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The role of venture capital in the emerging entrepreneurial finance ecosystem: future threats and opportunities

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ABSTRACT

The last decade has seen the emergence of alternative sources of early-stage finance, which are radically changing and reshaping the start-up eco-system. These include incubators, accelerators, science and technology parks, university-affiliated seed funds, corporate seed funds, business angels – including “super-angels”, angel groups, business angel networks and angel investment funds – and both equity- and debt-based crowdfunding platforms. In parallel with this development, large financial institutions that have traditionally invested in late-stage and mature companies, have increasingly diversified their investment portfolios to “get into the venture game”, in some cases, through the traditional closed-end funds model and, in other cases through direct investments and co-investments alongside the closed-end funds. This paper reviews the main features, investment policies and risk-return profiles of the institutional and informal investors operating in the very early stage of the life cycle of entrepreneurial firms. It concludes that traditional closed-end venture capital funds continue to play an important role in early stage finance because of their unique competences (e.g. screening, negotiating and monitoring) in what has become a wider and more complex financing ecosystem.

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Venture capital; business angels; equity crowdfunding; startup financing

1. Introduction: is venture capital close to its demise?

A lifecycle approach has commonly been used to identify the funding options available to businesses. This enables the decomposition of the capital market industry into different segments, each one of which is tailored to relatively homogeneous groups of companies in terms of maturity, stage of development, size, typical investment needs, information availability, corporate ownership and governance models (Ang 1992; Carey et al. 1993; Petersen and Carpenter 2002). Various explanations have been developed in the finance theory to interpret the choices of capital structure that business managers make for the companies they are running. These include trade-off theory (Modigliani and Miller 1958, 1963; De Angelo and Masulis, 1980; Fama and French 2002), agency theory (Jensen and Meckling 1976; Myers 1977; Jensen 1986) and the pecking order theory (Myers and Majluf 1984). However, when focusing on small and medium sized enterprises (SMEs), it is widely accepted that information

asymmetries together with firm size and age play a major role in determining both what segment of the capital market – public or private – and what types of finance to seek at each stage of a company’s life cycle, as illustrated in Figure 1 (Berger and Udell 1998). Such an approach allows the identification of potential funding gaps at various points in a company’s growth path that could be filled through appropriate funding strategies aimed at finding the most suitable type of financial investor (Mason 2006; Sohl 2007).

Focusing on newly created and young SMEs, the empirical evidence shows that each financial system is affected by a certain amount of allocative inefficiency, resulting in a gap – often referred to as the “primary funding gap” – between the demand for financial resources by start-up companies and the supply of early-stage equity capital (Mason and Harrison 2000; Hall and Lerner 2010; Landström and Mason 2016; Wilson, Duruflè, and Hellmann 2018). According to pecking order theory, after the choice of internal financing represented by the “insider seed money” coming from the entrepreneurs and the “family and friends tranche”, venture capital has – since its origins in the aftermath of the end of World War II – been the dominant source of early-stage finance (Bruton, Fried, and Manigart 2005; Kaplan and Lerner 2017).¹ This arises from the uniqueness of their operations and investment practices and expertise in the screening process (Chan 1983; Wright and Robbie 1998; Cumming 2006; Chemmanur, Krishnan, and Nandy 2011), the monitoring of contractual provisions (Admati and Pfleiderer 1994; Gompers 1995; Bergemann and Hege 1998; Kaplan and Stromberg 2003; Cumming and Johan 2013), implementation of the staged investing mechanism (Sahlman 1990; Bergemann and Hege 1998; Cornelli and Yosha 2003), the syndication of investments (Lerner 1994; Filatotchev, Wright, and Arberk 2006; Manigart et al. 2006; Tian 2011), and

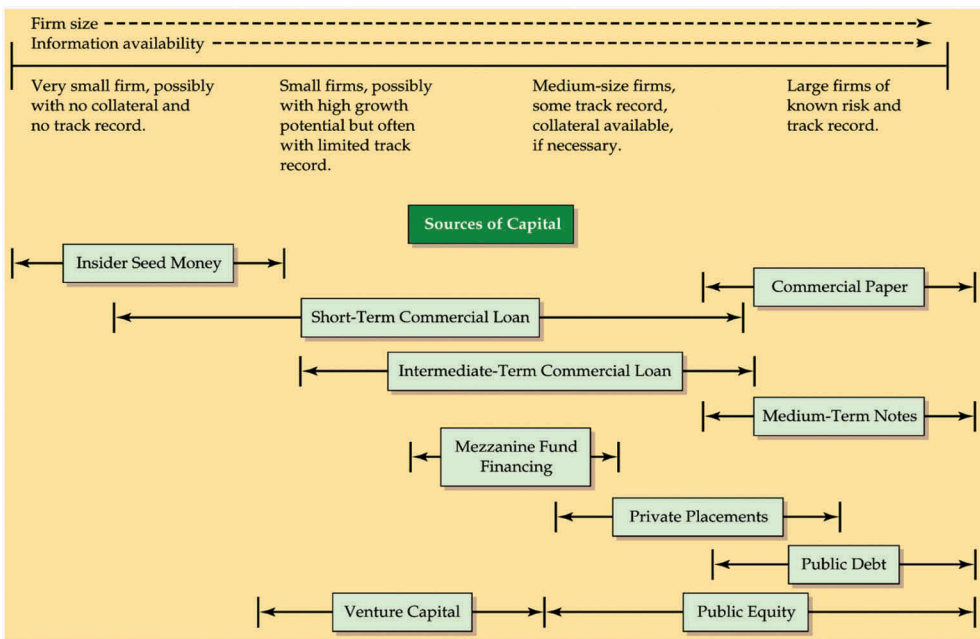


Figure 1. Firm continuum and sources of finance.

Source: Berger and Udell (1998)

exit practices (Black and Gilson 1998; Hellmann 2006; Giot and Schwienbacher 2007), as well as due to the compensation schemes applied to the executives of venture capital closed-end funds or to the general partners of venture partnerships (Gompers and Lerner 1999; Metrick and Yasuda 2010).²

In the standard representation of the business financing cycle, for a start-up company, the capability to raise equity capital from a venture capitalist or a syndicate of venture capitalists constitutes a crucial and visible achievement. This capability may be used in later stages of the company's development where bank lending-based indirect finance, on the one hand, and direct finance (Initial Public Offerings [IPOs] and bond issues), on the other hand, are the most accessible and appropriate financing facilities available. Indeed, within the venture capital industry, to complete such a growth path, it is common for a business to go through multiple follow-on investments involving either the existing venture capitalists or a new set of investors, giving rise to series A, B, C and *n* funding rounds.

However, despite the continuing relevance of the venture capital industry, over the last decade, the growing emergence of alternative sources of early-stage funding can be observed, which is radically changing and reshaping the start-up eco-system, with implications for the entrepreneurial finance literature (Bruton et al. 2015; Fraser, Bhaumik, and Wright 2015; Landström and Mason 2016; OECD 2017; Bellavitis et al. 2017). These alternative sources of funding involve a variety of players, including incubators, accelerators, science and technology parks, university-affiliated seed funds, corporate seed funds, business angels – including “super-angels”, angel groups, business angel networks and angel investment funds – and both equity- and debt-based crowd-funding platforms (Mitchell 2010; Hoffman and Radojevich-Kelley 2012; Capizzi and Carluccio 2016). Each of these investors has unique risk-return profiles and investment philosophies, their own investment practices and preferred exit options. This creates major challenge for scholars, as well as for practitioners and policymakers, to design a linear and well-structured start-up financing path that includes all of these new actors (Hellman, Schure, and Vo 2017).

The start-up ecosystem is completed by non-equity financing investors – such as banks, government and regional development agencies – and by other actors providing expert services to both entrepreneurs and investors, such as business advisors, lawyers, investment banks, gatekeepers, foundations and non-profit organizations, governments, universities and research centres (Busenitz et al. 2003; Isenberg 2010; OECD 2011; Wilson 2015).

The emergence of new actors supporting the development of start-ups and young SMEs is not the only phenomenon affecting the venture capital industry. Large financial institutions experienced in operating in the capital markets, investing in late-stage and mature companies are increasingly diversifying their investment portfolios in an attempt to “get into the venture game” through, in some cases, the well consolidated business model of closed-end funds, which is based on the separation of the asset managers (the “general partners”) and the investors (the “limited partners”), and in other cases, through direct investments by the limited partners or through co-investments alongside closed-end funds. Among the actors that are currently increasingly assuming equity positions in start-ups – the so-called “alternative investments” asset class – are large private equity and buyout funds – both publicly traded and unlisted – hedge funds, funds-of-funds, sovereign wealth funds, foundations and endowments, private debt, mezzanine funds,

holding companies listed special purpose acquisition vehicles, insurance companies and pension funds (Chernenko, Lerner, and Zeng 2017).

A prominent example of the dramatic change that is transforming the early-stage financing industry is Uber, which – according to Crunchbase data – passed through 15 funding rounds in less than seven years (from 1 August 2009 to 7 July 2016), raising more than \$12 billion, involving, after the founders' investment, an angel round, eight follow-on venture rounds, three private equity rounds and two debt financing rounds (Figure 2).

These developments – the emergence of alternative providers of both early- and later-stage financing – appear to have reduced the traditional space in which venture capital operates, resulting a growing debate about its future role. In this review paper, we focus on the challenges as well as market opportunities available for venture capital to elucidate to identify the main features, investment policies and risk-return profiles of institutional and informal investors operating in, or gaining access to, the very early stage of the life cycle of SMEs. Our main contribution is to provide a comprehensive representation that could be useful for the identification of new and more effective fundraising strategies aimed at further incentivizing entrepreneurship and boosting innovation across countries at different stages of development and completeness of their capital markets, particularly their venture capital markets. The remainder of the paper is structured as follows. Section 2 briefly presents the major features and sources of differences among early stage companies. Section 3 focuses on the informal venture capital market, highlighting the investment aptitudes and practices of business angels and current developments in angel investing. Section 4 presents the main features, strengths and weaknesses of equity crowdfunding. In section 5, we discuss the challenges and opportunities related to the emergence of large institutional investors that

\$200K / Seed Aug 1, 2009 Garrett Camp Travis Kalanick	\$37 M / Series B Dec 7, 2011 Menlo Ventures (Lead) Benchmark Bobby Yazdani CrunchFund Data Collective Goldman Sachs Jeff Bezos Nihal Mehta Signatures Capital Summit Action Fund Troy Carter Tusk Ventures	\$1.2 B / Series E Dec 4, 2014 Lone Pine Capital New Enterprise Associates Qatar Investment Authority Sherpa Capital Valiant Capital Partners	\$200M / Private Equity Feb 12, 2016 LetterOne
\$1.25M / Angel Oct 15, 2010 First Round (Lead) Alfred Lin Babak Nivi Cyan Banister David Cohen Founder Collective Jason Calacanis Jason Port Josh Spear Lowercase Capital Mike Walsh Mitchell Kapor Naval Ravikant Oren Michels Scott Banister Shawn Fanning	\$258 M / Series C Aug 23, 2013 Google Ventures (Lead) TPG Growth Benchmark	\$600 M / Series E Dec 16, 2014 Baidu	\$3.5 B / Private Equity Jun 1, 2016 Saudi Arabia's Public Investment Fund
\$11 M / Series A Feb 14, 2011 Benchmark (Lead) Alfred Lin First Round Innovation Endeavors Lowercase Capital Scott Banister	\$1.2 B / Series D Jun 6, 2014 Fidelity Investments (Lead) BlackRock Google ventures Kleiner Perkins Caufield & Byers Menlo Ventures Sherpa Capital Summit Partners Wellington Management	\$1.6 B / Debt Financing Jan 21, 2015 Goldman Sachs	\$1.15 B / Debt Financing Jul 7, 2016 Morgan Stanley (Lead) Barclays PLC Citigroup Goldman Sachs
		\$1 B / Series E Feb 18, 2015 AITV (Accelerate IT Ventures) Foundation Capital HDS Capital Times Internet	
		\$1 B / Series F Jul 31, 2015 Bennett Coleman and Co Ltd Microsoft Microsoft Corp. - Strategic Investments	
		\$100 M / Private Equity Aug 19, 2015 Tata Opportunities Fund	

Figure 2. Uber funding rounds: 2009–2016.

Source: Crunchbase

have been complementing their traditional asset classes with direct investments in start-ups. Finally, [section 6](#) summarizes the relationships and the growth potential envisaged for the various sources of finance discussed in the paper and presents suggestions for future research and policy.

2. Segmenting early-stage companies: scalability, funding gap, scope and growth potential

When investigating the distinguishing features, investment needs, revenue model and cash flow generation patterns of new ventures, the finance literature mostly neglects the heterogeneity of start-up companies. Start-up companies do not all share the same intrinsic growth potential and, therefore, are not all considered a relevant target for professional formal equity investors. In accordance with the terminology widely used by professionals and venture capitalists, it is a matter of “scalability”. All companies are scalable to a given point, but some have to make significant changes to their business models to grow beyond a certain point (due to high vs. low upfront investments, capital vs. labour intensive technologies, tailor-made vs. standardized products, and so on). In some cases, the entrepreneur is not able to adapt the company to the dynamic environment or is not able to understand how the company needs to change. Moreover, not all entrepreneurs have the desire and capability to scale up to a large organization, preferring instead (i) a comfortable living for themselves, family and friends, (ii) a majority equity stake, and (iii) low risk – and not profit maximizing – strategies. In the entrepreneurship literature, such entrepreneurs are described as “lifestyle” as opposed to “growth-oriented” – or Schumpeterian – entrepreneurs (Burns 2001).

The equity gap – termed the “primary funding gap” in the previous section – represents a second problem that start-ups and especially early stage companies have to cope with. The typical monetary investment needed in the very early stages of a company’s lifecycle is often limited not because of a lack of “ambition” but because of the lack of “marketability” of the company’s output, which still has to be tested, eventually produced and promoted. Therefore, for many start-ups with a strong orientation to innovation and in which R&D investments represent a high percentage of their overall initial investment needs, they may never reach the point when additional investment is required to convert the outcome of their R&D efforts into products that are sold in the market. The possibility of stimulating innovation and technology breakthroughs relies on the capability to offer specific solutions to this primary funding gap (Hall and Lerner 2010). This requires successive rounds of financing aimed at enabling the innovative companies to further develop the fruits of their previous R&D investments and to fine tune a feasible and competitive business model (“secondary funding gap”) (Hellmann and Puri 2000; Sohl 2007; Kerr and Nanda 2014; Kraemer-Eis, Botsari, and Prencipe 2016; Wilson, Duruflé, and Hellmann 2018).

In terms of the size of equity investment, several studies show that young SMEs require a relatively small amount of capital, usually in the range of €50,000 and €300,000 (Sohl 1999; Wong, Bhatia, and Freeman 2009; European Commission, 2015; Landström and Mason 2016; OECD 2017), which in most cases, falls below the minimum investment threshold of private equity and venture capital firms. Typically, venture capitalists, both US- and Europe-based, prefer to invest in highly innovative firms that have higher

minimum investment needs, usually over €1,000,000 (Manigart et al. 2002; Mason, Botelho, and Harrison 2013; Kaplan and Lerner 2017; EY 2017). Thus, there is often an imbalance between, on the one hand, the size of the investment needs of young new ventures, and, on the other hand, the monetary and non-monetary costs faced by venture capitalists to screen, evaluate and monitor such an informationally opaque class of equity investments, ultimately making it uneconomic for them to deploy financial resources under a minimum amount.

Another major differentiating factor is the size of new ventures' competitive arena: some start-ups have the potential from their earliest days to rapidly scale-up their business and compete on a global basis (such as some fintech firms), while other companies grow with a more restricted geographical focus that is inherently limited on account of the nature of the business model adopted, such as for instance the case of many service companies, most of all in the touristic industry.

In summary, though recognizing the relevance of macroeconomic, industry- and firm-specific factors, it is possible to argue that the growth potential of a new venture is largely written in its DNA and driven by the entrepreneurs' goals, commitment, abilities and orientation to innovation (Lerner et al. 2016; Hellman, Schure, and Vo 2017). The company's growth potential, in turn, is a major driver of its financing path, thus determining, or at least strongly influencing, the type of investors that the company can potentially access and the follow-on sources of funding available after the first capital injection.

3. Informal venture capital market

One major alternative to venture capital that has emerged and become established over the last two decades is the so-called informal venture capital market, the major actors of which are business angels (BA) and business angel organizations. Often referred to as informal investors, BAs are high net worth or affluent individuals, acting alone or in formal or informal syndicates, who invest their own money in small unlisted companies with which they have no family connections, typically assuming a minority equity stake, as well as becoming actively involved in portfolio companies (Mason 2006). Alongside the finance that they invest, BAs also provide valuable non-monetary resources, such as industry knowledge, management experience, mentoring and personal networks (Harrison and Mason 1992; Landström 1993; Politis 2008; Avdeitchikova and Landström 2016). The key role of BAs in the economy is to fill the previously defined primary funding gap between, on the one hand, the internal financing coming from the entrepreneurs and their friends and family, and, on the other hand, the external financing raised from institutional VC firms, when the size of the required investment is too great for the former and too small for the latter (Mason and Harrison 2000). In many cases, angel financing can be structured as a loan that accrues interests over time and at maturity, converts to equity at a discount to the value of the first follow-on funding round led by an institutional investor (Wong, Bhatia, and Freeman 2009; Cumming 2012; Chemmanur and Chen 2014).

The empirical evidence that has emerged in the last two decades from research contributions investigating the informal venture capital markets all over the world, indicates that in contrast to the other main actors of the early-stage financing industry,

business angels do not focus only on seed and start-up investments. They also make equity stakes in mature small companies that are managed by an executive who is in their networks and that operates in industries that the BAs know very well, either because they have already invested in the industry or have previously succeeded as an entrepreneur in that industry (Kerr, Lerner, and Schoar 2014; Capizzi 2015; Mason 2016).

Regarding the investment practices of BAs, recent contributions emphasize the high selectivity of their investment decisions as measured by their high rejection rates, which are mostly related to the perceived quality of both the entrepreneur and the management team (Mason, Botelho, and Zygmunt 2017). In the due diligence and valuation of investment opportunities, their evaluation process emphasises personal and informal sources over formal sources of information, thus bringing subjectivity, personal relationships and qualitative non-financial information to their investment decisions (Harrison and Mason 2017).

Another unique feature of the operation of BAs is the method that they use to monitor their investments, which Bonini et al. (2018) refer to as “soft-monitoring” mechanisms. Different from contractual-based monitoring mechanisms typically used by venture capitalists to reduce potential conflicts and the incentives for opportunistic behaviour by entrepreneurs (Sahlman 1990; Triantis 2001; Kaplan and Stromberg 2003; Gompers and Lerner 2004; Chemmanur, Krishnan, and Nandy 2011; Cumming 2008; Wong, Bhatia, and Freeman 2009; Erenburg, Smith, and Smith 2016), the monitoring mechanisms preferred by angel investors are non-aggressive and informal control mechanisms based upon a close post-investment involvement in the relevant company through company visits, interactions with entrepreneurs and other control techniques based on trust (Van Osnabrugge 2000; Wiltbank and Boeker 2007; Ibrahim 2008; Wong, Bhatia, and Freeman 2009; Goldfarb et al. 2013; Bonini and Capizzi 2017). Furthermore, due to both the minority equity stake usually acquired by angel investors (Wiltbank et al. 2009; Kerr, Lerner, and Schoar 2014; Landström and Mason 2016) and the abovementioned weak legal protection implied by their soft-monitoring mechanisms, the small amount of formal control is beneficial to the development and the duration over time of a trust-based relationship between the angel investor and the entrepreneur. This, in turn, could make it easier to involve venture capitalists and other institutional investors, who, in contrast, will face uncertainty, information asymmetries and agency costs through contractual-based control and governance mechanisms, in making follow-on rounds of investment. The limited appetite of formal equity investors for potential investee companies with complex underlying contractual relationships between the entrepreneur and a business angel clearly implies that “the start-up’s need for further funding from venture capitalists sets de facto limits on the terms of the angel investment contract” (Ibrahim 2008). Other studies that have investigated the dynamic interaction between business angels and venture capitalists, have revealed the existence of a chronological pecking order in the entrepreneurs’ funding preferences, in which companies first access the informal investors and then seek equity capital from formal investors, but with the angels remaining in the investee companies, although with a reduced equity holding (Schwienbacher 2009; Bruton, Chahine, and Filatotchev 2009; Chemmanur and Chen 2014; Hellman and Thiele 2015).

An alternative and highly promising theoretical framework assumes the existence of a substitution-based relationship rather than a complementary-based one between

business angels and venture capitalists. The underlying rationale is that the synergies – if any – enjoyed by VCs when investing in a target company after a prior angel-financing round may be more than offset by other issues that have a negative impact on the future performance of the investment itself. First, the dilution of the angels' shareholding as a consequence of the VC's equity investment has to be managed, which implies incurring transaction costs that could possibly impact the cohesion amongst the three typologies of stockholders: company founders, BAs and VCs. Second, and connected to the previous argument, BAs and VCs have different utility functions that lead to different investment policies for the holding period, the returns target and, consequently, for the strategic priorities that the investee company needs to design and pursue. Third, the involvement of VCs may lead to significant changes in the governance of the investee company, including the loss of the BA's board seat and the recruitment of new management by the VC, with the effect of further reducing the limited control rights and decreasing the effectiveness of the angels' soft-monitoring mechanisms.

These arguments suggest that the start-up ecosystem is much more complex than that proposed by the standard finance theory that is based on the standard paradigm of a company's life cycle and the consequent identification of the different sources of finance associated with each stage, as shown earlier in [Figure 1](#). In accordance with such a line of reasoning, Hellman, Schure, and Vo (2017) analysed the financial history of a sample of Canadian companies over time and found that a company funded by a given type of investor (business angel vs. venture capitalist) is likely to raise equity capital in subsequent follow-on financing rounds from the same type of investor and is less likely to be financed by investors of a different type. In other words, although such a theoretical explanation has not been further developed and tested to date, the dynamic interactions between start-ups and their investors could be firm-specific and conditioned by their prior choices about the type of investor that provides the first round of equity capital. This suggests the possibility of a "multidimensional" ecosystem where start-ups have their own financing paths, which are different and possibly parallel to each other, based on unique combinations of the many different alternatives now available within the start-up ecosystem (Bessi re, Stephany, and Wirtz 2018). We will discuss further the possible consequences for start-ups in the following sections. But we first provide clarification regarding the differences between the main types of investors considered in this paper.

3.1 The increasing role of angel groups and their contributions to the performance of start-ups

While angel investors have a long history, angel investment organizations (AIOs) – or, herein after, angel groups – are a more recent phenomenon. Angel groups are structured as semi-formal or formal networks of high-net-worth individuals which convene as a group on a regular basis to evaluate and invest in start-ups typically within a specific geographic region (Sohl 2007; Paul and Whittam 2010; Gregson, Mann, and Harrison 2013; Mason, Botelho, and Harrison 2013; Lahti and Keinonen 2016; Bonini et al. 2018). They emerged in the mid-1990s and have exhibited a strong growth since then ([Figure 3](#)), in contrast to other segments of the capital market whose growth was affected by the Global Financial Crisis (Mason and Harrison 2015).

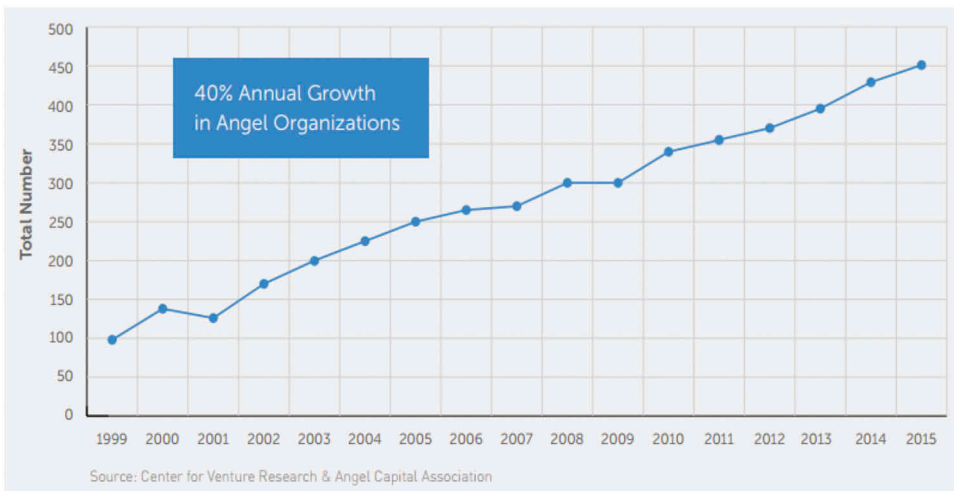


Figure 3. Number of angel investor organizations in the 1999–2015 period.

Some angel groups have subsequently expanded their geographical focus to the regional, national and even international scale. Moreover, they have increasingly differentiated themselves in terms of their rules of engagement, internal structure, quality, variety and cost of the services provided. As a consequence there is considerable heterogeneity among angel groups. Some angel organizations are less formal and structured than angel groups. These are often referred to as a business angel network (BAN). The main difference between BANs and angel groups lies in the BANs' less-stringent obligations and engagement rules for membership, such as limited or no fees, no minimum participation requirements, and no obligation to share due diligence costs (Mason, Botelho, and Harrison 2013). BAN members can join through a solicited or unsolicited basis and can collaborate in organizing pitching events, training, and mentoring activities, and coordinated lobbying efforts. Entrepreneurs are solicited to submit their proposals to the BAN through websites and other networking activities taking place inside the community. There is no (or limited) organized deal-group processing, and the angel organization does not make investments on its own or recommend investments to members; rather, each member decides whether to invest on a deal-by-deal basis, joining other investors and co-investors and sharing preliminary valuations, due diligence, negotiations, and term sheets. In contrast to BANs, angel groups usually offer their associates the right to enjoy common services, including formal valuation and due diligence activities performed in accordance with a predefined set of formal rules. Additionally, by signing investment term sheets negotiated and set within the group itself, associates are allowed by their angel group to invest alongside a single well-connected angel or to join an investment vehicle together with other members of the group.

One of the reasons for the increase in business angel organizations is the advantages that they provide to their member investors. First, by co-investing in a given deal with other investors, member angels can achieve the benefits of portfolio diversification, thus reducing their individual equity stakes in the invested ventures while maintaining an

active involvement and providing value-added contributions. A further advantage is the opportunity for individual angels, by joining a given investment opportunity through participation in a deal-specific angel syndicate, to make larger investments than those that would be possible to contract on a stand-alone basis. Third, because of the larger size of their investments, angel groups typically are much more visible than solo investors, allowing their members the possibility to benefit from a higher quality deal flow. Fourth, by sharing the cost of due diligence, contract design, negotiating and closing, as well as the post investment monitoring costs, the overall transaction costs are reduced within the context of an angel organization. Finally, a further significant advantage comes from the information and knowledge-sharing effects that occur inside the community. The managers of the angel investment organizations (also known as “gatekeepers”) organize periodic training meetings and pitching events aimed at stimulating the interactions between angel investors and entrepreneurs searching for funding (Ibrahim 2008; Paul and Whittam 2010; Brush, Edelman, and Manolova 2012; Mason, Botelho, and Harrison 2016).

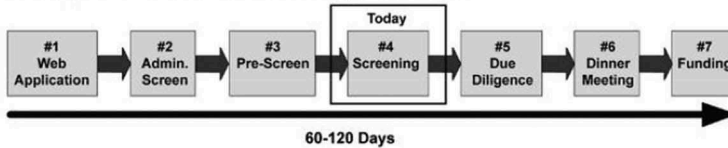
Although here is no common investment process across angel groups, there are some operating features that they typically adopt. First, entrepreneurs seeking finance from the group are required to submit an application, which will likely include a copy of their business plan/executive summary. This is followed by an initial screening phase, performed by the organization’s staff, to reject submissions that do not fulfil the group’s minimum investment criteria (e.g., size of investment). Firms that make it through this stage are invited to give a short presentation to a small group of members, followed by a question and answer session. Promising companies are then invited to present to all members at a monthly meeting. The presenting companies that generate the greatest interest enter a due diligence reviewing process. Finally, if the outcome of the in-depth analysis of all of the information on the company is positive, the company will receive an offer of funding. The closing of the investment follows the negotiation of the group’s standard investment agreements by the lead investor(s) and some members of the management team of the angel group. Tech Coast Angel, the largest angel network in the United States, provides an example of how an angel group executes the investment decision process (Sudek, Mitteness, and Baucus 2008; Kerr, Lerner, and Schoar 2014) (Figure 4).

An important research stream amongst the numerous contributions investigating the transformation of the angel market in the last decade has focused on the impact of angel investors on the investee companies – both in the United States (Kerr, Lerner, and Schoar 2014) and worldwide (Lerner et al. 2016). A key focus of these studies has been the attempt to disentangle the angels’ selection effect from their value-adding effect. Consistent with the literature on the role of private equity investors on the performance of the venture-backed companies (Lerner 1995; Amit, Brander, and Zott 1998; Colombo and Grilli 2010; Croce, Martí, and Murtinu 2013), the starting point of these studies has been the identification of an appropriate methodological approach aimed at controlling for the impact on investors’ screening and funding decisions of the endogenous characteristics of the most successful companies compared to those of the lowest performing ones. In order to remove such endogeneity issues and to differentiate the value adding contributions of angel groups across a sample of companies applying for funding, the authors used a “regression discontinuity approach” to analyse a predefined set of applicant start-ups receiving different valuation outcomes; in other words, some



TCA Orange County Screening Overview

Welcome to the #1 Angel network in the US. We are pleased you are attending an Orange County screening session. The screening process is an important part of the TCA process. Typically, we have over 300 companies per year apply over the web for TCA funding. Approximately one third of these companies make it to the screening process which you are about to participate in. Although each year varies, we typically fund between 10 and 20 companies per year. TCA consists of 4 chapters, each facilitating the first three steps of the deal flow process a little differently. The overall deal flow process for TCA consists of 7 steps as follows:



1. **Web Application** – Entrepreneurs apply to TCA on the Internet. This process includes filling out a 4 page overview of their startup venture.
2. **Admin Screen** – TCA staff perform a quick screen on the application to insure it is within the target area for a TCA venture. For instance, we typically fund between \$250,000 and \$1 million. If a company is seeking outside this range, typically they are not moved forward to pre-screen.
3. **Pre-Screen** – In Orange County entrepreneurs present a brief overview of their company to 3-7 TCA members. This includes 5 minutes of presentation and 25 minutes of informal questions and discussion with the TCA members. At the conclusion of this session, the prospective company is moved to screening, or given feedback why they may not be a good fit for TCA.
4. **Screening** – Typically 3 companies present at a screening. This consists of 15 minutes of PowerPoint and 15 minutes of Q&A. After the Q&A, we ask the entrepreneurs to leave the room and we discuss the company in private (typically it takes 10-15 minutes). The entrepreneurs are invited back into the room, and a designated member provides quick feedback. Typically, the companies present at all 5 chapters. Therefore, it is possible for a company to get little interest at one chapter, but enough interest at another chapter that will allow it to move forward to due diligence. In Orange County we utilize a moderator to facilitate the sessions. This is intended to help balance questions for our members such that a member will not dominate the Q&A time. If you are a prospective member you are welcome to ask questions during the Q&A portion of the presentation.
5. **Due Diligence** – A due diligence team is formed based on the number of interested members who signed up during the screening. A deal lead steps forward and helps coordinate the due diligence activities. Due diligence consists of verifying representations by the venture, customers, agreements, references, backgrounds, etc. The results of the due diligence process are posted on the TCA website (members only section), and if the results are positive, the venture moves forward to dinner meetings.
6. **Dinner Meeting** – Companies that pass due diligence present at monthly dinner meetings at each chapter. This allows them to get in front of members who might not have seen them at screening or were involved in the due diligence process. This is the opportunity for the entrepreneurs to garner enough interest by members to secure funding.
7. **Funding** – Funding occurs after there has been enough interest generated through dinner meetings and internal communication from the entrepreneur and deal lead. Members invest in deals individually, thus only a small percentage of members need to participate for the venture to secure funding. Typically, the minimum investment amount \$25,000.

Figure 4. Tech Coast Angels Investment process.

Source: Sudek, Mittensness, and Baucus (2008)

companies successfully passed the screening process and others were rejected, although the rejected companies were similar to those that were funded. This methodology uses semi-random differences in the likelihood that a deal is funded as a way to build treated (the funded ventures) and untreated (the unfunded ventures) samples. By looking at the voting process taking place after the pitching events inside angel groups and relating

the probability of a venture being funded to the number of BAs showing interest in a given deal, it is possible to identify the threshold where a critical mass of angels emerges around a deal, thus determining the acceptance or the rejection of the proposed transaction. The authors then considered for the subsequent analysis only the “border groups”, that is, the firms falling just above and below this threshold, once they had controlled for the similarity of the firms in the border region prior to their obtaining access to the angel groups.

The first major finding from this research stream was to prove and quantify the positive impact that AIOs have on the growth and survival of the companies they fund. Both in the United States (Kerr, Lerner, and Schoar 2014) and worldwide (Lerner et al. 2016), this result is consistent with different measures of performance, such as (i) the survivorship three years after the funding event, (ii) the likelihood of the funded venture achieving a successful exit (IPO or M&A) and (iii) the growth in employees, patents and web traffic performance. A second significant finding is that it is only outside the United States that angel funding seems to matter significantly for the ability of a firm to obtain follow-on financing. This result may suggest that in the United States, due to the intrinsic completeness and liquidity of its market for start-up capital, prior angel funding is not an essential prerequisite for obtaining access to follow-on investment rounds and, thus, even companies turned down by angel groups are able to find alternative sources of financing. A third key finding is that the typology of firms applying for angel funding is different across countries; compared to applicants in more entrepreneurship-friendly countries, pitching companies in countries with a less-conducive entrepreneurial environment are larger-sized and already revenue generating.³ However, despite their size and maturity, the firms in these markets seek a smaller amount of funding. A possible explanation, given the arguable scarcity of alternative funding options for entrepreneurs in such countries, is the tendency of firms to “self-censor” when applying to angel groups. This is consistent with the perceived higher risk aversion of BAs compared to venture capitalists, as they have less background in assessing very early-stage investments. Thus, on the one hand, an estimate of the expected magnitude of the aggregate impact of BAs, especially in entrepreneurship-unfriendly countries, is still an open issue for future research; but on the other hand, little is known about the nature of the evolution in BAs’ investment practices that is required to match the investment environment elsewhere.

A final issue that requires further investigation – as discussed in Bonini, Capizzi, and Zocchi (2017) – is the wide heterogeneity across angel investment organizations, with some studies making reference to angel groups, others to BANs, and others to ad hoc club deals that allow angels not necessarily belonging to any given angel organization to join a given deal opportunity. There is the opportunity for future research to shed light on the possible differential impacts on the performance of new ventures made by different types of AIOs with contrasting association rules, membership and service structures alongside internal governance and management practices.

3.2. Business angels and venture capitalists in the start-up ecosystem: commonalities and unique features

It is difficult to obtain precise estimates on the size of the informal venture capital market. A large part of the market is “invisible” (Mason 2008; Sohl 2012; Landström and

Mason 2016; Edelman, Manolova, and Brush 2017) because most angel investments are made on an individual basis and, thus, are not subject to regulatory disclosure requirements. However, recent survey estimates suggest the total size of angel investments is now close to that of venture capital in the United States, Europe and increasingly in many other countries, as well (ACA, 2016; EBAN 2017; Kraemer-Eis et al. 2017; InvestEurope 2018; OECD 2017).

One of major reason underlying the success of BAs is that they share many of the positive features of VCs. First, they provide equity financing to early-stage businesses. Second, they carefully screen their investments by undertaking intensive due diligence, though in most cases, not by using external advisors but rather by leveraging their experience and industry knowledge as well as the information-sharing process taking place inside the AIOs (Bonini et al. 2018). Third, BAs are keen to serve as mentors and, sometimes, outside directors for the ventures that they fund, actively supporting and in some cases helping to shape their strategy and operations. They may also provide entrepreneurs with other non-monetary contributions, such as sharing their reputation within the financial community, their knowledge of the industry and their network of relationships with future company stakeholders. Finally, as previously discussed, they monitor their investments, thereby disciplining the entrepreneurs, though using less formal and contractual-based mechanisms, preferring instead non-aggressive soft control mechanisms, such as company visits, informal meetings with the entrepreneur and other trust-based types of interactions. Beyond such commonalities, BAs have a unique feature that distinguish them from VCs. They invest their own personal wealth, thus making them less prone to the agency problems widely documented in the literature regarding venture capital (Fried and Hisrich 1988; Sahlman 1990; Black and Gilson 1998; Gompers and Lerner 1999; Kaplan and Stromberg 2003; Smith 2005; Cumming and Johan 2013).

The fee-based compensation structures of the general partners and asset managers of venture capital funds are now widely accepted. On the one hand, these structures may reduce both information asymmetries and agency costs between the investors and the fund managers by realigning the incentives of managers. On the other hand, these remuneration mechanisms may lead to excessive fundraising, suboptimal investments and investment decisions and, even to cases of misevaluation and overfunding of the portfolio companies during the fund's holding period (Gompers and Lerner 2001; Metrick and Yasuda 2010; Chung et al. 2012; Wang and Zhang 2012; Robinson and Sensoy 2013; Sensoy, Wang, and Weisbach 2014).

It is reasonable to argue, although yet to be adequately formalized and tested, that the type of post-investment active involvement alongside the trust-based relationship established between BAs and entrepreneurs play a significant role in offsetting some major issues affecting the capital markets of many countries, notably the lack of legal protection for minority shareholders and, consequently, the thinness of such markets (La Porta, Lopez-de-Silanes, and Shleifer 1998; La Porta et al. 2000; La Porta, Lopez-de-Silanes, and Shleifer 2013; Djankov et al. 2002, 2008).

However, because business angels are not professional investors, and their investment practices in many cases are distinctive, subjective and lacking formal due diligence (Ibrahim 2008; Mason, Botelho, and Harrison 2013; Bonini et al. 2018), it is clear that they

also have particular investment challenges. Relying on informal investors might lead entrepreneurs to be exposed to idiosyncratic funding risks either because the BAs themselves might be affected differently by liquidity shocks over time to that of formal investors or because BAs may change their opinions more frequently about what projects to fund. Additionally, angels might not be prepared to invest in truly radical high-growth projects since they are usually more risk averse than institutional investors because their portfolios have less diversification. It is also thought that they do not have the required professional expertise to evaluate disruptive technologies or complex ventures operating in many different industries (Mason and Harrison 2004, 2008). Therefore – as discussed in Mason et al in this issue – to increase the effectiveness of this early-stage segment of the capital markets without sacrificing its distinctive and value-adding contribution to start-ups and to growing SMEs, much has to be done by public policies to encourage the development and professionalization of angel markets.

4. Impact of crowdfunding on the start-up ecosystem

The most recent innovation within capital markets, and particularly within the entrepreneurial ecosystem, is the possibility of raising funds through crowdfunding campaigns. The concept of crowdfunding has existed for a long time, with political campaigns being one of the earliest examples of its potential. They allow finance to be raised from a large number of possible sponsors interested in joining a given project who each make small financial contributions. Examples of successful crowdfunding campaigns include the financing of artists, musicians, statues, publications, movies and sport teams. Crowdfunding is now also used to finance investments in many industries, such as energy, entertainment, food and beverage, ICT, real estate, e-commerce and the sharing economy (Hervé et al. 2016; Massolution 2017; Statista 2018).

The recent exponential growth of crowdfunding has been facilitated by the technological innovation of Web 2.0, with the development of Internet-based online platforms which has enabled crowdfunding to become simpler, more scalable, cost efficient and more visible and attractive to retail investors (Kleemann, Voss, and Rieder 2008; Lambert and Schwienbacher 2010; Griffin 2012; Bruton et al. 2015). Platforms, such as KickStarter, Pebble Smartwatch, Indiegogo and Crowdcube – to cite some of the most well-known and established ones that are capable of launching successful campaigns raising millions of dollars – are currently the most visible development that distinguishes modern crowdfunding from its predecessors and become a prominent pillar of the entrepreneurial finance ecosystem. Figures 5 and 6 highlight the tremendous growth of equity crowdfunding over the past decade, especially when compared to that of both the venture capital and angel finance markets

The emerging literature discusses the various conceptualisations and definitions of crowdfunding (Harrison 2015; Giudici 2016; Pichler and Tezza 2016; Cumming and Hornuf 2018; Wallmeroth, Wirtz, and Groh 2018; Landström, Parhankangas, and Mason 2019). Belleflamme, Lambert, and Schwienbacher (2013) define the major constituting elements and players as follows: “crowdfunding involves an open call, mostly through the Internet, for the provision of financial resources either in the form of donation or in exchange for the future product or some form of reward and/or voting rights”. This definition indicates that crowdfunding typically involves at least the following three key

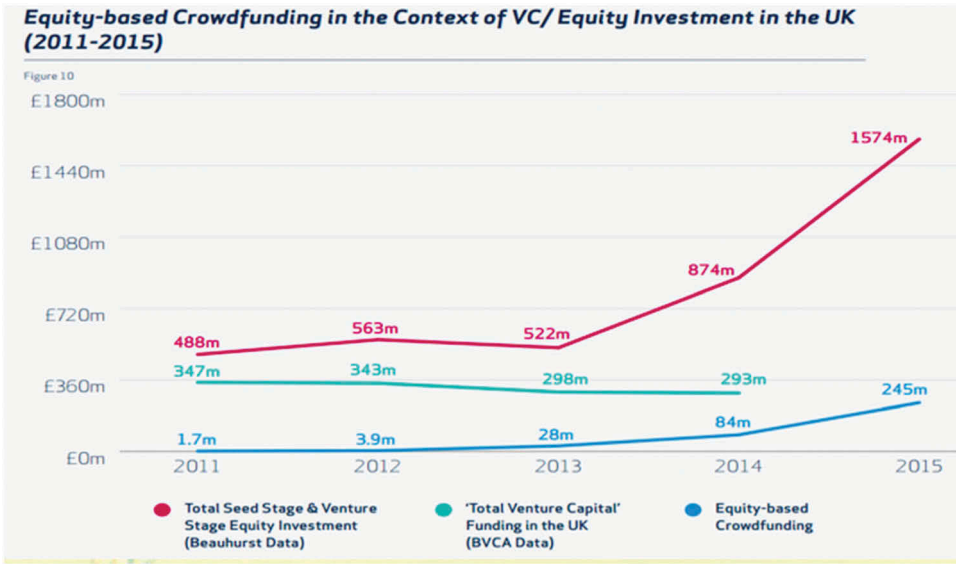


Figure 5. Trend in equity crowdfunding, venture capital and seed stage financing.

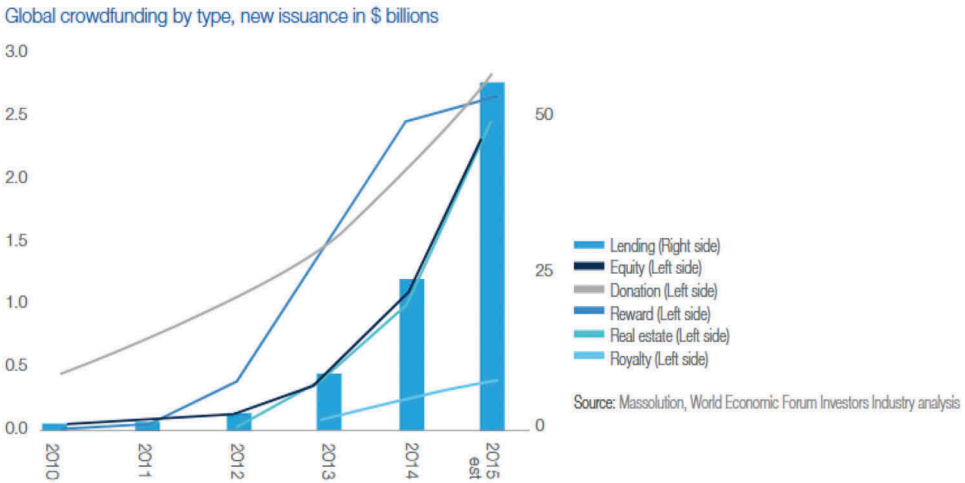


Figure 6. Trend in crowdfunding: breakdown by typology of crowdfunding.

players: (i) the entrepreneur (the “campaigner”), who is looking to raise money for a project or venture; (ii) the crowd of people who pool relatively small individual contributions to support innovative projects (the so-called “backers”) and (iii) the platform, which hosts the campaign and allows the fundraiser and the crowd to meet.

The motivation behind the entrepreneur’s decision to run a crowdfunding campaign, beyond the need to meet their specific funding needs is the desire to replicate the successful experiences of earlier campaigns and the opportunity to use the Internet to test the market for a future product or to easily and quickly reach potential customers (Gerber, Hui, and Kuo 2012; Mollick 2013). Moreover, a successful campaign can increase

the probability of completing follow-on financing rounds from more traditional sources of funding (Leboeuf and Schwienbacher 2018). The choice of an entrepreneur to adopt crowdfunding as a fundraising method may also be a consequence of being turned down by other investors, such as angels, or simply because the amount of money needed for their activity is too high to raise from family and friends and too low to be considered by the bigger institutional investors (Brown et al. 2018)

In addition to providing small businesses with an alternative means of obtaining debt or equity capital, and thereby reducing the funding gap between available seed capital and the start-ups' funding needs, crowdfunding brings many other advantages. As already noted, it can serve as a "proof of concept", with a successful crowdfunding campaign attracting publicity and demonstrating the potential of a product that is still very early in its development and thereby helping to attracting customers, employees and investors. Further, a successful crowdfunding campaign is associated with a higher likelihood of obtaining business partnerships and of building a strong customer base. Finally, crowdfunding can support efforts to develop prototypes, while preserving equity for later-stage market strategies (Gerber and Hui 2013; Belleflamme and Lambert 2014; Kuppuswamy and Roth 2016).

One well-known example that illustrates these points is the "Pebble smart watch" campaign. Pebble is a digital watch designed by Eric Migicovsky and developed by Pebble Technology Corporation. After many venture capital firms rejected the opportunity to invest because of the uncertainty regarding the market acceptance of the product, a crowdfunding campaign was launched on Kickstarter. Though the original funding target was set at 100,000 USD, in a very short time the campaign raised over 10 million USD and attracted a significant following, with approximately 68,000 potential customers. Thanks to the performance of the crowdfunding campaign, Pebble was able to receive a further investment from the start-up incubator "Y Combinator".

Turning to the motivations of the backers, an initial distinction has to be made regarding the fundraising mode and the type of compensation expected (Cumming and Zhang 2016). There are two types of fundraising mode. Some crowdfunding platforms allow the flow of funds according to the "all-or-nothing" rule, meaning that the campaigner will only obtain financial resources in the event that the project reaches the declared funding target, otherwise, the raised capital will be returned to the investors. Other crowdfunding platforms function according to the "keep-it-all" rule, enabling the entrepreneur to receive all the money raised, regardless of whether or not the project was able to meet its funding target. Kickstarter is an example of an "all-or-nothing" platform, whereas Fundly is an example of "keep-it-all platform". Indiegogo, offers campaigners the possibility of choosing between the two fundraising modes.

Based on the type of compensation provided to the backers, crowdfunding platforms can be categorised as follows (Bradford 2012; De Buysere et al. 2012; Harrison 2013; Griffin 2012; Pichler and Tezza 2016).

- **Donation crowdfunding** is designed for investors who do not require a direct return in exchange for their monetary contribution. This crowdfunding model does not provide any type of financial outcome for the investor but may offer an intangible non-monetary reward, such as a thank-you email or an

- acknowledgement in a movie or DVD. When the project has a humanitarian or philanthropic purpose and the campaigners are mostly not-for-profit organizations and charitable organizations, this might be referred to as a “social lending” model.
- **Reward crowdfunding** consists of individuals giving their money to a project or business with the expectation of receiving a non-financial reward in return, such as goods or services at a later stage. A common example is a project or business offering a unique service or a new product or a ticket to a sporting event or an art exhibition. This form of crowdfunding allows companies to start their go-to-market strategy with orders already obtained and with their cash flow secured, both of which can be major challenges for new businesses.
 - **Pre-purchase** is a particular form of the reward-based crowdfunding model that gives investors the possibility to pay in advance for a product or service they would be willing to buy immediately had it been available for sale. Once the production is completed, the backers – who are also the final customers – will receive the product at a special discount in a type of premarketing stage as a compensation for helping the entrepreneur to develop a new product or service.
 - **Peer-to-peer lending**, sometimes called crowdlending, is a direct alternative to a bank loan with the difference being that, instead of borrowing from a single source, companies borrow directly from a large number of individuals who are ready to lend in exchange for a financial return comprising, as in the case of a standard arm’s length bank debt, periodic payments of the interest plus the principal at the maturity of the loan itself. In some cases, crowdlenders often bid for loans by offering the interest rate at which they would be willing to lend. Borrowers accept the loan that is offered at the lowest interest rate. Internet-based platforms are used to match lenders with borrowers. Due diligence is carried out for each loan request, as crowdfunding platforms have a duty to protect the interests of both the businesses and the investors. Platforms normally require financial accounts and a trading track record.
 - **Equity crowdfunding**, also known as crowdfunding or securities crowdfunding, consists of selling an ownership stake in the business to a number of investors in exchange for a conventional financial return in the form of dividends and/or capital gains. Depending on national regulations that cover the sale of securities, the backers allowed to participate in this type of funding model may be restricted to those who are “accredited” or may also be available to those who are “unaccredited” (i.e., non-professional and less-sophisticated investors). The solicitation of investors might take place without, or with, a “light” version of a securities prospectus that does not require the involvement of advisors providing underwriting services. The securities could be common shares, preferred shares, shares with limited or no voting rights and mezzanine-finance instruments that would be convertible debt in most cases.

The third fundamental player in crowdfunding is the platform that connects the supply and demand for seed capital. Although there is still little known about the contributions that the many types of heterogeneous platforms that have emerged across the globe make to the performance of the overall funding process, two major issues have been extensively investigated: the revenue source and the management of asymmetric information (Belleflamme, Omrani, and Peitz 2015). For the revenue sources, it is possible to

distinguish the following: (i) the transaction fees charged on the whole amount raised, (ii) the charges for the additional services rendered, such as the payment and advertisement services, (iii) the interest earned on committed capital by the investors plus, in a number of cases, (iv) a subscription fee paid by the investor when completing the registration on the platform.

One major issue affecting crowdfunding deals is the inability of the crowdfunders to rely on the same standard mechanisms traditionally adopted by capital markets and financial intermediaries to manage ex-ante and ex-post asymmetric information, which leads to both selection and monitoring issues. Many platforms use the following methods to try to manage information asymmetries: performing screening activity; extracting and disclosing signals to the market – for example, campaigners' social capital and reputation; providing sophisticated investors with exclusive access to investment opportunities; stimulating syndicated investments; monitoring the development of funded projects on a regular basis; deferring the money transfer to entrepreneurs; and providing investors with risk management contracts hedging specific risks (Mollick 2014; Belleflamme, Omrani, and Peitz 2015, 2015; Iyer et al. 2016; Hornuf and Schwienbacher 2016; Lambert, Ralcheva, and Roosenboom 2018; Vismara 2018).

To date little is known regarding the performance of crowdfunding campaigns and the determinants of success and the investment decision-making process of the crowd (Wallmeroth, Wirtz, and Groh 2018). Evidence from early studies shows that the crowd prefers investment opportunities that are not too complex, and therefore do not require a great deal of ex-ante costly due diligence, and that a major driver of the investment decision may be constituted by the signals and exchange of information among the backers taking place on the Internet during the campaigns (Ley and Weaven 2011; Moritz, Block, and Lutz 2015; Hornuf and Schwienbacher 2016; Block, Hornuf, and Moritz 2018). Recent contributions point out the role played by personal networks and social capital, project quality, pitch quality and the geographical distance from investors as major drivers affecting the likelihood of a successful campaign (Mollick 2014; Colombo, Franzoni, and Rossi-Lamastra 2015; Hornuf and Schmitt 2016; Signori and Vismara 2016). Other factors seemingly related to the positive performance of a crowdfunding campaign are the limited size and duration of the funding campaign (Li and Martin 2016) and the frequency of contributions by backers (Cordova, Dolci, and Gianfrate 2015)

4.1. Major challenges and open issues in crowdfunding

There are a number of challenges and problems in crowdfunding that affect the project's future growth and consolidation if not adequately addressed (Wallmeroth, Wirtz, and Groh 2018). First, a crowdfunding campaign may fail to reach its funding target, implying either that the intended investment cannot occur or, worse, in the case of the all-or-nothing platforms, the capital raised has to be returned to the investors. Moreover, considering the public visibility on the web platforms of project outcomes, an unsuccessful campaign could create difficulties in obtaining access to other segments of the capital markets.

Second, project backers are usually less-sophisticated and less-experienced investors, hence do not possess the same level of expertise as professional investors, such as

venture capitalists and angel investment organizations, when screening investment opportunities or undertaking due diligence. Crowdfunding may be affected by a selection issue, implying that in many cases it is unclear whether many of the funded companies would have been better off if they had failed early or if, missing the minimum requirements to evolve into a performing and growing venture, they had not started their operations at all.

Third, in some cases, a successful campaign may lead to overfunding, meaning that the capital raised is well above the funding goal (Mollick 2014). Such a scenario may be the outcome of a lack of the campaigners' financial background and, therefore, poor business planning skills or may arise from a misunderstanding of the nature of crowdfunding itself by the backers, who may consider the platform a sort of shopping website for purchasing or pre-ordering new products. Campaigns with this type of outcome has risks for backers, such as the possibility that the project may fail or be delayed, especially if the entrepreneur has not adequately structured the organization and operations to be consistent with the high and unexpected volume of capital raised. The outcome may be that an apparently successful crowdfunding campaign does not necessarily evolve into a successful business. This is demonstrated by the "Coolest Cooler" project which was posted on Kickstarter in 2014, offering a "souped-up cooler" complete with Bluetooth speakers, a blender, and USB charger. It started with a funding goal of \$50,000 and soon exceeded its goal, receiving over \$13 million from over 62,000 project backers. However, because of the massive unexpected change in the scale of manufacturing required to meet the demand from its backers, the production incurred significant delays, leaving two-thirds of the backers without the Coolest Cooler two years later. The resulting sense of disappointment and outrage makes it clear that many backers had viewed their investment as basically a purchase of the product.

A fourth problem affecting crowdfunding is the lack of experience, business and financial knowledge of the backers and their lack of network relationships may create a competitive disadvantage for businesses backed by the crowd compared with those supported by VCs and BAs in the post-investment phase because of their lower non-monetary contributions, impacting the company's value creation path. Additionally, the crowd may not have the necessary background and cognitive orientation required to understand and select radically innovative projects. This is not a problem of information asymmetry but rather an issue involving the correct processing and assessment of the information on a given innovative project that is posted on the platform. For instance, Chan and Parhankangas (2017) show that crowdfunding campaigns focused on products incorporating incremental innovation are more likely than campaigns dealing with radical innovative products of reaching their funding goals.

Fifth, investors might be exposed to significant liquidity risks due to the lack of an officially regulated secondary market. This may make it hard, or even impossible, for them to easily and quickly sell their stakes in a venture that they acquired when participating in a given crowdfunding campaign (Kirby and Worner 2014; Bradford 2018).

A final issue is the possible plagiarism risk that arises as a consequence of the Internet-based, public nature of crowdfunding. This means that it is not always possible to protect products and ideas posted on web platforms with patents or to enforce property right in order to prevent other Internet users from becoming competitors and

entering the market earlier than developer of the original idea (Valanciene and Jegeleviciute 2013). Many potential entrepreneurs and small businesses might therefore be disincentivised from even starting crowdfunding campaigns if they think that they do not have the ability to prevent others from gaining access to, and imitating their idea.

4.2. Fraud and regulation in crowdfunding across the world

One of the major issues potentially affecting crowdfunding campaigns is fraud, hence a major stream of contributions in the emerging research field of crowdfunding deals with regulations across countries and the relationship between specific regulatory requirements and the growth and performance of crowd-backed companies (Kirby and Worner 2014; Hornuf and Schmitt 2016; Armour and Enriques 2018a).

Fraud in crowdfunding arises from the information asymmetry affecting such an innovative segment of the capital markets, leading to cases where the campaigner hides the true financial status of the funded venture or uses the money raised for purposes different from those disclosed to the backers. For example, a recent survey of compliance by CrowdCheck found that approximately 40% of the companies on these sites did not have their financial results audited or certified, falling well below the basic rules set down by the SEC (Popper 2017). Another type of fraud is inherently related to the Internet-based nature of the platforms that creates the potential for identify theft, money laundering, data-protection violations and terrorism financing. The problem with this class of fraudulent behaviours is it is observable only on an ex-post basis and the observation is limited to the detected cases (Wang 2013; Hainz 2018).

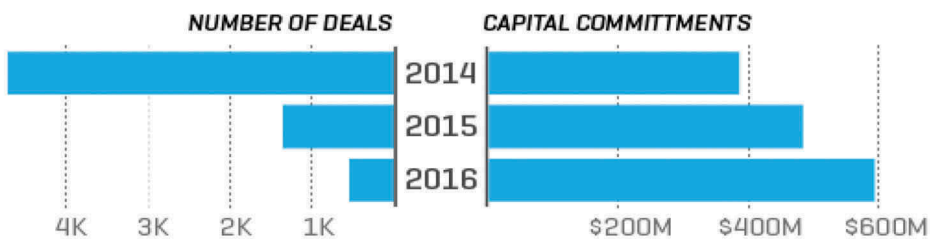
One fundamental safety net to protect investors in the capital markets is provided by regulatory authorities, who, in terms of transparency and information disclosure, have the power to set ad hoc rules that companies issuing securities have to be compliant with. However, in the case of crowdfunding, given the limited ticket size of most campaigns, it would be too expensive for issuers to sustain the compliance costs of ordinary securities regulation. Hence, across different country jurisdictions, in the last few years there have been alternative regulatory measures aimed at incentivizing equity crowdfunding by relaxing the rigor of ordinary securities regulation (Pope 2011; Weinstein 2013; Armour and Enriques 2018a). For instance, in the United States in 2012, the Obama administration launched the JOBS (Jumpstart Our Business Startups) Act, whose "Title II" rule provided special exemptions to campaigners running unregistered Internet offerings targeted at "accredited" investors (institutional investors and high net worth individual investors who were deemed capable of understanding the risks from financial investments or, at least, of affording the cost of access to financial advisors) which delegated to platforms the burden to check the quality of the financial information disclosed by funded companies and their compliance with the rules set down by the regulatory authorities. Since then, several platforms have progressively better structured their operations, implementing alternative solutions to avoid adverse selection problems and to ensure the quality of the offerings in terms of, at least, self-imposed disclosure requirements (Armour and Enriques 2018b). As a consequence, successful Title II platforms are starting to operative more similar to traditional VC firms in their screening, investment and monitoring policies. For example, OurCrowd pools money from investors into special purpose vehicles and creates funds focused on

sectors, regions, or growth phases. As a consequence – as observable from [Figure 7](#) – the number of Title II crowdfunding campaigns has decreased over time, but the dollar value has increased. This may have also happened because the higher selectivity of the platform investors has made investors more confident, numerous and available to invest larger amounts.

By the end of 2015, the SEC added to the JOBS Act the Title III rule, which finally went into effect in May 2016. Under Title III, subject to a certain degree of business and financial information disclosed to both the crowdfunding platform and the retail investors, private companies are allowed to solicit funds up to 1 million USD from unaccredited investors. It is still forbidden, however, for platforms to structure special purpose vehicles in a manner similar to the way that private equity funds and angel investment organizations structure vehicles to pool together individual investors’ savings (Oranburg 2015). Furthermore, the issue of the trade-off between the volume of information disclosed and the plagiarism risk discussed earlier still remains open. Particularly for small businesses needing secrecy, this could be a potentially major and penalizing situation.

In Europe, the attitude of the regulatory bodies dealing with the sale and trading of securities have progressively changed to favour the growth of equity crowdfunding, although there is currently still no unified regime applicable to the sale and underwriting of securities. Rather, there are a mix of different national regimes, partly harmonized by the EU Prospectus Directive. EU member States were given partial exemptions from current regulations on financial services (MiFID II) when dealing with small-sized equity offerings, dispensing with the requirement for issuers to comply with ordinary security regulations. Such exemptions made it possible to stimulate Internet-based crowdfunding campaigns and to target equity offerings to both professional and retail investors. But this benefit is offset by the requirement of crowdfunding platforms to screen the quality of the issuers and to assess whether a given investment is appropriate for the investors. However, there is a great deal of flexibility for platforms in setting the appropriate screening mechanisms, resulting in significant heterogeneity among

FUNDRAISING UNDER TITLE II



Note: To make a fair year-over-year comparison, deals and their value were totaled using September beginning and end dates. For example, the deals tallied for 2014 occurred between Sept. 23, 2013 through Sept. 23, 2014. The 2016 cutoff was Sept. 11.

Figure 7. Number and value of Title II crowdfunding campaigns.

Source: Quittner (2016)

European platforms in terms of operations, contract design and offering procedures. For instance, some platforms only list companies simultaneously backed by business angels and retail investors, while other platforms offer to the crowd the same contractual protection devices typically used by venture capitalists, such as pre-emption rights, veto rights, tag-along rights and so forth (Armour and Enriques 2018b).

Outside Europe and the United States, China is experiencing an explosive growth in crowdfunding (Figure 8). Its first platforms appeared in 2011. The high number of projects searching for seed capital matched with the increasing supply of available financial resources coming from the crowd progressively shifting from a savings-oriented to an investment-oriented culture has boosted crowdfunding activity, making it the largest crowdfunding market in the world (Liang 2015). However, the rapid growth of this alternative funding channel has come at the cost of cases of fraud because of the much lower regulatory burden in China compared to that in other countries. At the same time, in a context of insufficient regulation, the platforms have failed to both perform their screening role and to disclose adequate levels of information on the quality of the listed ventures to the backers.

An interesting example is the crowdfunding platform Ezubao, first launched in 2014 and becoming, in a short time, one of the 10 largest P2P lending platforms in China. Approximately 900,000 individual investors collectively lost \$7.6 billion with an estimated 95% of all the Ezubao borrower listings reported to be fraudulent. In this case, it is clear that the investors' money was used by top executives for their own purposes.

This type of case, amongst others, contributed to the tightening of the regulations in the industry by the end of December 2014. The current crowdfunding regulation, which is still a draft regulation, limits investments to accredited investors. However, the need for still tighter – and official – regulations remains a major challenge in China; a total of 43 Chinese platforms were closed between 2015 and 2016 due to fraudulent fundraising, misrepresentation, internal conflict and lack of funding (Lin 2017).

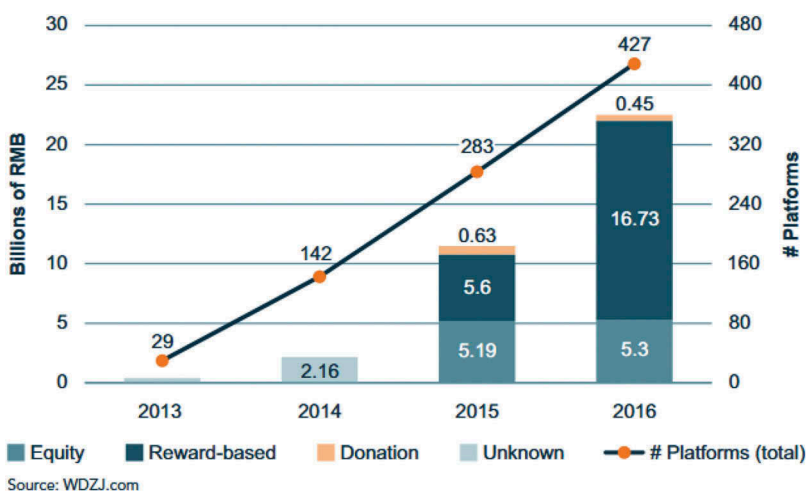


Figure 8. Crowdfunding trend in China (breakdown by typology).

In summary, the extent to which the crowdfunding market should be regulated remains an open issue depending on the specific choices made by policymakers who have to balance between the need to limit information asymmetries and the prevention of fraudulent behaviour with the opportunity to relax standard regulations on the sale and trading of ordinary securities. Research on this topic is proceeding but it will take time for the results and policy suggestions to be implemented on a homogeneous basis all over the world (Bruton et al. 2015; Fraser, Bhaumik, and Wright 2015; Dushnitsky et al. 2016; Klöhn, Hornuf, and Schilling 2016; Cumming and Vismara 2017).

5. Direct investing and the mutual funds industry: the disintermediation of the venture capital and private equity funds?

Institutional investors undertaking direct investments in small unlisted ventures, and therefore bypassing the traditional closed-end fund structure of venture capital and private equity funds, is a further category of investments experiencing growth in recent years (Fang, Ivashina, and Lerner 2015). Figure 9 shows that the increase of shadow capital (defined as co-investments, direct investments and separately managed accounts) accounts for almost 33% of the estimated total volume of capital raised on a worldwide basis by the mutual funds industry in 2017.

In the traditional direct investing setting, institutional investors – also termed limited partners (LPs) – such as sovereign funds, family offices, funds of funds, foundations and endowments, insurance companies and even pension funds, subscribe to the shares of private equity funds that are managed by specialized investors, the so-called general partners (GPs) who are responsible for the entire investment process, including deal selection, negotiation and deal contracting, monitoring and exiting (Gompers and Lerner 1999; Kaplan and Schoar 2005; Metrick and Yasuda 2010). As compensation for their intermediary

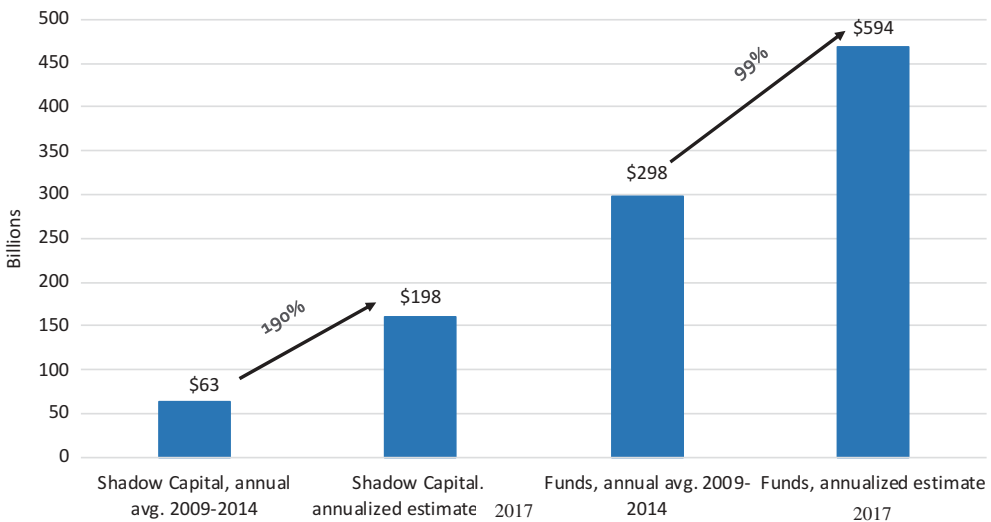
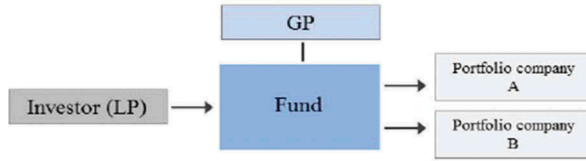


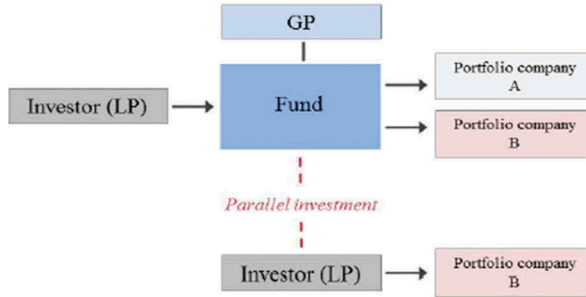
Figure 9. Growth trends for shadow capital and traditional fund investments.

Source: Triago (2018)

a. Traditional fund investing



b. Co-investing



c. Solo investing



Figure 10. Alternative business models in private equity investments.

role, GPs earn an annual management fee – usually ranging from 1.5 to 2% of the committed capital or assets under management – and a performance fee (also called “carried interest”), usually set at 20% of the fund’s overall gross return. The direct investing expertise and capabilities of the LPs is less than that of the GPs, and so they have limited or no control over the fund’s portfolio companies and hence play a passive role as capital providers.

However, as shown in Figure 10, LPs can provide a more blended direct investing setting by “co-investing” alongside private equity funds in deals that are pre-selected and proposed by the GPs. In such cases, the LPs play a more active role in deciding whether to invest and typically benefit from the lower fees charged by the GPs, who maintain control over the whole deal value chain, including the exit decision. Compared to traditional delegated investing, co-investing requires the LPs to make quick decisions about investing in a specific asset, implying they must be able to conduct their own secondary due diligence process.

Another business model is “solo investing” where the institutional investors directly originate and invest in a given deal on their own without any type of delegated scheme. Such a fully independent investment decision-making process enables the LPs to save on the management and performance fees that are part of the traditional investment model. However, it implies that they have financial and non-financial capabilities to

perform both the selection phase and the monitoring phase during the holding period. But to build a skilled and legitimated internal investment team involves significantly higher in-house costs for LPs that choose a solo investing business model.

There are at least five reasons behind this increased trend for institutional investors to make direct private investments through solo or co-investing business models (Fang, Ivashina, and Lerner 2015). First, for the subscribers of the funds' shares, direct investments do not entail the same investment costs that private equity funds charge: that is the "2-and-20" fee structure in which "2" represents the annual management fee and "20" represents the carried interest. As a consequence, the overall investment cost on an annual basis is estimated within the range of 5–7%, which reduces the investors' net returns (Metrick and Yasuda 2010).

Second, by direct investing, LPs are able to have greater control over their investment decisions, being able to select on their own ("cherry picking") the deals in which to invest, whereas in the delegated investing setting, the LPs can only accept or reject the investment opportunities proposed by the GPs.

Third, direct investments give LPs the capability to better manage the time to market of their investment decisions. The private equity literature shows that due to the existence of agency costs stemming from the delegation given to GPs, private equity investments are highly cyclical, making the performance achieved by the funds' subscribers more volatile and suboptimal (Gompers and Lerner 2001; Kaplan and Schoar 2005; Axelson et al. 2013). Adopting non-delegated investing business models might give LPs a higher degree of freedom in deciding when to invest or to suspend their investments, increasing their expected returns.

Fourth, direct investments give the LPs greater ability to customize their risk exposures because they do not have to rely on GPs decisions regarding deal selection and the size and timing of investments. Institutional investors therefore benefit from an increased flexibility and customization of their investment policies, making their investment portfolios risks more consistent with their expected risk-return profiles.

A final advantage of direct investing in private firms is that it offers a better alignment of the interests between the LPs and the GPs in a classic principal-agent problem (Lerner, Schoar, and Wongsunwai 2007; Becker and Ivashina 2015). In certain periods in the life of a closed-end fund, GPs might allocate a major share of their time to specific issues, such as trying to restructure a distressed portfolio company or executing an IPO for an investee company. This could create distractions for the GPs that might lead to a suboptimal investment process in time-periods characterised by hot markets when it could be particularly appropriate to invest the fund's capital. The more active role played by the LPs in the co-investing business model minimizes the principal-agent problem and guarantees a higher average asset quality over the whole fund's investment period.

5.1 Outcomes and challenges for direct investing in private companies

Direct investing also has challenges for institutional investors. The biggest challenge in solo investing concerns that lack of investment capability of LPs. To do solo deals, LPs need to build those deal-level screening, due diligence, operational, monitoring and exiting capabilities that are traditionally part of the job of GP managers. Acquiring such investment skills is costly. However, making direct investments without these skills may result in a worse

asset quality when compared to that of private equity funds and, therefore, may result in lower realized gross returns for investors (Fang, Ivashina, and Lerner 2015).

The business model of co-investing might also have downsides. First, co-investments typically deal with larger-sized investments, allowing GPs to complement the private equity fund's available ticket size with further additional capital. On average, larger deals perform worse than the smaller-sized ones executed without the co-investing business model (Lopez-de-Silanes, Phalippou, and Gottschalg 2011). Second, as co-investing partners, the GPs benefit from an information advantage over the LPs: the GPs typically manage the deal flow and screening process and offer investment opportunities to LPs with limited time windows for them to conduct their own due diligence and decide whether or not to participate in the deals. This might also lead to an adverse selection problem, given that the GPs could invite LPs to join below average quality investment opportunities with the effect of lower gross returns, which may not be offset by the lower operating costs in terms of management fees, carried interest fees as well as in the number and compensation of inside managers.

To investigate the existence of a trade-off between operating costs and investment quality across these business models in private equity investments, Fang, Ivashina, and Lerner (2015) compared the performance of a sample of 391 direct investments (61% co-investments and 39% solo investments) made by a set of institutional investors between 1991 and 2011 against the performance of public market indices ("PME ratios") and private equity and venture capital funds. The main conclusion from the analysis was that direct investments, though performing better than the tailored public market indices, do not significantly outperform relative to the performance of private equity fund benchmarks. For venture capital deals, the authors found that direct investments in start-up companies underperform when compared to the performance indicated by the funds' benchmark across the whole sample period (Figure 11).

Regarding the alternative business models in direct investments, co-investments underperform when comparing their performance to that of the investments of the corresponding fund with which they co-invest, with the performance gap widening in the more recent time period of the sample (the 2000s), thereby confirming the presence of a possible adverse selection phenomenon (Table 1).

Finally, solo investments slightly outperform fund investments, though the performance gap appears to be deteriorating over time. However, solo deals seem to be successful when the transactions involve companies that are already mature ("buy-out" deals), located close to the institutional investors ("local" deals) and that are not focused on complex production technologies ("plain vanilla" deals), all cases where information issues are less severe than those in the start-up ecosystem.

In summary, it would appear to be relatively difficult for institutional investors, who do not have an appropriate investment skillset, to capture the rents that closed-end fund managers are able to achieve through their traditional fund-based business model.

5.2 Mutual funds as venture capitalists: preliminary evidence

Traditional open-end mutual funds are a further category of institutional investors that are now beginning to participate in the venture capital industry. Because of their open-ended nature and obligation to meet all the redemption orders coming from the funds'

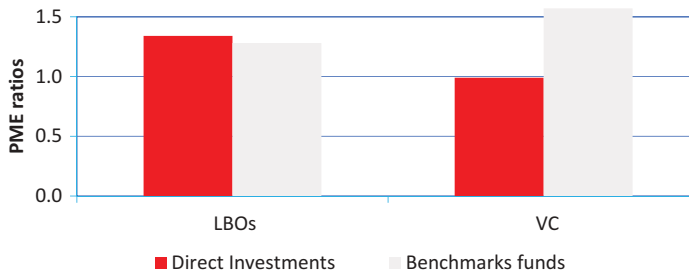


Figure 11. Comparative analysis of direct investment performances: Public Market Equivalent (PME) ratios.

Source: Authors’ elaboration from Fang, Ivashina, and Lerner (2015).

Table 1. Co-investment relative performance (differences in performance between co-investments and the corresponding fund).

Year	Obs.	Co-investment IRR – Fund IRR, (%)				
		Mean	Std. Dev.	25th %	Median	75th %
1994	1	11.99	–	11.99	11.99	11.99
1997	2	–52.93	81.85	–110.80	–52.93	4.95
1999	1	2.06	–	2.06	2.06	2.06
2000	1	8.74	–	8.74	8.74	8.74
2001	4	–4.15	40.97	–34.67	–2.60	26.37
2002	3	47.72	40.14	1.40	69.30	72.46
2003	3	18.14	19.04	–2.40	21.60	35.21
2004	4	–2.85	90.81	–79.25	8.90	73.55
2005	10	2.79	29.92	–15.99	–9.24	18.55
2006	18	–10.51	30.03	–17.95	–6.37	2.30
2007	33	–16.08	33.46	–20.34	–6.32	0.70
2008	9	–25.54	31.92	–23.80	–11.06	–6.80
2010	8	–1.27	30.03	–13.21	–8.60	15.75
2011	6	–13.22	8.27	–16.90	–13.60	–9.30
Total	103	–8.98***	36.70	–17.95	–7.3	2.8

Source: Fang, Ivashina, and Lerner (2015)

shareholders, mutual funds should be unable to invest in illiquid securities (Chen, Goldstein, and Jiang 2010; Chernenko and Sunderan 2016; Goldstein, Jiang, and Ng 2017). Moreover, the passive investment role of mutual funds and their limited engagement with the firms in their portfolios contrasts with the activism of venture capitalists. However, in recent years, a trend can be observed of mutual funds making direct investments in private firms (Kwon, Lowry, and Qian 2017; Chernenko, Lerner, and Zeng 2017), particularly firms with estimated valuations of above a billion dollars (also known as “unicorns”), providing scholars with the opportunity to investigate whether, and how, passive institutional investors contribute to the performance of such private investments.

Chernenko, Lerner, and Zeng (2017) focus on the contractual provisions associated with the direct investments of mutual funds in unicorns to identify the determinants their investments and the extent of their involvement in the monitoring and governance of the companies in which they invest. Based on a sample of 153 private firms undergoing investment rounds by open-end mutual funds in the 2012–2016 time period, the authors found that larger sized funds and funds with more stable funding are more likely to invest in unicorns. Moreover, focusing on traditional corporate governance

provisions (cash flow rights, voting and control rights, board representation mechanisms), they found that mutual funds provide significantly fewer governance services than those of traditional closed-end venture capital funds. The authors also found that the investments of mutual funds are associated with significantly stronger redemption rights and less strict formal procedures to trigger the redemption itself (Figure 12).

Overall, the results of the empirical analysis suggest that once again managers in traditional institutional investment institutions are unlikely to have the investment skills and capabilities required to monitor unlisted small companies or to contribute to their strategy formulation and operations management. However, the need to hedge the illiquidity risk pushes portfolio managers to actively manage their assets, making them better able than venture capitalists to redeem their stocks in their portfolio companies when facing redemption pressures from their own shareholders. One a major implication that remains an open issue for further research is the identification of an adequate “fundraising mix” for new ventures, capable of leveraging the heterogeneous contributions that different financial investors might bring to entrepreneurs.

6. Conclusions

In recent decades the entrepreneurial finance start-up ecosystem, once the exclusive territory of venture capitalists with their established closed-end funds investment business model, has been re-shaped by the emergence of new players. Start-up incubators



Figure 12. Contractual provisions in rounds with or without mutual funds.

Source: Chernenko, Lerner, and Zeng (2017)

and accelerators are increasing in number and increasingly offer equity capital alongside their mentoring and education services. Business angels are progressively deploying more of their wealth in start-up investments, increasingly structuring themselves as angel investment organizations. Crowdfunding platforms are attracting large capital flows from accredited and unaccredited investors in countries all around the world. And, increasing numbers of institutional investors are abandoning the traditional venture capital and private equity investment approach in favour of direct investments through solo investing and co-investing. Each of these new actors has widened the funding options available to new ventures, greatly increasing the capability of the financial system to boost innovation and entrepreneurship. But what are the consequences for venture capital firms? Are these new players threatening their role in this risky and opaque segment of the capital market?

In this paper, we have presented the major challenges facing these emerging players in the entrepreneurial finance start-up ecosystem. The average angel investor lacks investment expertise and might not be prepared to invest in truly radical high growth projects. In addition, firms seem to “self-censor” when applying to angel groups, consistent with the perceived higher risk aversion arising from the lack of experience of BAs – compared to venture capitalists – in assessing very early-stage investments.

Crowdfunding is dominated by high information asymmetry, leading to selection issues because project backers are usually less sophisticated and inexperienced investors. Additionally, the crowd may not have the adequate background and cognitive orientation required to understand and select radically innovative projects. A further challenge is that many investors do not have the skills and capabilities to offer non-monetary contributions aimed at supporting the value creation path of the companies in which they invest. Furthermore, in many countries the legal response of the regulatory authorities to manage the fraudulent behaviour that may affect crowdfunding has been slow. Even if crowdfunding platforms are trying to protect project backers from risks, information asymmetry is still an issue that prevents many potential investors from gaining access to this segment of capital market, while the plagiarism risk arising from the need to provide information about their business on crowdfunding platforms deters many entrepreneurs from raising finance in this way.

In the case of direct-investment by institutional investors, the different approaches to private equity investing present a puzzling trade-off between cost and investment quality. Fund investing is expensive because of the management and performance fees charged by closed-end funds, but the average investment made by funds may be of a higher quality. On the other hand, direct investing may not cost as much, but the typical transaction may be of lower quality. Reinforcing this trade-off is that the staff of the LPs typically receive lower compensation than the investment professionals in private equity and venture capital funds, reflecting the frequent association of institutional investors with government and non-profit firms.

Despite their increasing presence, these alternative emerging actors within the entrepreneurial finance ecosystem do not seem to be able – at least so far – to make the VC system wholly obsolete. Venture capital remains a matter of human capital, requiring investment skills and capabilities to undertake the screening, negotiating and monitoring of opaque and risky businesses which are fundamental for the growth of the

economy. We leave to future research the issue of investigating the conditions under which the various investors in unlisted companies will achieve legitimation and economic justification. Another promising research issue is the analysis of the many different and alternative funding trajectories arising from the possible financing choices of new ventures, which can select one investor over another, or mix in different ways the available financing opportunities that the start-up ecosystem now offers.

Notes

1. See the annual statistics about venture capital and private equity investments collected and processed by NAVCA for the US, Invest Europe (formerly, EVCA) for Europe, and by AVCJ for Asia.
2. Internal finance could possibly be complemented by entrepreneurial bootstrapping (Winborg and Landström 2001) and trade credit, which is more likely than short-term bank debt to be offered to start-ups and credit-constrained SMEs (Petersen and Rajan 1997). However, due to the high mismatch between the maturities of assets and liabilities, both such sources of financing are not to be used to meet the fixed asset investment needs companies typically have to face in their start-up phase, ultimately further increasing business risk.
3. The authors use the following proxies as measures of entrepreneurship-friendliness of a country: (i) the depth of the venture capital market as a fraction of the domestic GDP and (ii) the number of regulatory procedures while incorporating a firm (consistent with Djankov et al. 2002).

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