to many signals despite them being easily observable on a campaign page. Despite this initial contribution, nowadays, it remains an open question whether entrepreneurs' behavioral characteristics can serve the purpose of attracting investors' attention. This is an important gap as the management literature has stressed that investors often base their decisions on traits such as the perceived passion of entrepreneurs (Cardon et al., 2017) or their body language (Clarke et al., 2019). We wonder whether these traits influence how the signals are perceived by prospective professional and crowd investors.

4.2 Information volatility

Another important characteristic, specific to equity crowdfunding, is the impermanence (temporariness) of the information provided in equity crowdfunding campaigns. Compared to traditional sources of entrepreneurial finance, in equity crowdfunding entrepreneurs, investors, and platforms can easily alter the information set available for potential new investors, by adding, removing, or modifying existing information. Entrepreneurs may change the information set available to investors by updating the information provided in their campaigns. Existing research (Block et al., 2018b), has shown that information disclosure in the form of updates can provide credible information about startup quality that may affect the investment dynamics. Similarly, Hornuf and Schwienbacher (2018) found that posting updates by the entrepreneur increase subsequent investments, particularly on the next day. These studies, however, have typically focused on the number of updates only, thus we currently lack an understanding of how the content of the updates influences the investment dynamics. Moreover, an interesting characteristic of equity crowdfunding is the possibility to withdraw the investment—without any consequences. This practice, namely the cooling-off period, which provides online investors and consumers with the possibility to change their mind within a few days from their investment, allow entrepreneurs, investors, and platforms to influence the funding dynamics at no-costs. Indeed, considering the importance of information cascades in equity crowdfunding (Vismara, 2018), if entrepreneurs, investors, or platforms invest in the early days of the campaigns they may initiate a success-breed-success dynamic that extends also to other investors and allow the campaign to reach the funding success. In this respect, Meoli and Vismara (2021) have found that platform members often invest in the offerings listed in their portal and are more likely to withdraw than the average crowdfunding investor. Their investments take place predominantly in low-quality offerings and influence the evolution of the campaign. This possibility to withdraw the offers can be used to manipulate the set of information available to investors and call for attention—and research—on how entrepreneurs, investors, and platforms influence the information displayed online on equity crowdfunding campaigns. Again, to reduce the concerns that investors may be victims of deceptive maneuvering, a safeguard could come from increasing the level of financial literacy of market participants.

5 The industry of equity crowdfunding

As discussed above, studies on equity crowdfunding have mainly focused on investigating the behavior of entrepreneurs, the success factors of equity crowdfunding campaigns, and, minimally, the investors participating in equity crowdfunding campaigns. At the moment, the literature has largely overlooked the role of platforms, which is core in equity crowdfunding. Platforms facilitate the matchmaking between entrepreneurs and investors and enable transactions between these parties by offering different types of services.

5.1 Platforms behavior

Platforms are crucial for equity crowdfunding as they perform an initial screening aimed to filter out low-quality projects. In so doing they reduce search costs and coordination costs between the fundraiser and the investors, lowering the potential for opportunistic behavior associated with a project. Platform managers typically declare that they reject most of the proposals that they receive and somehow claim to be selective in the selection of firms to admit to their portals. At the moment, however, we lack a comprehensive understanding of this process and its implications. Rossi and Vismara (2018) has focused on the array of services provided by platforms, distinguishing between pre-launch (e.g., assistance in preparing the business plan), ongoing (e.g., provision of tailored spaces in which investors and entrepreneurs can communicate), and post-offering services (e.g., assistance in planning exit strategy). Using the population of security-based crowdfunding platforms in France, Italy, Germany, and the United Kingdom, they find that the promise of a higher number of post-offering services has a positive impact on the number of successful offerings. Platforms also play a key role in determining how the relationship between firms and investors is structured. Rossi et al. (2019) investigate corporate governance in security-based crowdfunding, revealing a large variety in corporate governance mechanisms offered by platforms based in Europe, the United Kingdom, and the United States. Some platforms assign voting rights to individual investors, some work under a nominee structure, and some require the involvement of accredited investors to list offerings. They find that the delivery of voting rights to individual investors is associated with fewer offerings on the platform. Based on data from the population of Canadian equity crowdfunding platforms, Cumming et al. (2019b) document that platform due diligence, comprising background checks, site visits, credit checks, cross-checks, account monitoring, third-party proof of funding project, has a positive impact on the likelihood of listing successful offerings and raising higher amounts of capital. Examining the worldwide population of healthcare crowdfunding platforms, Bassani et al. (2019) provide an assessment of how and where healthcare crowdfunding platforms emerge. They explore the relationship between healthcare crowdfunding and national health systems, finding evidence of a substitution effect when public health coverage is low. De Andrés et al. (2021) examine the effect of the issuer fee paid to portals on the success of investment crowdfunding using 1694 offerings launched in the US. They show that a mixed issuer fee (i.e. fixed gross fee and a share of securities)

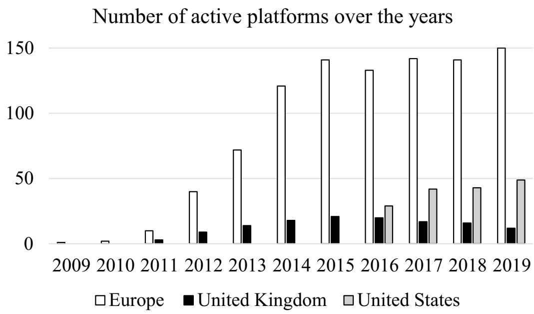

Fig. 1 Number of active platforms over the years. The population of 331 equity crowdfunding platforms active within the period 2007–2019 in Europe, the United Kingdom, and the United States

influences the probability of success, suggesting a positive signaling-effect that mitigates adverse selection problems between retail investors and issuers.

Although these studies shed some light on the platform screening process, they leave open several questions. Studies about public financial markets have shown that competition (Macey & O'Hara, 2005)—especially but no only during the dot-com bubble—has made it not convenient for the stock exchange to really vet issuers, resulting in increasingly listing low-quality companies. Direct and indirect network effects give indeed incentives to list more offerings, so to achieve the size and, ultimately increase the profits. We wonder how selective crowdfunding platforms can afford to be if stock exchanges cannot. If economies of scale and network externality force the crowdfunding industry to consolidate, platforms with few offerings will likely perish. Accordingly, platform managers could have an incentive to relax the selection criteria, to increase the number of campaigns on their platforms. In light of the above, further studies are required to delineate a systematic picture of the role platforms and their selection activity; under which conditions platforms are more likely to tighten or relax their selection criteria; and what are the implications of their choice for the firms and for the equity crowdfunding market in general.

5.2 Industry consolidation

From an industry perspective, the focus on platforms may provide interesting evidence related to consolidation dynamics. Due to low entry costs, historically, the number of platforms in operations has seen dramatic growth over time, although different countries have registered different growth rates (Di Pietro & Butticè, 2020; Dushnitsky et al., 2016). A simple graph offers a readable way to represent the evolution of the equity crowdfunding industry. Figure 1 documents the number of active platforms between 2007 and 2019 based on the population of 331 equity crowdfunding platforms in Europe, the United Kingdom, and the United States. The population includes crowdfunding platforms allowing individuals to purchase securities from companies in the form of equity while excluding platforms specialized in real estate. In line with Meoli et al. (2020), a platform is defined to be active from the year in which the first crowdfunding offering is launched on the platform's website to the year when the platform experiences one of the following scenarios: (1) the platform website becomes inaccessible for at least 6 months, (2) the platform declares its failure on the website or ceases to operate in the equity crowdfunding business, (3) the platform is acquired by another platform and ceases to exist independently. While in the United States the number of active platforms has continued to grow, the number of platforms in Europe has recently been stable. We observe that the number of active platforms in the United Kingdom has been decreasing since 2016, suggesting an industry consolidation.

At the moment, we lack a comprehensive understanding of the determinants of platform survival, with few exceptions. Dushnitsky et al. (2020) observe that differentiation is associated with greater platform longevity. Meoli et al. (2021) investigate how country-level financial literacy is associated with the survival profile of equity crowdfunding platforms. Using the universe of 432 platforms in OECD countries, the study observes higher survival profiles for platforms based in countries where the level of financial literacy is higher. Financial literacy, however, needs to combine with specific platform characteristics to take full effect: it matters indeed more in those platforms that deliver voting rights and in those that provide poorer value-added services. This result highlights the role of information production and governance mechanisms on the development of crowdfunding platforms, however, it leaves open questions related to other institutional characteristics that may influence the survival of platforms. Still related to platform industrial dynamics an important open question relates to the concentration of the equity crowdfunding market and the active role that policymakers can have. A clear example is the UK competition (Coakley & Lazos, 2021) and markets authority that raised concerns over the merger attempt by Crowdcube and Seedrs, the two largest equity crowdfunding platforms in the UK, that has lead the companies to terminate their £140 million ($192 million) merger.[2]

5.3 Innovation in the equity crowdfunding industry

Finally, an important aspect that has been so far neglected relates to the active role that platforms can have in innovating the equity crowdfunding markets. Platforms are the engine of innovation in this market. A clear example is provided by the introduction by Seedrs of the secondary market, to solve the illiquidity problem that all shareholders face after investing in an equity crowdfunding campaign. Initially, this market was available only for those who held shares under the Seedrs nominee account (see e.g. Butticè et al., 2020). This criterion has been then relaxed in relaxed these criteria in February 2018 giving the right to anyone to buy or sell shares. At the moment, the academic literature has broadly overlooked the investigation of platform innovation in crowdfunding. Accordingly, we lack a solid base of knowledge related to the implication of these innovations and the driver that induce the platform to innovate.

6 Conclusions

The global equity crowdfunding market has grown exponentially, becoming an important source of alternative finance for entrepreneurs. Despite increasing scholarly attention, a multitude of research questions in this field remains still open. The goal of this paper was to describe research needs and opportunities in equity crowdfunding research. Table 1 synthesizes the major research opportunities highlighted in this paper.

Particularly, by comparing equity crowdfunding to traditional risk capital providers we identify three major areas of academic inquire. First, we note that equity crowdfunding has

[2] https://www.cnbc.com/2021/03/25/crowdcube-and-seedrs-scrap-merger-after-uk-raises-competition-concerns.html

Table 1 Research Opportunities in Equity Crowdfunding

Research area	Research focus	Research questions
Inclusivity		
Entrepreneurs' inclusivity	Female Entrepreneurship	Does equity crowdfunding reduce the gender financing gap? What are the characteristics of minority entrepreneurs that rely on equity crowdfunding? Which kind of projects are presented by minority entrepreneurs?
	Silver Entrepreneurship	
	Immigrant Entreprenuership	
	Rural Entreprenuership	
Investors' inclusivity	Investors' Motivations	Why do investors finance an equity crowdfunding campaign?
	Investors' Characteristics	Who are the investors who finance an equity crowdfunding campaign?
	Investors' Role in Market Efficiency	Does the presence of a multitude of small investors improve market efficiency?
	Investors' Value added	What is the value-added by equity crowdfunding in comparison with other financial channels (e.g. Banks, VC, BA)
The perils of inclusivity	Frauds	How frequent are frauds in equity crowdfunding? What are the characteristics of fraudulent campaigns? Which kind of fraud has been reported in equity crowdfunding?
	Low-quality campaigns	What are the returns of equity crowdfunding campaigns? How do startups that received equity crowdfunding perform compared to other benchmarks?
Information Abundancy		
Information attention	Information Charachteristics	What is the information provided in an equity crowdfunding campaign that catches investors' attention?
	Attention Arousal	What are the characteristics/behavior of the entrepreneur that funnels attention to specific information?
Information volatility	Dynamic Information	How do changes in the information set influence the fundraising in an equity crowdfunding campaign?
	Information Manipulation	
Industry Dynamics		
Platform behavior	Due diligence	How do platforms conduct due diligence before an equity crowdfunding campaign? What are the characteristics that allow entrepreneurs to pass due diligence?
	Platform promotion	How do platforms attract entrepreneurs and investors?
Industry consolidation	Platforms survival	What are the determinants of platform survival?
Innovation	Platform innovation	How do platforms innovate? What are the implications of innovation for the crowdfunding market?

the potential to democratize entrepreneurial finance by reducing barriers for both entrepreneurs and small investors. Accordingly, it may become an important funding source for immigrant, silver, or rural entrepreneurs, that have typically encountered severe barriers in gaining access to financing. Concurrently, crowdfunding allows issuers to broadly solicit and advertise their securities to a large crowd of small investors (Drover et al. 2017), who have for the very first time, the possibility to invest in small private firms (Bruton et al., 2015; Cumming et al., 2019a). Understanding, on the one hand, how to protect these investors and, on the other hand, how the involvement of these investors can contribute to value creation in equity crowdfunded firms remain, at the moment, open questions. Second, we stress that equity crowdfunding provides an unprecedented opportunity for scholars in management, finance, and innovation, i.e. to observe directly investors decision-making process. New technologies and research methodology provide the opportunity to investigate how investment decisions are taken. Considering the presence of retail as well as professional investors in this market, equity crowdfunding provides the possibility to investigate how they shape their choices, what attracts their attention, and ultimately the evaluation process they follow before making an investment. Finally, we point out that, equity crowdfunding platforms have received very limited attention, so far. This trend is very similar to that registered in the IPO literature, where research has understudied how the operators behave (see, for example, Pagano et al., 2001). Accordingly, we have stressed the importance to study equity crowdfunding platforms and the role these can have in equity crowdfunding markets as an engine of innovation and market growth.

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