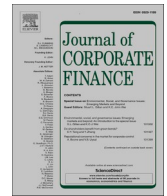




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What drives the active involvement in business angel groups? The role of angels' decision-making style, investment-specific human capital and motivations[☆]

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ABSTRACT

This paper sheds light over the operations and internal structure of business angel groups (BAGs), a leading actor inside the informal venture capital industry, due to its capability to build cognitive resources and shared competencies that are eventually provided to funded ventures alongside equity capital. We develop a framework based on the role of business angels' decision-making style, human capital and motivation as major determinants of their active involvement in the many different activities performed by angel groups, either investment related activities or group management activities. Our empirical analysis relies on a novel survey-based dataset containing qualitative and quantitative information provided by the members of two large and rather homogeneous business angel groups located in France and in Italy. Results show that business angels with a control-oriented decision-making style tend to be more actively involved in key angel group activities. Human capital built through investment experience, retirement status, as well as initial motivation to join an angel group are also significant drivers of angel involvement in several key BAG activities.

1. Introduction

The aim of this paper is to investigate the determinants of a major driver of the performance and survival of business angel groups (BAGs), namely the involvement of their members in the different activities performed by these organizations. With continuous increases over time in its fundraising capacity as well as its worldwide diffusion, informal venture capital is turning increasingly formal. Angel investors, who play a primary role in financing early-stage ventures seeking to grow, have progressively organized themselves in

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clubs, networks, groups or syndicates which provide visibility and enable them to share investment related tasks. As a result, angel investor organizations (AIOs), have gained increasing economic importance over the past decades (Mason and Harrison, 1999; Aernoudt et al., 2007; Mason et al., 2016; Bonini and Capizzi, 2019). AIOs, initially formed on a geographic or industrial basis, have sometimes grown from local to regional, national (for instance, ACA in the US, BBAA in the UK, FAI in France and IBAN in Italy), and even continental proportions (among them, EBAN and BAE in Europe), differentiating among each other mostly in terms of size, rules of engagement, internal structure and quality and variety of services provided. Such services include sharing presentation pitches from potential entrepreneurs, performing joint selection, due-diligence and monitoring work on investment opportunities, and organizing ad-hoc investors' syndicates and sidecar funds. AIOs concur to increase the supply side of the market, lower transaction costs and reduce the equity gap for early-stage ventures (Mason, 2006; Sohl, 2007; Paul and Whittam, 2010; Gregson et al., 2013; Lahti and Keinonen, 2016; Croce et al., 2018; Bonini et al., 2018). They also contribute to professionalize the informal venture capital market by improving the investment expertise of angel investors either through shared experience and routines or with formal training programs directed at novice angels (San Jose et al., 2005; Mason et al., 2016). AIOs can be broadly classified into two categories. The first generation of AIOs mostly consisted of relatively loose BA clubs or networks, which basically provided visibility and introduction services with entrepreneurs. More closely organized BA groups or syndicates, which appeared more recently, enable their members to invest collectively by sharing value added activities along the whole investment cycle, from deal sourcing to due diligence, monitoring and exit, all of which can hardly be performed all at once by individual angels (Mason et al., 2013; Bonini et al., 2018).

Thanks to AIOs, the informal venture capital market is believed to be more visible, hence easier to access on both the demand and supply sides, larger and more efficient (Lerner et al., 2018; Mason et al., 2016; Cumming and Zhang, 2018; Wallmeroth et al., 2018). However, in spite of the economic importance of these organizations, surprisingly little is known about the factors explaining their diversity in terms of size, geographical outreach, internal structure and operations, services offered and, ultimately, survival and success of both themselves and the companies in which AIOs' members invest. Recently, two related contributions (Bonini et al., 2018, 2019) have shed some light on the role played by AIOs (1) in collecting, processing, filtering and disclosing information among members about possible investment opportunities and (2) in sharing, within the group, angels' previous experience, as well as competences and relational networks. More in detail, the authors find that the affiliation with an angel community does affect BAs' investment decisions, although it does not seem to have a significant impact on the performance of the funded ventures. However, by co-investing in a specific deal through an ad hoc angel syndicate, BAs may enjoy risk- and information-sharing benefits ultimately affecting the performance of the angel-backed companies. Thus, there is still a significant need to widen the knowledge of the operations, processes and competences being carried out inside the "black box" of the AIOs.

Indeed, as all organizations, AIOs are rooted in specific economic and institutional contexts which may influence the way they operate and they raise both financial and human capital, crucial to their emergence and survival (Aernoudt et al., 2007). Previous research suggests that all AIOs have significantly low success rates, whereas many of them failed because they were unable to secure a long-term commitment from experienced angel investors or because of termination of government funding support (Zu Knyphausen-Aufsess and Westphal, 2008; Collewaert et al., 2010; Christensen, 2011).

As such, one major aim of the present paper is to investigate the major determinants of a key driver of the performance of business angel groups (BAGs): the involvement of their individual members in group activities. We focus on BAGs because, although they are deeply transforming the business angel market through professionalization and better efficacy of BA activity, they have raised limited attention from scholars so far probably, in part, because it's hard to raise reliable data dealing with the internal operations taking place inside such black boxes (Gregson et al., 2013; Carpentier and Suret, 2015; Lahti and Keinonen, 2016; Mason et al., 2016). Indeed, because activities such as selecting investment opportunities, performing due diligence, negotiating contracts with entrepreneurs, monitoring ventures and exits require time, experience and investment skills, a key challenge for angel groups is to attract qualified and active members and secure their long-term involvement, in order to build cognitive resources and shared competencies. Even when they employ permanent staff, the latter is mostly dedicated to administrative, networking and initial deal screening tasks (Paul and Whittam, 2010; Carpentier and Suret, 2015). Therefore, the survival and success of an angel group essentially depends on volunteer members' involvement in investment related activities as well as in group management activities (such as designing the group strategy, nurturing and maintaining the relationships with key stakeholders, hiring new member angels, providing training opportunities, arranging meetings with entrepreneurs).¹ Previous research has shown that, should they be unable to secure the involvement by qualified members, angel groups may decline and disappear (Zu Knyphausen-Aufsess and Westphal, 2008). A potential risk lies in the fact that angel groups partly attract passive members who simply seek to invest their financial capital (Sohl, 2007; Paul and Whittam, 2010; Kerr et al., 2014; Bonini et al., 2018) and do not participate in investment or group management activities.

Although securing members' involvement is a key issue that affects angel group efficacy and survival, the factors which contribute to such involvement have rarely been investigated by entrepreneurial finance scholars. A recent contribution by Wirtz et al. (2020) has shown that the extent and mode of individual angels' involvement in angel group activities can at least partially be explained by their human capital and certain cognitive features impacting their decision-making practices. One notable limitation of the latter study, however, consists of its focus on one single angel group in one specific national context, which challenges the generalizability of its results. The present study aims at overcoming this limitation by investigating two angel groups from different countries, though pretty close from both a cultural and institutional standpoint. Another limitation of Wirtz et al. (2020) is that their research considers a rather limited scope of determinants of angels' involvement in angel group activities (i.e. certain individual human capital and cognitive

¹ For a comprehensive description of the activities carried on within a business angel group, see, among the others, Sudek et al., 2008; Paul and Whittam, 2010; Mason et al., 2016; Lerner et al., 2018; Bonini and Capizzi, 2019.

features) while other important factors that might influence angels' involvement are neglected. Previous research on BA groups suggests that the motivations of individual (or would be) angels for joining a BAG as well as their degree of satisfaction with the services offered are diverse and might influence the extent and nature of their involvement in angel groups activities (San Jose et al., 2005; Zu Knyphausen-Aufsess and Westphal, 2008; Collewaert et al., 2010; Christensen, 2011; Mason et al., 2016).

The aim of this paper is therefore to propose a model of the major determinants of the extent and mode of angels' involvement in BAG activities. We develop and test a set of hypotheses relating to the expected influence of various factors (individual BAs' characteristics in terms of specific human capital and decision-making style, alongside with BAs' motivation and satisfaction with their angel group) on their involvement in group activities. In order to provide empirical evidence of the above, the present study surveys the members of two large angel groups from two different countries, "Savoie Mont Blanc Angels" (hereafter, SAMBA) in France and "Club degli Investitori" (hereafter, Club) in Italy. After a brief qualitative description of the specific organization and context of each of the two angel groups, we proceed with an analysis of the survey data. For both samples of individual BAs from SAMBA and Club we collected personal characteristics, practice, professional and investment experience, expectations and satisfaction *vis a vis* the BAG and involvement within BAG activities, both in terms of total time spent and specific dedication to key investment-related and group management activities. Then, after controlling for the homogeneity of the two BAGs, we analyse the impact of BAs' characteristics related to human capital, decision-making style, motivations for joining the angel group and satisfaction with its services on angel involvement within BAG activities by running a battery of ordered probit and OLS regressions over the full sample of BAs belonging to both groups.

Our results suggest that BAs with a strong control orientation are more willing to become actively involved in their angel group and to contribute to several key activities related to the production process required to provide and monitor investment opportunities to all the group members. Prediction-oriented BAs, on the contrary, seem to find it difficult to develop a similar commitment to BAG activities, most of all in the case of investment-related activities.

Specific human capital developed through previous investment experience as BA also emerges as a possible driver of involvement in investment-related activities. Angels with a long investment experience (and, though this result is less robust, angels who invested more money along time) are more engaged in activities related to the investment cycle, probably because investment experience increases their qualifications and legitimacy to be engaged in such activities in their angel group. Contrary to our expectations, specific human capital derived from angels' professional experience as entrepreneur or CEO does not seem to influence their involvement in angel group activities.

The professional retirement status of angels appears to be a strong determinant of their involvement both in terms of overall time spent in group activities and commitment in investment-related activities, which are time consuming activities. Previous research suggests that, even when they employ permanent staff, angel groups dispose of scarce qualified human resources and dedicate to members specific tasks related to the management of the group and to the investment cycle (Paul and Whittam, 2010; Carpentier and Suret, 2015). Our results show that professionally retired angels, because they are less time constrained than active angels, might dedicate more time to their group, thus contributing to its performance.

The motivation for joining a BAG also seems to influence the extent and mode of individual involvement in angel groups. The BAs who became members of a group with the aim to widen their personal contacts network show a high involvement both in terms of total time spent and in group management activities. Indeed, these BAs might be primarily motivated by being engaged in activities involving internal and external social contacts, such as participating in training sessions, maintaining and developing relationships with external stakeholders or joining the board of directors or the BAG. The group members who joined with the objective to contribute to the local economic development in their region are less actively involved than other angels in investment-related activities. The primary interest of these BAs might not be to actively participate in the activities related to the investment cycle, which are technical and require specific expertise. Finally, contrary to our expectations, we do not find that BAs' level of satisfaction with the services provided by their BAG influences their involvement in the BAG activities.

The remainder of the paper is structured as follows. The following section briefly reviews the literature on angel groups with a particular focus on the activities run as well as on the services typically provided to their members. Section three develops our research hypotheses regarding the role of BAs' decision-making style, specific human capital features, expectations and satisfaction with the BAG and active involvement in BAG activities. In section four we briefly describe the major features, internal structure and operations of the two selected angel groups, SAMBA and Club, we describe the sample data and variables selected for the empirical analysis, we outline the methodology and present the results. We finally conclude discussing our contributions, policy implications and providing suggestions for future research.

2. Theoretical background on angel groups

As yet well documented, most business angels in the 1980's operated anonymously and individually or in small informal syndicates (Mason and Harrison, 2000; Mason, 2006; Paul and Whittam, 2010; Capizzi, 2015). The matching of supply and demand of equity capital was therefore truly difficult, resulting in a large equity gap affecting the startup ecosystem. A major transformation was the emergence of business angel networks (BANs), which first appeared in the U.S. in the 1980's and spread to Europe in the 1990's and 2000's. BANs make angel investors more visible to entrepreneurs through events, newsletters and physical as well as online meeting platforms (Aernoudt, 2005; Sohl, 2007; Collewaert et al., 2010; Gregson et al., 2013; Mason et al., 2016; Bonini and Capizzi, 2019). They usually perform a first screening of projects before introducing them to their members, however without making investments on their own nor recommending investments to the affiliate members. Among the range of services provided, BANs also develop angel training programs, arrange mentoring and coaching sessions to angels and entrepreneurs, and favour the rise of information and

knowledge sharing within the network that might be useful both in the pre-investment and in the post-investment phase (San Jose et al., 2005; Croce et al., 2017; Bonini et al., 2018, 2019). In spite of their positive role played within the entrepreneurial finance ecosystem, in fact, many BANs fail to provide enough good quality deals to their members and do not succeed, either in attracting enough angel investors (Mason and Harrison, 2002; Gregson et al., 2013; Baldock and Mason, 2015) or in establishing sound and self-sustainable business models allowing them to survive once government funding support terminates (Mason et al., 2016).

A more recent transformation of the business angel market is the spread of more formal and structured angel groups (or syndicates) (BAGs), where business angels organize themselves to invest collectively (Gregson et al., 2013; Carpentier and Suret, 2015; Lahti and Keinonen, 2016; Mason et al., 2016; Bonini and Capizzi, 2019). This trend appeared in the U.S. in the 1990's and business angel groups are now found all around the world (OECD, 2011, 2017; Kraemer-Eis et al., 2016; Cumming and Zhang, 2018; Lerner et al., 2018). The main difference between BANs and BAGs lies in the BAGs' tighter obligations and engagement rules for affiliation, such as higher membership fees, minimum investment requirements, and sharing of the cost of services provided by the angel group. As for the latter, the range of services provided extends well beyond networking opportunities and introduction services, comprising also active deal sourcing and selection, evaluation, negotiation and the monitoring of portfolio companies until the exit. Some groups also establish "sidecar funds" which raise capital within and/or outside the group and co-invest alongside individual angels and sometimes institutional or state investors, thus increasing the capital pool and increasing portfolio diversification opportunities for member angels.

As Mason et al. (2016) have shown, angel groups have brought about a transformation of the market for entrepreneurial finance along several dimensions. First, the possibility to carry on the selection, evaluation and negotiation of investments on a collective basis, rather than on an individual one, enables the generation of scale economies and the development of shared routines and experience within BAGs, giving thus the opportunity to novice angels to learn from more experienced angels and to reduce the overall volume of transaction costs associated with a startup investment. Second, BAGs increase the efficiency of this risky and opaque segment of the capital market by attracting individual investors who, due to the lack of time or investment skills, would rather invest in other less risky assets than in the equity capital of young ventures. Third, angel groups contribute to fill the above-mentioned equity gap as they invest in small, seed or early stage, financing rounds that are largely neglected by professional venture capitalists due to their limited ticket size. By securing larger amounts of money than most individual angels, they also have higher possibilities to commit themselves in several follow-on investment rounds, when the funded venture is ready for an investment by venture capital and later stage institutional investors or initial public offerings. Finally, due to the great deal of business and industry expertise that angel groups gather among their members, they are better equipped than most individual angels to add value to investee companies by providing mentoring and strategic advice to entrepreneurs, as well as networking opportunities and other non-monetary facilities (Bonini et al., 2019). Investee companies benefit from this value-added and certification role by increasing the chances to attract later stage equity capital from professional venture capitalists and from government funded schemes (Cumming and Zhang, 2018).

Based on previous contributions deepening our understanding of the operations of BAGs (Paul and Whittam, 2010; Carpentier and Suret, 2015; Lerner et al., 2018; Bonini and Capizzi, 2019; Wirtz et al., 2020), it is possible to decompose all the activities performed by angel group members (AGMs) into two broad categories, namely, "investment related activities" and "group management". The first category resembles typical operations run by the actors of the private equity industry, the major difference being constituted by the lack of a formal mandate given to fund managers. As well known, BAGs are constituted by business angels investing their own money and hence the angel group is not a delegated investor like, for instance, a venture capital closed-end fund or a limited partnership. As for our research purposes, consistent with Wirtz et al. (2020), we select the following investment related activities: deal sourcing, deal screening, evaluation and negotiation, post-investment monitoring (including exit).

The second category of activities deals with the current operations, the functioning and the governance of the BAG itself. These are activities requiring significant commitment, expertise, reputation and networking capabilities, that cannot be delegated to the BAG's staff personnel or middle managers, if any. The following are the group management activities identified for our survey: animation of training seminars, participation in group general meetings, participation in group board of directors, participation in sidecar funds' investment committees.

However, common to both categories of activities is the high involvement offered on a voluntary basis by the most committed AGMs, due to the already observed relative scarcity of resourceful and dedicated full time staff typically characterizing BAGs. This is a further motivation to carry on our empirical analysis, aimed at investigating the major determinants of AGMs' involvement in the BAGs' activities and performance.

3. Hypotheses development and model

We develop a model of the major determinants of the active involvement of BAs in the activities performed by angel groups. The literature shows that there is a great diversity in angels' individual profiles in terms of cognitive characteristics and human capital (professional and investment experience) as well as in their motivations for joining an angel group. We therefore identify two categories of determinants of the active involvement of BAs. The first relates to the angels' individual characteristics in terms of human capital and cognition and the second to their characteristics as BA group members.

3.1. BAs' individual human capital and cognition

A well-developed stream of literature dealing with entrepreneurship and startup financing has highlighted the contribution provided by human capital (HC) to the performance of young ventures (Brüderl et al., 1992; Becker, 1994; Zacharakis and Meyer, 2000), where the key characteristics underlying the concept of HC are knowledge, education, skills and experience (Deakins et al., 2000;

Davidsson and Honing, 2003; Dimov and Shepherd, 2005; Walske and Zacharakis, 2009).

When we move to the literature dealing with informal venture capital, some recent contributions show that certain HC related characteristics have a significant impact on both BAs' investment decisions and BA-backed companies, while the BAs with a high level of HC, unlike VCs, tend to assign to entrepreneurs higher shares of the post-investment value added (Mittens et al., 2012; Collewaert and Manigart, 2016; Kerr et al., 2014; Croce et al., 2018; Lerner et al., 2018; Bonini et al., 2019). However, still rare are contributions focusing on BAGs as the unit of observation and trying to shed light over the role played by HC in the BA-BAG relationship.

Wirtz et al. (2020), have pointed out that the specific decision to commit their human capital to BAG activities is not independent from BAs' previous endowment with cognitive resources derived from training and experience. Dealing with the decomposition of BAG activities proposed in the previous section, it is straightforward to realize how wide and heterogeneous the set of required cognitive resources – in terms of investment related skills, business and professional experience – is to successfully run BAG operations.

In the following sections, based on the related streams of literature, we develop specific hypotheses relating both human capital and cognitive determinants to BAs' involvement in BAGs activities.

3.1.1. Time constraint and retirement status

To manage close relationships with entrepreneurs and invested ventures, BAs must be involved in terms of both time and resources (Croce et al., 2020). Angel group activities also require time, expertise and networking capabilities, thus the active involvement of individual angel members in these activities can be considered as a crucial investment of their individual human capital into the group. A significant part of BAG activities relies on members voluntary involvement, even when BAGs employ professional staff. Members are time constrained and anecdotal evidence shows that an important determinant of the active involvement by members is their time availability. We therefore propose that professionally retired angels, as they are less time constrained, tend to be more involved in various group activities.

H1. BAs' professional retirement status is positively related to BAs' active involvement in various angel-group activities.

3.1.2. Specific human capital derived from previous professional experience

Although BAs have various professional backgrounds (Bonini et al., 2018), many are individuals with a significant entrepreneurial experience. They share a common background with entrepreneurs and thus look for a close relationship with the entrepreneurs they back in order to provide advice and assistance. (Freear et al., 2002; Harrison and Mason, 1992; Sørheim and Landström, 2001; Wetzel, 1983). Politis and Landström (2002) proposed that BAs have experienced three career phases: a corporate career phase, an entrepreneurial learning phase, and an integrated investment career phase. They make use of their managerial and entrepreneurial competence in the firms they back (Bonnet et al., 2010; Bonnet and Wirtz, 2011). Past entrepreneurial experience should improve the BA's perception of his own ability to select good investment targets and to control these for optimal outcome (Maula et al., 2005). In BAGs, the "referent" angels who are in charge of deal selection are often involved in coaching entrepreneurs, which usually helps the latter to avoid deal killers (Carpentier and Suret, 2015). The contribution of Buttice et al. (2021) on the network dynamics in BAGs' investment decisions shows that the entrepreneurial experience and the entrepreneurial initiatives forwarded by a member of the BAG influence the probability of a company being funded by the group. It is therefore reasonable to assume that BAs with entrepreneurial experience tend to be more actively involved in investment related activities. Hence, our second hypothesis can be formulated as follows:

H2a. BAs' human capital derived from previous entrepreneurial experience is positively related to BAs' active involvement in investment-related activities.

The business angel market is evolving from a fragmented and largely anonymous activity to one that is increasingly organized and managed and from a market dominated by individuals investing on their own to angel groups aggregating the investment capacity of individual business angels (Mason et al., 2016). These angel groups have access to a better deal flow and perform a superior evaluation and due diligence of investment opportunities (Mason and Botelho, 2014). They also provide training for new angels and investment readiness programmes for entrepreneurs and sometimes become important investment partners with governments (Mason and Botelho, 2017). Business angels recognize the need to make follow-on investments to avoid dilution and to participate in much larger deals as co-investors in syndicated deals and, for some of them, to evolve into fund management or venture capital funds (Mason and Botelho, 2014; Mason and Harrison, 2015; Mason et al., 2016; Harrison and Mason, 2019). Angel groups are taking a more professional approach in their investment operation (Edelman et al., 2017). Therefore, the survival and success of an angel group depends on members' involvement in group management activities such as group strategy, links with the entrepreneurial eco-system, new members hiring and training etc. (Wirtz et al., 2020). One of the characteristics that distinguishes business angels is their professional background. Mason and Botelho (2014) have shown that many business angels have been the CEO of an SME or have held board positions in medium- and large-size businesses. Focusing on the impact of HC on individual angels' decision-making process, Mittens et al. (2012) differentiate among angels' industry experience, operating experience gained either in startups or well-established companies, entrepreneurial background and past investment experience, while Bonini et al. (2018) disentangle HC, distinguishing between entrepreneurial and managerial experience. A CEO position requires competencies that are radically different from those needed for lower executive jobs, such as managing the board of directors or the shareholders of the firm, making strategic decisions and hiring top executives. CEOs are used to communicating with shareholders and other stakeholders, the media and with actors of the capital markets. These job-specific skills are transferable across organizations (Hamori and Koyuncu, 2015). It is reasonable to assume that BAs with a top managerial experience will tend to be more involved in group management activities. Angel investors with such an

experience should have developed better skills to manage the group strategy, the relationships with key stakeholders and other investors like VCs or investment funds. Thus, we propose the following:

H2b. BAs' human capital derived from previous significant top management experience (CEO) is positively related to BAs' active involvement in group management activities.

3.1.3. *Specific human capital derived from previous investment experience*

A further investigated dimension of human capital deals with the specific knowledge of the investment process and cycle gained from angels' former investment experience as individual investors. Indeed, investing in young ventures requires specific skills and knowledge in order to handle the various steps of the investment cycle: deal selection, negotiation, monitoring and exit (Wiltbank, 2005). Previous literature on BAs and on BA groups often makes a distinction between "expert" angels who benefit from a significant experience as angel investors and "virgin" angels, with no or limited previous investment experience (Sohl, 2007; Zu Knyphausen-Aufess and Westphal, 2008; Christensen, 2011). BAs who have previously invested in young ventures have acquired competencies directly linked to the investment process. They are better able to discern the potential of business opportunities and to manage the overall investment process (Van Osnabrugge, 2000; Croce et al., 2018). Edelman et al. (2017) show that the angel groups use experienced angels as lead investors during the investment process. "Expert" angels, due to the knowledge acquired over time, are arguably keener to develop high involvement in the investment-related activities within their group, whereas "virgin" angels might be less prone to commit the same effort, time and motivation due to their lower expertise as well as legitimation within the angel group. We therefore propose the following hypothesis.

H3. BAs' human capital developed through investment experience is positively related to involvement in investment-related activities.

3.1.4. *BAs cognition: decision making style*

Angels' investment behaviour has been shown to be significantly influenced by their decision-making style (Wiltbank et al., 2009; Bonnet et al., 2013; Wirtz et al., 2020). In an impacting contribution applying entrepreneurship theories to BAs' observed behaviour, Wiltbank et al. (2009) distinguish two types of cognitive profile for BAs in terms of decision-making, focused respectively on prediction and control orientation. Predictive BAs base their investment decisions on the possibility to predict future outcomes (using, for example, market surveys, expert reports, financial forecasts) and rationally compare expected outcomes to the required investment effort. Control-oriented angels, on the contrary, rather than trying to predict future outcomes, which might result in an impossible goal to achieve when facing highly uncertain environments, base their investment decisions on the perception that they can actively control and influence events as they unfold during the investment period, due to their knowledge base, experience and ability to concretely contribute to both the strategy formulation and the day-by-day management of the investee ventures. It is important to note that the two decision-making styles referred to above are not mutually exclusive (Frese et al., 2019; Smolka et al., 2018; Alsos and Clausen, 2014; Kraaijenbrink et al., 2012). Sarasvathy (2001) states that "both decision-making logics are integral parts of human reasoning and can occur simultaneously, overlapping and intertwining over different contexts of decisions and actions," implying that prediction and control-orientation may be used as a combination. Consequently, whether control-oriented or predictive logics are adopted is dependent on the situation and the degree of uncertainty related to it (Alsos et al., 2016).

Following such stream of research, (Wiltbank et al., 2006; Wiltbank et al., 2009) show that a given BA can have a high (or low) orientation towards both prediction and control, and all intermediate possibilities might occur. Furthermore, it is well documented in the literature that many BAs have prior entrepreneurial and/or management experience (Harrison and Mason, 1992; Fiet, 1995; Landström, 1993; Politis, 2008; Collewaert and Manigart, 2016). Recently Frese et al. (2019), analysing the previous experience of a wide sample of entrepreneurs, found that a managerial background is typically associated with a decision-making style focused on prediction, while an entrepreneurial background is more associated with control-oriented behaviour.

As a consequence of such a distinction, it is reasonable to argue that the decision-making style of BAs (degree of predictive or control-orientation) might have a differential impact on their decision to be actively involved in the two categories of activities performed by their BAG, that is investment-related activities and group management activities. Indeed, these activities are characterized by different levels of uncertainty.

The members of an angel group face two environments: the uncertain environment of the start-up company in which they will invest (nascent entrepreneurial firms face a higher level of uncertainty than established firms) and the BAG, which is a more stable and standardized institution. As shown by Mason et al. (2016), angel groups have become professionalized in their operations with established routines for accessing deals, screening deals, undertaking due diligence, negotiating and investing. Unlike most of the startups they fund, BAGs operate in environments that cannot be considered as highly uncertain. Furthermore, the presence of the supervisory and regulatory authorities, both at the national and supranational level, is a factor assuring stability and monitorability to the major players of the capital markets (such as the venture capital funds and the angel groups) (Bonini and Capizzi, 2019). As such, even though not neglecting the significant changes taking place over time due to technological innovation (i.e. crowdfunding platforms), the rise of new actors (business incubators, angel co-investment funds, special purpose investment vehicles) and the introduction of legal or fiscal reforms, the investigated environment can be considered as relatively mature and with a low degree of uncertainty (Mason et al., 2016; Bellavitis et al., 2017; Wallmeroth et al., 2018; Bonini and Capizzi, 2019). Hence, a predictive decision-making style should be considered as a relevant driver of the involvement of BAs in BAGs' group management activities.

When considering the typologies of activities carried out by BAGs, it is straightforward to observe that, unlike group management activities, investment-related activities imply a great deal of uncertainty, making it extremely hard to behave according to

deterministic and quantitative predictive models. As a matter of fact, investing in young ventures is extremely risky because such firms have no historical background and reliable information, they are fragile because of their limited resources and the initial absence of cash flow generating capacity, and their future outcomes are highly uncertain (Hellmann and Puri, 2002; Natusch, 2003; Kaplan and Stromberg, 2003; Cumming, 2006; Mason, 2009; Gompers et al., 2008; Wong et al., 2009; Hall and Lerner, 2010; Chemmanur et al., 2011; Vandenbrouke et al., 2014; Nanda and Rhodes-Kropf, 2013; Wilson et al., 2018). These issues are still more relevant at the seed stage, when new products and services are still not fully developed nor marketed. It is in this segment of the ecosystem that BAs are particularly well suited to operate (Landström and Mason, 2016; Mason, 2009; Bonini and Capizzi, 2019). Consequently, it is reasonable to assume that control-oriented angels, whose decision-making style is well adapted to highly uncertain environments, and because they perceive they can actively control and influence future events, will tend to be strongly involved into investment-related activities.

We therefore formulate our fourth couple of research hypotheses, both related to the impact of BAs' different decision-making styles on different BAG activities.

H4a. A predictive decision-making style positively affects BAs' involvement in group management activities.

H4b. A control-oriented decision-making style positively affects BAs' involvement in investment-related activities.

3.2. BAs characteristics as members of the BA group

In the hypotheses presented above, we considered BAs' individual features in terms of retirement status, human capital and cognition as determinants of their involvement in BAG activities. Previous research suggests, however, that the motivations of BAs for joining angel groups are diverse and might influence their involvement in the activities performed by such groups. Hence, we develop hypotheses related to the degree of financial commitment of BAs in their angel group, to their expectations from the group and to their level of satisfaction with the services provided by the group.

3.2.1. BAs financial commitment

The degree of financial commitment by BAs in their angel groups is diverse. Although research is scarce on the topic, anecdotal evidence shows that while some angels invest exclusively, or mostly, in opportunities presented by their group, others consider the angel group they belong to as a potential source of deals among others (other angel groups, informal syndicates, direct sourcing from personal contacts, professionally managed VC funds etc...). While the latter might lack motivation to invest time into group activities and, therefore, adopt a free riding attitude *vis à vis* their group, the BAs who are strongly committed financially into their group (i.e. make a high proportion on their investments in young ventures through the group) are expected to be more concerned with the success and performance of the group and, therefore, more actively involved in its various activities. Indeed, an active involvement might enable them to personally check the quality of the investment processes and of the governance and management of the group (disciplinary motive) and, in addition, to contribute to the success of the group by providing time and knowledge (resource provision). We therefore propose the following hypothesis:

H5. BAs who are strongly committed financially to their angel group are more actively involved in various angel group activities.

3.2.2. BAs' motivations *vis à vis* their group

The entrepreneurial finance literature shows that the motivations for becoming a BA and for joining a BAG are diverse. Unlike VCs, BAs do not manage funds for the account of investors but invest their own money. Many BAs have financial (return maximization) objectives, but they also have other goals, such as challenge, "fun", sharing their experience with young entrepreneurs, contributing to job creation and local development, that are as (or more) important for them as (than) financial goals (Aernoudt, 1999; Farrel, 1998; Van Osnabrugge, 2000; Van Osnabrugge, 2000; Kelly and Hay, 2003; Morrissette, 2007). Although empirical evidence on the motivations of standalone investors or virgin angels for joining an angel group is scarce, the literature about the economic impact of BAGs suggests that the main reasons for joining a BAG are (1) accessing more numerous, larger and higher quality investment opportunities thanks to the increased visibility and efficient deal screening provided by the BAG, (2) benefiting from a large pool of competencies, which allows to learn from other (more experienced) angels, and from a structured investment process, (3) enlarging their personal contacts network thanks to the opportunity to meet other BAs and various actors of the entrepreneurial finance market and (4) being involved in an organization which might contribute to the local development in their region (San Jose et al., 2005; Zu Knyphausen-Aufsess and Westphal, 2008; Collewaert et al., 2010; Paul and Whittam, 2010; Christensen, 2011; Mason et al., 2016). We propose that the motivations of BA's when joining an angel group influence the extent and nature of their involvement in the group activities. The BA's whose objectives are to enlarge their personal contacts network or to learn from other angels are expected to maximize the opportunities of interaction with other members of the BAG and, therefore, to be actively involved, time wise, in various angel group activities. BA's who are strongly motivated by increasing the number and quality of their investments are expected to show a strong interest in the investment cycle and, therefore, to be actively involved in investment-related activities. BAs whose objective for joining a BAG is to contribute to the local economic or social development are expected to show less interest than other angels in the technical aspects of the investment cycle and, therefore, to be less involved in investment-related activities. Thus, we propose the following hypotheses:

H6a. BAs whose objective for joining an angel group is to learn from more experienced angels are more actively involved in various angel group activities.

- H6b.** BAs whose objective for joining an angel group is to enlarge their personal contacts network are more actively involved in various angel group activities.
- H6c.** BAs whose objective for joining an angel group is to access to more good quality investment opportunities are more actively involved in investment-related activities.
- H6d.** BAs whose objective for joining an angel group is to contribute to the local economic development are less actively involved in investment-related activities.

3.2.3. BAs' satisfaction vis à vis their group

Previous research shows that the continued involvement from the members of BA groups and networks is strongly dependent on their level of satisfaction with the services offered by these organizations. BAs join BA groups with certain expectations regarding the services provided to members and might reduce or terminate their contribution (financially and/or time wise) to such groups when these expectations are not met (Zu Knyphausen-Aufsess and Westphal, 2008; Christensen, 2011). Research by psychology scholars about the dynamics and performance of professional groups has shown that reciprocal interactions exist between team members' individual efforts and group performance (Karau and Williams, 1993; Hüffmeier et al., 2017). While individual efforts from members contribute to group performance, perceived positive outcomes from group actions by team members tend to reinforce their motivation and efforts, thus enhancing group performance. It can therefore be expected that BAs who show a high degree of satisfaction with the services offered by their angel group tend to dedicate more efforts to actively contribute to the group's activities. Hence:

- H7.** BAs who are satisfied with the activities and actions performed by their angel group are more actively involved in various angel group activities.

For simplicity and readability, Fig. 1 only illustrates the overall expected relations between the dependent variables and our explanatory variables of interest. It does not present the details of each hypothesis on the expected impact of each of these twelve explanatory variables (related either to BAs' individual human capital and cognition or BAs' characteristics as members of the BA group) on each of the three measures of a BA's involvement in BA group activities (time spent, investment-related activities and/or

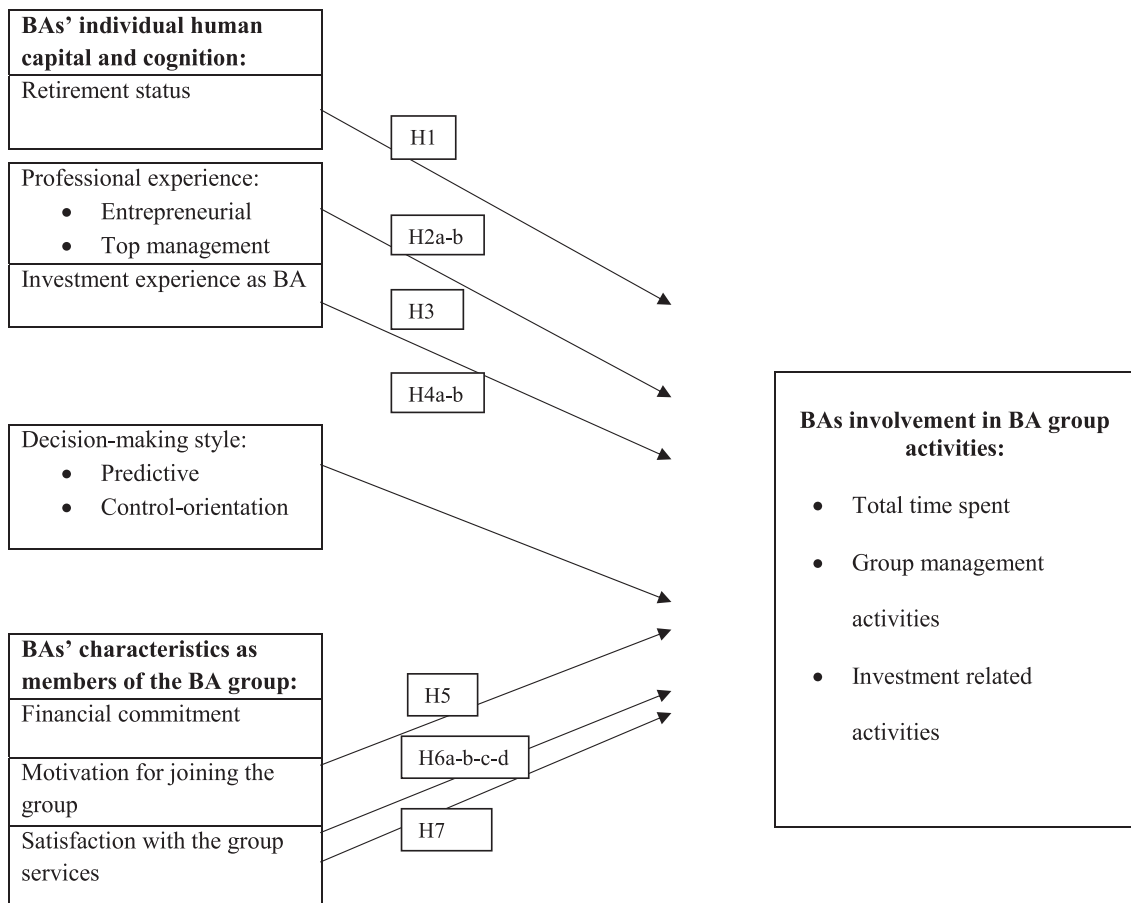


Fig. 1. A model of BA involvement in angel-group activities.

group-management activities).

4. Empirical analysis

The present section provides a description of the two investigated angel groups and of the data collection process (4.1.). We then explain and provide descriptive statistics for the dependent and independent variables used to test our research hypotheses (4.2.). We present our methodology, based on a battery of ordered probit regressions (4.3) and, finally, discuss the results of the empirical analysis (4.4).

4.1. Surveyed business angel groups and data collection

Below, we provide a qualitative description of the two surveyed angel groups to get a grasp of their specific contingencies. This includes a brief history, some key data and a description of membership requirements, internal structure, operations and investment process. We then describe our data collection process.

4.1.1. Club degli Investitori

The “Club degli Investitori” (Club) is a business angel group made up of high-net-worth individuals, entrepreneurs and/or past entrepreneurs, managers of large multinational corporations and senior professionals who invest their personal capital in new ventures and small, innovative businesses with high growth potential. Based in Turin but investing in companies located all around Italy, the Club experienced explosive growth over time, passing from an initial composition of 5 members at its foundation in 2008 to approximately 160 members at year-end 2018. While all the founding members have as their previous background a former entrepreneurial experience, the current composition of the Club, alongside past entrepreneurs (50%), includes also managers (30%), consultants (15%) and academic scholars (5%).

No formal criteria dealing with personal wealth or investment capacity are considered in the admission process, in that the required contribution is an active involvement in all the different phases of the life of the angel group, ranging from scouting, deal selection, due diligence to monitoring, mentoring and advising investee companies in the post-investment phase. Membership of the Club can only be gained through introduction by an existing member and implies the commitment to pay a membership fee on an annual basis to contribute to the Club’s administrative costs.

The members of the Club – who are all expected to join some of the investment opportunities provided by the BAG – are supported in the deal flow, screening process, investment and post-investment process by the “gatekeepers”, who are the angels most actively engaged in the life of the Club, being appointed as Board members (with no compensation). Currently, the Board is made up of 15 Executive Directors, including the President and two Vice Presidents, all of them being member angels. The gatekeepers are supported by an internal staff of four full time paid employees carrying on the day-by day BAG operations: one investment manager, two development managers and a press office manager.

In the 2013–2018 period, the Club invested more than 12 million euros in more than 20 companies operating in various sectors, mostly related to high technologies, food, healthcare, manufacturing and retail online services. Considering also the network of co-investors – comprising other BAGs, venture capital funds and industrial companies – involved in any given deal by the Club as arranger of the angel syndicate, the funded ventures have received more than 40 million euros in equity capital funding. The typical ticket size for an angel investment falls in the range 200 k – 1.5 m euros. Every year, the Club, thanks to their internal team supervised by the gatekeepers, originate and analyse several hundred projects and then invest, on average, in four or five of these opportunities. Every member angel can contribute to the deal flow and scouting, although the level of activism is rather heterogeneous: about 25% of the Club members originate more than 70% of the submitted investment opportunities.

Alongside the internal team, those member angels having a proven relevant experience in the industry and, therefore, capable of adequately challenging the applicant entrepreneurs are involved in the selection and screening process. In a further step of the process, the chosen projects are presented at monthly Members’ meetings where expressions of interest to invest are gathered. The subsequent phase implies a due diligence and negotiation whose costs are shared across those angels interested in the possible deal, who usually invest their capital through an equity injection in a new company aimed at buying the shares of the target company. At the signature and for the execution of the investment, a “Champion” Member is appointed and delegated to represent the Club and support the growth of the company until exit. On a periodic basis, the Champion – who joins the board of the investee company as a non-executive director – updates the other angels joining the syndicate and raises feedback and suggestions that will be transmitted to the funded entrepreneurs.

Summing up, it appears that the kind of support provided by this specific BAG goes beyond a mere financial contribution, implying also the involvement of a group of BAs whose network of contacts and experience as well as mentoring and advisory potential might be worth way more than the capital they are investing.

4.1.2. Savoie Mont Blanc angels

Savoie-Mont-Blanc Angels (SAMBA) is located in the Auvergne-Rhône-Alpes region in the south-east of France. The region is known for its economic dynamism and intense entrepreneurial activity and hosts some of the larger and more dynamic angel groups in France.

SAMBA was created in 2007 by a group of local entrepreneurs and now counts approximately 200 members. Joining the angel group requires to fill in an application form and to be sponsored by at least one existing member. New members’ admissions are decided by the group’s board of directors on the basis of the applicants’ professional experience and expected ability to contribute to

deal sourcing, selection and monitoring. Unlike other angel groups, no minimal personal wealth or investment capacity are required for new members and it is accepted that members may not invest (or only make very few investments) as long as they contribute to links with key stakeholders or to the investment process. In this respect, the SAMBA recruitment mode is closer to the one of a gentlemen's club than a closed syndicate.

Since inception and until 2017, 84 companies were financed for a total of 14 million euros invested. Investee companies are mainly young innovative ventures active in high technology, services and industry and are all located in the Auvergne-Rhône-Alpes region. The typical investment ticket is in a 50–200 k€ range at the SAMBA level, but investments are often syndicated with other angel groups and regional venture capital firms, resulting in significantly larger total tickets for the funded ventures.

This angel group can be qualified as “mature” given its age and the relative stability in the number of members and in the investment activity in recent years. SAMBA provides a full range of services, i.e., deal sourcing, screening, evaluation and negotiation, post investment monitoring, member training, as well as the management of 8 sidecar funds which have been raised from members since inception. Members may invest in the companies presented by the group either directly (in this case ad-hoc syndicates are formed) or through the sidecar funds in which they participate.

At the time of our survey (2015) SAMBA employed a staff of three part time employees (2.5 in full time equivalent): the head of staff (gatekeeper), who was previously involved in running an incubator, an administrative officer and a communication officer. It is to be noted that the SAMBA staff, beyond its administrative activity within the angel group, is also involved in time-consuming activities at the regional level, as SAMBA acts as a coordinator for various angel groups and networks in the Auvergne-Rhône-Alpes region. There is a clear separation of tasks between staff and members. The gatekeeper and his team are in charge of the group's administration and coordination, while investment and strategic decisions are taken by various member committees and the board. The level of involvement by members in the group's activities varies greatly, and most of the investment related activities are performed by a core group of 25 to 30 very active members. SAMBA's board counts 20 elected directors. The president is a former entrepreneur and CEO and a co-founder of SAMBA.

The investment process takes place according to the following stages. After pre-screening by the gatekeeper, entrepreneurs pitch in front of a screening committee composed of 5 to 10 members. Selected projects then enter an evaluation and negotiation phase, which is performed by a group of 2 to 3 members nominated on the basis of expertise and availability. At the end of this phase, entrepreneurs pitch during a general meeting of the angel group members. Individual angels and sidecar funds may then decide to invest after final due diligence and negotiation are successfully closed. Each sidecar fund has a dedicated investment committee formed of volunteer members who discuss the proposed investments and submits them to the vote of the fund investors. After the investment, SAMBA delegates one or two members in charge of post-investment monitoring. They are volunteers chosen on the basis of the added value they can bring to the investee company. They generally join the board or the strategic committee of the investee company and periodically update other SAMBA investors and staff on the performance and main challenges met by the venture and consult them in case key decisions need to be taken.

4.1.3. Similarities and differences between the two BAGs

Making reference to both the qualitative information shared in the previous sections and some descriptive statistics processed from our questionnaire-based survey, whose details are provided in the following Section 4.2, Club and SAMBA present many similarities. Both of them are mature angel groups created by entrepreneurs, mostly male individuals, and have a similar size in terms of members count. They both offer a full range of services to business angels and have a diversified investment focus in terms of industries. They do, however, present some differences regarding member profiles and investment size. As for the former, Club members, when compared to SAMBA members, are on average 12 year younger, have higher education degrees more focused on business and administration disciplines, and have gained more frequently a previous entrepreneurial experience. As for investment size, Club members' investment tickets are on average much larger than those of SAMBA affiliates (ticket range is 200 k – 1500 k € for Club, versus 50-200 k € for SAMBA), which results in Club members investing an average of 2 million € per year in total, compared to 1.3 million € for SAMBA. This might be a direct consequence of the above-mentioned higher intensity of entrepreneurial background observed for Club members, who therefore might leverage on a higher average net worth for their investment decisions. The members recruitment criteria of Club and SAMBA also differ, as Club requires from all its members to invest in firms selected by the group, which is not the case in SAMBA, who accepts non investing members. This results in a much higher proportion of non-investing members in SAMBA, as shown by the results of our survey (Club and SAMBA respectively count 14% and 23% of non-investing members). Beyond such differences, there are also organizational differences, in that Club dedicates significantly more professional resources in the form of full-time employees than SAMBA as it employs 4 full-time vs. 3 part-time employees (equivalent to 2.5 fulltime). This results in a ratio of full-time employees per member, at the time of the surveys, nearly twice higher for Club (2.50%) than for SAMBA (1.27%). Consequently, Club investment and group management processes rely much more heavily than SAMBA on the work performed by the full-time staff, with the support of the most active angels, which results in a higher degree of professionalization of the former.

In addition to organizational differences such as the ones mentioned above, national institutional specificities, such as the cultural, legal, financial or regulatory environments, might have an influence on BAGs' investment behaviour (Collewaert et al., 2018; Croce et al., 2019) as well as on BAGs' organizational structures and processes (Paul and Whittam, 2010; Christensen, 2011; Carpentier and Suret, 2015; Mason et al., 2016) as mentioned in Section 3. Institutional differences between France and Italy, although they do exist, are however limited. Their corporate laws are both rooted in Roman civil law (La Porta et al., 1997) and both countries are founding members of the European Union and of the Eurozone. In order to encourage the free market in Europe, the European Union has produced repeated efforts along the years to foster the convergence between the financial regulations, corporate laws and corporate governance practices of member states (i.e. European Union, 2007, 2017; European Commission, 2011). Indeed, international reports

on corporate governance (i.e. OECD, 2019) show many similarities between France and Italy as regards company ownership, shareholders rights, and the regulatory framework for corporate governance.

4.1.4. Data collection process for the surveyed BAGs

In order to investigate the determinants of angel involvement in angel group activities, we delivered to AGMs from both BAGs the same questionnaire, thus extending to a multiple BAG setting the empirical tools proposed by Wirtz et al. (2020). The questionnaire includes 25 questions and covers four areas of information: the individual characteristics of BAs (age, gender...), their expectations when joining the group and satisfaction with its services, their involvement in specific activities, and their decision-making style and human capital features (dimensions of predictive- and control-orientation, as well as previous entrepreneurial or managerial experience, the latter further broken down into CEO role or other operating roles, and investment experience as a BA).

For SAMBA and Club, the survey was conducted online with Qualtrics survey software and posted on a dedicated web platform. An invitation to participate in the study was emailed to the members of both angel groups. A reminder was sent six weeks later. For SAMBA, the questionnaire was posted on October 28th, 2015. At the closure of the online survey, the total number of respondents was 110. Sixty responses were incomplete, leading the final sample to 50 BAs. The total population of SAMBA is estimated to be 197 which results in a response rate of approximately 25%. For Club, the questionnaire was posted on June 14th, 2017. The total number of respondents was 56. Twenty-nine responses were discarded because of missing information, leading the final sample to 27 Business Angels out of a total of 150 members, which results in a response rate of approximately 18%. This is consistent with the redemption underlying prior survey-based studies investigating business angels and groups in many different countries all over the world (Van Osnabrugge, 2000; Harrison and Mason, 2002; Riding et al., 2007; Shane, 2009; Sohl, 2007; Sudek et al., 2008; Scheela and Isidro, 2009; Christensen, 2011; Lahti, 2011; Bonnet and Wirtz, 2012; Brush et al., 2012; Gregson et al., 2013; Capizzi, 2015; Kerr et al., 2014; Mason et al., 2016; Wallmeroth et al., 2018; Bonini et al., 2018, 2019; Lerner et al., 2018).

4.2. Descriptive statistics

Our data allow us to gather the information required to build adequate proxies for the investigated phenomena and, more in detail, for the angels' involvement in various BAG activities, the typology of BAs' decision-making style (predictive vs. and control-orientation), BAs' status (retirement), specific human capital features (professional experience and investment experience), reasons

Table 1
Description of the variables.

Variable	Description
Dependent variables: <i>Involvement Time Spent</i>	
	An ordinal variable indicating the number of days per year a BA dedicates to BAG activities: equal to 1 if less than a day, 2 if between one and two days, 3 if between two and six days, 4 if between six and twelve days, or 5 if more than twelve days.
<i>Investment Activities</i>	
	A discrete variable, between 0 and 4, counting the number of investment activities practiced at least once a year by the respondent (deal flow, preselection, due-diligence or post-investment).
<i>Group Management Activities</i>	
	A discrete variable, between 0 and 4, counting the number of group activities practiced at least once a year by the respondent (attend to training sessions, lead training sessions, member of the board of the network, director or member of the investment committee of a fund).
Explanatory variables	
<i>BAs' individual characteristics</i>	
<i>Retirement Status</i>	A dummy variable equal to 1 if the respondent was retired at the time of the questionnaires, 0 if not.
<i>Professional Experience</i>	2 dummy variables equal to 1 if the respondent has at least one professional experience as entrepreneur or CEO, 0 if not.
<i>Investment Experience Years since first investment</i>	A discrete variable indicating the number of years since a BA made his first investment as Business Angel.
<i>Cumulative amount invested</i>	An ordinal variable indicating the cumulative investment since a BA started to invest as Business Angel: equal to 1 if less than 25,000€, 2 if between 25,000 and 50,000€, 3 if between 50,000 and 100,000€, 4 if between 100,000 and 500,000€, or 5 if more than 500,000€.
<i>Decision Making Control-Oriented Style</i>	The sum of a respondent's responses (1 through 5) for each item divided by the total possible score (10 for the 2 control items).
<i>Prediction-Oriented Style</i>	The sum of a respondent's responses (1 through 5) for each item divided by the total possible score (20 for the 4 prediction items).
<i>BAs' characteristics as members of a BA Group</i>	
<i>Financial Commitment to the BAG</i>	The share of the number of investments made by a BA via the BAG on his total number of investments.
<i>Reasons to join a BAG</i>	4 ordinal variables indicating the reasons why a BA joined a BAG: from 1 (strongly disagree) to 5 (strongly agree).
<i>Satisfaction with BAG services</i>	An ordinal variable indicating the level of overall satisfaction of a BA with the services provided by the BAG: from 1 (very dissatisfied) to 5 (very satisfied).
Controls	
<i>CLUB</i>	A dummy variable equal to 1 if the respondent is a member of the CLUB, 0 if not (SAMBA).
<i>Age</i>	Years of a BA at the time of the survey.
<i>Level of Education</i>	An ordinal variable equal to 1 for a First cycle, 2 for a Second cycle, 3 for a Bachelor level, 4 for a Master level, an Engineering School or a Business School, or 5 for a Doctorate level.
<i>Other Professional Experience</i>	9 dummy variables equal to 1 if the respondent has at least one professional experience as in R&D, strategy, marketing, finance, legal, production or organization, a liberal profession, or as an employee 0 if not.

for joining the BAG and the level of satisfaction and professionalization of the two surveyed BAGs. Table 1 provides the description of all the variables selected for the empirical analysis.

4.2.1. Dependent variables

Our aim is to investigate the major determinants of the BAs' involvement in the activities performed by the BAG. This empirical study focuses on the total time spent and on the involvement in two categories of angel group activities (group management and investment-related activities), the dependent variables of our research.

4.2.1.1. Total time spent. We asked BAs how much total time they allocate yearly to investment-related and group management activities. The measure is ordinal, equal to 1 if less than a day, 2 if between one and two days, 3 if between two and six days, 4 if between six and twelve days, or 5 if more than twelve days. A comparison test between the two BAGs indicates that CLUB members dedicated on average between six and twelve days per year to BAN Activities compared to two and six days per year for SAMBA (4.11 vs 3.52). This difference is statistically significant at the 5% level. Table 2 provides descriptive statistics and comparison test on the BAs' time spent.

4.2.1.2. Activities in the BAG. We were able to build two proxies (with possible values ranging between 0 and 4) for the intensity of involvement in BAG activities by coding the answers given by the surveyed angels of both groups to a pair of questions asking the respondents, respectively, to mark their involvement in group management activities and eventually in investment-related activities. The first proxy counts the number of investment-related activities practiced at least once a year by the respondent (deal flow, pre-selection, due-diligence or post-investment monitoring); the second proxy takes into account the number of group management activities practiced at least once a year by the respondent (attend training sessions, lead training sessions, member of the board of the network, director or member of the investment committee of a fund).

Table 2 reports descriptive statistics for both dependent variables at the single BAG level, distinguishing between the respondent members of Club and SAMBA. The results show that Club members are more involved in investment-related activities than SAMBA members (2.41 vs. 1.68), with the difference being statistically significant at the 5% level. In terms of involvement in angel group management activities, we observe that SAMBA members indicate they contribute significantly more than Club members to one specific group management activity, that is investment committees (32% vs. 4%), while Club members get more involved in activities of deal flow (70% vs. 24%) and preselection (74% vs. 46%). All these differences are statistically significant at least at the 5% level.

4.2.2. Explanatory variables

As argued in the previous sections, we identify two categories of determinants of the active involvement of BAs. The first group of the explanatory variables of our research relates to the BAs' individual characteristics in terms of retirement status, professional and investment experience, and decision-making style. The second group relates to the BAs' characteristics as members of a BA group in terms of: financial commitment and expectations and satisfaction *vis a vis* their group.

4.2.2.1. BAs' status, human capital and decision-making style. Table 3 provides descriptive statistics and comparison tests on the BAs' retirement status, human capital (professional and investment experience) and decision-making style. We gathered data concerning the surveyed BAG members' current retirement status, thus building a dummy variable equal to 1 if the respondent was retired at the time of the questionnaires, or 0 if not. Consistent with many other contributions finding a positive relationship between BAs' age and their investment behaviour (Mason and Harrison, 2000; Shane, 2000; Paul et al., 2007; Macht, 2011; Collewaert and Manigart, 2016; Bonini et al., 2018), we think such a variable might play a significant role in explaining the degree of involvement of BAs in the activities of the BAGs they join because of the lessened time constraints featuring retired angels. Furthermore, 38% of SAMBA members are retired versus just 4% of Club member angels. This difference is statistically significant at the 1% level. This characteristic of CLUB members is in line with previous studies: "The typical Italian Business Angel is a 50-55 year old man, and he lives mainly in Northern Italy (76%)" (Business Angels Europe (BAE), 2014, p. 35).

Table 2

Dependent variable: descriptive statistics.

Business angel group	SAMBA					CLUB					Diff.
	Statistic	Mean	SE	Min	Max	N	Mean	SE	Min	Max	
Time spent	3.52	1.13	1	5	50	4.11	0.89	3	5	27	-0.59**
Investment Activities	1.68	1.38	0	4	50	2.41	1.08	0	4	27	-0.73**
Deal flow	0.24	0.43	0	1	50	0.70	0.47	0	1	27	-0.46***
Pre-selection	0.46	0.50	0	1	50	0.74	0.45	0	1	27	-0.28**
Due diligence	0.48	0.50	0	1	50	0.37	0.49	0	1	27	0.11
Post-investment	0.50	0.51	0	1	50	0.59	0.50	0	1	27	-0.09
Group Management Activities	1.38	1.09	0	4	50	0.93	0.87	0	3	27	0.45*
Attend training	0.64	0.48	0	1	50	0.56	0.51	0	1	27	0.08
Lead training	0.10	0.30	0	1	50	0.04	0.19	0	1	27	0.06
Board member	0.32	0.47	0	1	50	0.30	0.47	0	1	27	0.02
Investment committee	0.32	0.47	0	1	50	0.04	0.19	0	1	27	0.28***

Diff. reports results of *t*-tests of inequality of mean between SAMBA and CLUB: *, ** and *** indicate respectively *P*-values <10%, 5% and 1%.

Table 3
Explanatory variables: descriptive statistics – BAs' individual characteristics.

Business Angel Group	SAMBA					CLUB					Diff.
	Mean	SE	Min	Max	N	Mean	SE	Min	Max	N	
Retirement Status	0.38	0.49	0	1	50	0.04	0.19	0	1	27	0.34***
Professional Experience											
Entrepreneur	0.40	0.49	0	1	50	0.67	0.48	0	1	27	-0.27**
CEO	0.76	0.43	0	1	50	0.63	0.49	0	1	27	0.13
Investment Experience											
Years since first investment	5.97	3.48	1	17	40	4.39	3.49	2	16	23	1.58*
Cumulative amount invested	2.80	1.11	1	5	40	3.04	1.22	1	5	23	-0.24
Decision-making style											
Control-oriented Style	0.70	0.19	0.2	1	50	0.77	0.16	0.5	1	27	-0.07
Prediction-oriented Style	0.76	0.10	0.55	1	50	0.76	0.12	0.6	1	27	0.00
Controls											
Age	58.88	10.57	16	76	50	51.67	9.30	37	72	27	7.21***
Level of education	2.94	0.91	1	4	50	2.67	0.88	1	4	27	0.27
Other Prof. Exp.											
R&D	0.16	0.37	0	1	50	0.15	0.36	0	1	27	0.01
Strategy	0.28	0.45	0	1	50	0.22	0.42	0	1	27	0.06
Marketing	0.32	0.47	0	1	50	0.30	0.47	0	1	27	0.02
Finance	0.50	0.51	0	1	50	0.37	0.49	0	1	27	0.13
Legal	0.20	0.40	0	1	50	0.19	0.40	0	1	27	0.01
Production	0.20	0.40	0	1	50	0.11	0.32	0	1	27	0.09
Organisation	0.24	0.43	0	1	50	0.11	0.32	0	1	27	0.13
Employee	0.80	0.40	0	1	50	0.52	0.51	0	1	27	0.28***
Liberal	0.30	0.46	0	1	50	0.19	0.40	0	1	27	0.11

Time Spent is an ordinal variable indicating the number of days per year a BA dedicates to BAG activities. *Investment and Group Management Activities* are two discrete variables, between 0 and 4, counting the number of respectively investment or group management activities practiced at least once a year by the respondent (detailed below). *Retirement Status* is a dummy variable equal to one if the BA is retired. *Professional Experience* variables are dummies equal to one if the BA has a least one year of experience. *Years since first investment* is a discrete variable indicating the number of years since a BA made his first investment as Business Angel. *Cumulative amount invested* is an ordinal variable indicating the cumulative investment since a BA started to invest as Business Angel. *Decision Making* variables are the means of the respectively 2 and 4 items corresponding to control and prediction. *Age* indicates the years of a BA at the time of the survey. *Level of education* is an ordinal variable equal to 1 for a First cycle, 2 for a Second cycle, 3 for a Bachelor level, 4 for a Master level, an Engineering School or a Business School, or 5 for a Doctorate level. Diff. reports results of t-tests of inequality of mean between SAMBA and CLUB: *, ** and *** indicate respectively P-values < 10%, 5% and 1%.

As for specific human capital, we built two different types variables operating a selection among its many possible dimensions. First, we chose to focus on business angels' prior professional experience, that has been widely used in the extant literature as an explanatory variable for BAs' investment decisions and outcomes (Collewaert and Manigart, 2016; Landström and Mason, 2016; Croce et al., 2017, 2020; Wallmeroth et al., 2018; Bonini et al., 2018, 2019). We therefore processed the answers given by the responding angels about their previous background and were able to build 9 dummy variables equal to 1 if the respondent has at least one professional experience as an entrepreneur, CEO, in R&D, strategy, marketing, finance, legal, production or organization, or 0 if not. The figures show that Club members include a larger proportion of entrepreneurs (67% vs. 40%, with the difference being statistically significant at the 5% level).

In addition, we use as a second specific human capital dimension another formative measure, that is the investment-specific experience as a BA, in order to distinguish between virgin angels with no or limited investment experience and expert angels having already a significant experience as individual investor. In terms of cumulative investment per angel (total € invested since he/she started to invest as a BA), 39.13% of Club members have invested more than €100,000 compared with one fourth for SAMBA (mean 2.80 vs. 3.04). By comparing the two BAGs, we observe that SAMBA members, on average, have more investment experience in terms of years since the first investment than CLUB members (5.97 vs. 4.39, with the difference being statistically significant at the 10% level). As shown in previous studies (Butticè et al., 2021, Butticè et al., 2021; Croce et al., 2018, 2020; Van Osnabrugge, 2000), BAs with investment experience are better able to manage the overall investment process. This evidence provides preliminary support for our argument about the effects of investment experience on the involvement in investment-related activities.

Our fourth main explanatory variable is the decision-making style of business angels. Consistent with Wiltbank et al. (2009), we distinguish two types of cognitive profile for BAs, as far as their investment process is concerned: predictive and control-orientation (the items for both measures are detailed in Appendix A). Prediction-orientation is an investment style based on strong efforts by the BA to understand the business model, the industry attractiveness and the growth potential of the backed ventures: the quantitative estimation of probabilities and future outcomes are at the heart of the decision-making process. Control-orientation, on the other hand, refers to an alternative investment style based on the investors' feeling to actively contribute to shape the environment they live in and, therefore, to provide a high post-investment value added contribution to the funded venture, with both monetary and non-monetary resources.

The items are formative measurements, assumed to be the cause of the latent variable that is the decision-making style. The questions were initially proposed and used by Bonnet et al. (2013) who derived them, with some adaptations, from the seminal contribution by Wiltbank et al. (2009). Cronbach's alphas for the 2 control items and the 4 prediction items were respectively 0.80 and 0.58. The questions used for the SAMBA survey were in French language, and they were translated to Italian by one of the authors for inclusion into the Club survey.

Data reported in Table 3 show that the two groups, SAMBA and Club, are not significantly different. Club members are on average both highly control-oriented (mean score 0.77) and highly predictive (mean score 0.76), reflecting the combination observed for SAMBA (mean score 0.70 for control-orientation; mean score 0.76 for prediction). Such evidence is consistent with the previous literature indicating that angels may share cognitive features with venture capitalists – i.e. who are typically high on the prediction scale – and may also be close to entrepreneurs – i.e. who are typically high on the control-orientation scale - (Sarasvathy and Dew, 2005; Wiltbank et al., 2009; Bonnet and Wirtz, 2012).

Time Spent is an ordinal variable indicating the number of days per year a BA dedicates to BAG activities. *Investment and Group Management Activities* are two discrete variables, between 0 and 4, counting the number of respectively investment or group management activities practiced at least once a year by the respondent (detailed below). *Retirement Status* is a dummy variable equal to one if the BA is retired. *Professional Experience* variables are dummies equal to one if the BA has a least one year of experience. *Years since first investment* is a discrete variable indicating the number of years since a BA made his first investment as Business Angel. *Cumulative amount invested* is an ordinal variable indicating the cumulative investment since a BA started to invest as Business Angel. *Decision Making* variables are the means of the respectively 2 and 4 items corresponding to control and prediction. Diff. reports results of *t*-tests of inequality of mean between SAMBA and CLUB: *, ** and *** indicate respectively *P*-values <10%, 5% and 1%.

4.2.2.2. *BAs' characteristics as members of the BA group.* Table 4 reports descriptive statistics and comparison test on the BAs' characteristics as members of the BA group:

- Financial commitment, which is the share of the number of investments made by a BA via the BAG on his total number of investments.
- BAs expectations and satisfaction *vis a vis* their group: ordinal variables indicating the reasons why a BA joined a BAG and the level of satisfaction of a BA with the BAG. Respondents rated their agreement or disagreement with each item on a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree).

The descriptive statistics related to the BAs' characteristics as members of the BA group show that, in terms of financial commitment per BA (the share of the number of investments made by a BA via the BAG on his total number of investments), the average proportion of investments through the group is higher for CLUB members (91% than for SAMBA (64%). The difference is statistically significant at the 1% level.

Looking at the BAs expectations *vis a vis* their group, the ones with the highest average score are the following: to contribute to local economic development (4.18 vs. 3.88), to have access to a large number of investment opportunities (4.15 vs. 4.48), to benefit from the experience of other BAG members (4.06 vs. 4.19) and to develop their network of personal contacts (3.55 vs. 4.19). This is consistent with previous studies that describe main reasons to join a BAG such as “offering the opportunity to learn from more experienced investors and provide opportunities for camaraderie and networking with like-minded individuals” (Mason et al., 2016), and applying a more professional approach to investing than independent BAs (Carpentier and Suret, 2015; Collewaert, 2012). Only one of these variables presents a significant difference (at the 1% level) between the two groups: “to develop personal contacts” (SAMBA: 3.55 vs. Club: 4.19).

Table 4
Explanatory variables: descriptive statistics - BAs' characteristics as members of a BA group.

BA Group Statistics	SAMBA					CLUB					Diff.
	Mean	SE	Min	Max	N	Mean	SE	Min	Max	N	
Financial Commitment to the BAG											
Share of investments within the BAG	0.64	0.27	0.12	1	38	0.91	0.19	0.23	1	21	-0.27***
Reasons to join a BAG											
Investment opportunities: “to have access to a largest number of opportunities of good quality investments”	4.15	1.00	1	5	47	4.48	0.70	3	5	27	-0.33
Personal contacts: “to develop my personal contacts”	3.55	0.96	1	5	49	4.19	0.90	2	5	26	-0.64***
Local development: “to contribute to local economic development”	4.18	0.94	1	5	50	3.88	0.83	3	5	25	0.30
Benefit from experience of other members: “to benefit from the experience and expertise of other BAG members”	4.06	0.72	2	5	49	4.19	0.74	3	5	27	-0.12
Satisfaction with BAG services: « How satisfied are you with your main network of Business Angels? »	4.00	0.70	3	5	50	4.15	0.60	3	5	27	-0.15

Financial Commitment to the BAG is the share of the number of investments made by a BA via the BAG on his total number of investments. *Reasons to join a BAG* is composed of 4 ordinal variables indicating why a BA joined a BAG. *Satisfaction with BAG services* is an ordinal variable indicating the overall satisfaction of a BA with BAG services. Diff. reports results of *t*-tests of inequality of mean between SAMBA and CLUB: *, ** and *** indicate respectively *P*-values <10%, 5% and 1%.

Table 5
Overall determinants of BAs involvement in BAG

	Time spent	Investment activities	Group management activities	Time spent	Investment activities	Group management activities
	(1)	(2)	(3)	(4)	(5)	(6)
BAs' individual characteristics						
Retirement Status	1.97*** (0.001)	1.13** (0.030)	0.78 (0.140)	1.12*** (0.009)	0.89** (0.021)	0.44 (0.165)
Professional Experience						
Entrepreneur	-0.03 (0.955)	-0.99* (0.060)	-0.18 (0.787)	0.01 (0.983)	-0.66* (0.094)	-0.23 (0.478)
CEO	0.17 (0.744)	0.94** (0.037)	1.09* (0.070)	0.03 (0.955)	0.71** (0.040)	0.35 (0.224)
Investment Experience						
Years since first investment	0.04 (0.465)	0.20*** (0.001)	0.07 (0.350)	-0.01 (0.906)	0.14*** (0.001)	0.06* (0.088)
Cumulative amount invested	0.43** (0.012)	0.12 (0.532)	0.47** (0.015)	0.20 (0.162)	0.10 (0.439)	0.24** (0.022)
Decision Making						
Control-oriented Style	1.59 (0.227)	2.11** (0.015)	-0.91 (0.451)	1.28 (0.261)	1.59* (0.060)	0.18 (0.803)
Prediction- oriented Style	1.12 (0.667)	-4.76* (0.058)	2.82 (0.165)	0.35 (0.881)	-3.68** (0.030)	1.29 (0.361)
BAs' characteristics as members of a BA group						
Financial Commitment to the BAG	0.71 (0.426)	1.44* (0.088)	1.80** (0.042)	0.62 (0.371)	1.05* (0.094)	0.75 (0.150)
Reasons to join a BAG						
Investment opportunities	0.27 (0.231)	-0.10 (-0.360)	-0.63*** (-2.594)	0.15 (0.739)	-0.07 (-0.392)	-0.25* (-1.735)
Personal contacts	0.50** (0.037)	0.27 (1.024)	1.22*** (3.705)	0.27 (1.491)	0.25 (1.522)	0.54*** (3.925)
Local development	-0.16 (0.366)	-0.90*** (-3.308)	0.10 (0.545)	-0.06 (-0.447)	-0.68*** (-4.051)	-0.05 (-0.351)
Benefit from experience of other members	-0.20 (0.414)	0.09 (0.392)	-0.49** (-2.145)	-0.15 (-0.697)	0.09 (0.448)	-0.23 (-1.425)
Satisfaction with BAG services	0.02 (0.944)	0.42 (0.328)	0.67 (0.163)	0.07 (0.837)	0.32 (0.247)	0.12 (0.584)
Controls						
CLUB	0.52 (0.260)	0.77** (0.048)	-1.26*** (0.002)	0.18 (0.623)	0.57* (0.091)	-0.57** (0.041)
Age	-0.04* (0.084)	-0.02 (0.468)	-0.01 (0.574)	-0.02 (0.208)	-0.01 (0.428)	-0.01 (0.447)
Level of education	-0.15 (0.577)	0.02 (0.946)	0.53 (0.114)	-0.13 (0.579)	-0.01 (0.950)	0.23 (0.173)
R&D	-1.90** (0.017)	1.30* (0.093)	0.49 (0.544)	-1.27** (0.041)	0.72 (0.201)	-0.17 (0.719)
Strategy	-0.19 (0.777)	0.02 (0.958)	-1.25* (0.090)	-0.17 (0.766)	-0.01 (0.976)	-0.11 (0.772)
Marketing	0.25 (0.507)	1.09*** (0.009)	1.57*** (0.004)	0.25 (0.481)	0.79*** (0.007)	0.58** (0.017)
Finance	0.93** (0.016)	0.90 (0.113)	0.92** (0.041)	0.51 (0.146)	0.70** (0.033)	0.42 (0.120)
Legal	-1.01* (0.098)	-0.83 (0.127)	0.61 (0.410)	-0.49 (0.349)	-0.57 (0.197)	-0.19 (0.610)
Production	-0.34 (0.468)	-0.72 (0.235)	-1.00* (0.051)	-0.31 (0.449)	-0.46 (0.249)	-0.40 (0.237)
Organization	0.78 (0.224)	-0.95 (0.128)	1.01 (0.202)	0.40 (0.434)	-0.79 (0.107)	0.64 (0.116)
Employee	-0.10 (0.816)	0.38 (0.370)	0.64 (0.243)	-0.04 (0.894)	0.31 (0.329)	0.33 (0.205)
Liberal	-0.05 (0.919)	-1.10** (0.013)	-0.17 (0.753)	-0.00 (0.997)	-0.69* (0.051)	-0.21 (0.474)
Observations	57	57	57	57	57	57
R ² (or pseudo-)	0.274	0.307	0.322	0.517	0.626	0.555
P-value	2.17e-09	8.43e-11	1.70e-06	0.0007	3.79e-10	2.65e-06
Model degrees of freedom	25	25	25	25	25	25

This table presents results of ordered probit regressions in columns (1), (2) and (3), OLS in column (4) and SURE in columns (5) and (6). The dependent variable is an ordinal variable indicating how many days per year a BA dedicates to BAG activities in columns (1) and (4), or the number of investment/group management activities (up to 4) in columns (2), (3), (5) and (6). *Retirement Status* is a dummy variable equal to one if the BA is retired. *Professional Experience* variables are dummies equal to one if the BA has a least one year of experience. *Years since first investment* is a discrete variable indicating the number of years since a BA made his first investment as Business Angel. *Cumulative amount invested* is an ordinal variable indicating the cumulative investment since a BA started to invest as Business Angel. *Decision Making* variables are the means of the respectively 2 and 4 items corresponding to control and prediction. *Financial Commitment to the BAG* is the share of the number of investments made by a BA via the BAG on his total number of investments. *Reasons to join a BAG* is composed of 4 ordinal variables indicating why a BA joined a BAG. *Satisfaction with BAG services* is an ordinal variable indicating the overall satisfaction of a BA with BAG services. Each regression includes a constant term (except ordered probit regressions), a dummy variable equal to 1 if the respondent is a member of the CLUB BAG, 0 if not (SAMBA BAG), and a set of control variables including the age of the BA, the BA level of education and other professional experiences. *, ** and *** indicate significance levels at respectively 10%, 5% and 1%, p-values are in parentheses.

4.19).

Finally, our data reflect that for the satisfaction with the services provided by the BAG, mean score of satisfaction is equal to 4 for SAMBA and above 4 for CLUB (4.15), but this difference is not significant. Member satisfaction may be considered as a crude proxy for value-added. Indeed, it is reasonable to suppose that a high score of satisfaction implies that respondents perceive added value in a BAG.

4.3. Model

Our empirical analysis is based on ordered probit regressions, where the dependent variable is the involvement of a BA in BAG activities, as in the following model specification.

$$\text{Involvement} = \alpha \text{RetirementStatus} + \beta \text{ProfessionalExperience} + \gamma \text{InvestmentExperience} + \delta \text{DecisionMaking} + \zeta \text{FinancialCommitment} + \eta \text{Reasons} + \theta \text{Satisfaction} + \iota \text{Controls} + \varepsilon$$

where:

Involvement is the dependent variable. As specified in the previous section, it is either (i) an ordinal variable indicating the number of days per year a BA dedicates to BAG activities (*Time Spent*), (ii) the number of investment-related activities practiced by the surveyed BAs at least once a year (*Investment Activities*), or (iii) the number of group management activities practiced by the surveyed BAs at least once a year (*Group Management Activities*).

Explanatory variables include BA individual characteristics (*RetirementStatus*, *ProfessionalExperience*, *InvestmentExperience*, *DecisionMaking*) as well as BA characteristics as members of a BA Group (*FinancialCommitment*, *Reasons*, *Satisfaction*).

RetirementStatus is a dummy variable equal to 1 if the respondent was retired at the time of the questionnaires, 0 if not.

ProfessionalExperience is a vector of the two dummy independent variable types equal to 1 if the respondent has at least one professional experience as entrepreneur or as CEO.

InvestmentExperience is a vector of two variables: *Years since first investment* (discrete) and *Cumulative amount invested* (ordinal).

DecisionMaking is a vector of the two ordinal variables measuring BAs' decision-making style, respectively "Control-Oriented Style" and "Prediction-Oriented Style".

FinancialCommitment is the share of the number of investments made by a BA via the BAG on his total number of investments.

Reasons is a vector of 4 ordinal variables indicating the reasons why a BA joined a BAG: *Investment Opportunities* ("To have access to a largest number of opportunities of good quality investments"), *Personal Contacts* ("to develop my personal contacts"), *Local Development* ("contribute to local economic development") and *Benefit* ("to benefit from the experience and expertise of other network members").

Satisfaction is an ordinal variable indicating the "level of satisfaction [of a BA] with [his] main network of Business Angels".

Controls includes CLUB, a dummy variable equal to 1 if the respondent is a member of the CLUB, 0 if not (SAMBA), as well as a vector of variables that are specific to a BA: *Age* (a discrete variable), *Level of Education* (ordinal variable) and *Other Professional Experience*: 9 dummy variables equal to 1 if the respondent has at least one professional experience in R&D, strategy, marketing, finance, legal, production or organization.

ε are the standard errors, assumed as normally distributed.

The dependent variables are ordinal, as mentioned in Table 1, which is why we use ordered probit regressions in the first three columns of the results tables. In the last three columns, we conduct robustness tests with continuous assumptions on the dependent variables but that have other qualities. In columns (4) of the Appendices C and D, we use ordinary least squares as a robustness test of the impact of these explanatory variables on the *Time Spent*. Indeed, *Time Spent* is equal to 1 if less than a day, 2 if between one and two days, 3 if between two and six days, 4 if between six and twelve days, or 5 if more than twelve days. Therefore, this ordinal variable has a shape that resembles that of a logarithmic function that would have been applied if we had known precisely the number of days spent by a BA. Columns (5) and (6) of Appendices C and D show the results of Seemingly Unrelated Regression Equations, respectively for *InvestmentActivities* and *GroupManagementActivities*. The possible drawback of this method is to treat ordinal variables as continuous ones, but it allows to assume that the error terms could be correlated across both equations, which could make sense given that a BA participates both in time-consuming activities: *InvestmentActivities* and *GroupManagementActivities*. The correlations between the explanatory variables are shown in Appendix B. Certainly, some of these variables show highly significant pairwise correlations:

retirement status is negatively correlated with CLUB (as discussed before) and positively with Age (which makes sense), as well as 5 pairs of variables involving professional experience. Therefore, the proportion of highly significant pairwise correlations between explanatory variables is low and we can be relatively confident in the results obtained, which was confirmed by Variance Inflation Factor analyses. As the results of Table 5 rely on a rather low number of observations (57), compared to a relatively high number of model degrees of freedom (25), the number of residual degrees of freedom is poorly satisfying (only $57 - 25 - 1 = 31$). Therefore, we provide separate robustness tests on the two blocks of hypotheses: the impact of BAs' individual human capital and cognition (H1 to H4) is analyzed in Appendix C (43 residual degrees of freedom), while the impact of BAs' characteristics as members of the BA group (H5 to H7) is analyzed in Appendix D (46 residual degrees of freedom).

4.4. Results

The empirical analysis tests the significance of the previously selected determinants of BAs involvement in BAG activities. Results on the hypotheses H1 to H7 are reported in Table 5. The tables in Appendices C and D focus, respectively, on the impact of BAs' individual characteristics (H1 – H4) and of BAs' characteristics as members of a BA group (H5-H7). We consider that a result is robust only if it is significant in the Table 5 as well as in the appendices C and D.

Regarding retirement status, the results show a positive effect on the time spent and on investment activities (significant at a 1 and 5% confidence level), confirming our first hypothesis. The professional retirement status of angels appears to be a strong determinant of their involvement both in terms of overall time spent in group activities and commitment in (time consuming) investment-related activities. Previous research shows that, even when they employ permanent staff, angel groups dispose of scarce qualified human resources and often dedicate to members specific tasks related to the management of the group and to the investment cycle (e.g. Sudek et al., 2008; Kerr et al., 2014; Carpentier and Suret, 2015). Our results suggest that professionally retired angels, because they are less time constrained than active angels, might dedicate more time to their group.

Regarding BAs' managerial (as CEO) and entrepreneurial experience, we observe no robust significant results for involvement in investment or group management activities, contrary to our expectations, leaving H2a and H2b unsupported. Surprisingly, BAs with entrepreneurial experience are not more involved in investment activities. Previous research suggests that BAs with an entrepreneurial background mention their contributions to the ventures they support, such as providing advice, access to their business networks or fostering precommitments from potential partners (Frese et al., 2019). An explication of our finding could be that they prefer to act individually in this respect, rather than collectively within their angel group, because of their more independent profile of former entrepreneurs (Bonini et al., 2018). This might be investigated in future research.

Specific human capital developed through investment experience as a BA emerges as a possible driver of involvement in investment-related activities. The variable investment experience as a BA (Years since first investment) shows a positive strong effect on the investment activities (significant at least at a 5% confidence level). The evidence is consistent with H3. Cumulative amount invested by angels along time has no statistically significant effect on involvement. Consistent with prior studies (Butticè et al., 2021; Collewaert and Manigart, 2016; Croce et al., 2018, 2020), our result suggests that BAs who have a long investment experience in terms of years have developed a set of skills useful to be actively involved at different stages of the investment process.

Hypothesis 4a argues that a predictive decision-making style positively affects BAs' involvement in group management activities. Hypothesis 4b expects that a control-oriented decision-making style positively affects BAs' involvement in investment-related activities. Investor involvement in investee companies is related to control orientation in the early and later stages of a venture: they provide access to a network of contacts and encourage active experimentation (Frese et al., 2019), and they have the capacity to actively influence the course of events, even though the latter may not be anticipated (Wirtz et al., 2020). We find that BAs who emphasize control orientation demonstrate a tendency to become actively involved in their angel group and to contribute to several key activities related to the production process required to provide and monitor investment opportunities to all the group members, in support of H4b (significant at a 5% confidence level). An emphasis on predictive orientation is negatively related to investment activities, leaving H4a unsupported.

Contrary to our expectations, a strong financial commitment in the BAG (share of personal investments done within the BAG) is not significantly associated with a stronger involvement in the angel group activities leaving H5 unsupported.

Regarding the influence of BAs' motivations to join a group on their involvement in angel group activities, our hypotheses receive mixed support. We observe no significant effect of "to learn from more experienced angels" and "to have access to more good quality investment" (H6a and H6c unsupported). By contrast, "to enlarge my personal contacts network" positively influences a high involvement both in terms of total time spent and in-group management activities, in line with H6b. We observe no significant effect of the latter reason for joining a BAG on the involvement in investment activities. Indeed, these BAs might be primarily motivated by being engaged in activities involving internal and external social contacts, such as participating in training sessions, maintaining and developing relationships with external stakeholders or joining the board of directors or the BAG. Confirming hypothesis (H6d), we find that angels who joined their BAG with the motivation to "contribute to the local economic development" are less involved in investment-related activities than other members. Several studies show that BAs might invest for non-financial motivations such as challenge and "fun" (to stay involved in business by helping entrepreneurs create and develop their ventures) and/or "social" motivations (helping to create jobs and boost the local economy) (Aernoudt, 1999; Van Osnabrugge, 2000). Our results suggest that the primary interest of BAs with a "social" motivation might not be to actively participate in the activities related to the investment cycle, which are technical and require a specific expertise, when they are members of a BAG.

Finally, contrary to our expectations, we do not find that BAs' level of satisfaction with the services provided by their BAG influences their involvement in BAG activities. The results broadly reject H7.

5. Conclusive remarks and suggestions for future research

One major contribution of this research is to show that BAs' decision-making style (especially control-orientation) and certain human capital features (especially investment-specific HC, i.e. experienced angels), as well as angels' initial motivation when joining the BAG, significantly influence the extent and mode of their individual involvement in angel group activities. This extends to a multi-BAG setting from two different countries – though pretty similar from both a cultural and institutional perspective - certain exploratory findings initially reported by [Wirtz et al. \(2020\)](#) for a single domestic angel group. Specifically, BAs with a strong control orientation are more willing to become involved in investment-related activities. Prediction-oriented BAs, on the contrary, seem to find it hard to develop a similar commitment to BAG activities, most of all in the case of investment-related activities.

Certain human capital features emerge as another possible driver of individual BA involvement in group investment activities. Specifically, human capital developed by experienced angels through investment experience appears as a significant and robust driver of active BA involvement in investment-related activities. This is because investment-experience increases the specific knowledge required to handle the various steps of the investment cycle and also creates legitimacy inside the BAG to handle such tasks. Therefore, experienced angels have more incentives than virgin angels to increase their engagement in the angel group investment-related activities.

Retirement status also appears to be a strong driver of individual BA involvement, due to the availability of time and, possibly, an intrinsic motivation to remain active and provide suggestions and impacting contributions to their younger and more time constrained BAG members.

Appendix A. Appendix 1

Following [Wiltbank et al. \(2009\)](#) and [Bonnet et al. \(2013\)](#), we developed a measure for the intensity of control-orientation and prediction of angel investors by processing the scores, given by the responding angels to a set of six related items making reference to a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

The followings are the questionnaire items used to measure control-oriented investment style.

- Item 1. When assessing the venture's strategy, you think about the way you can contribute to it
- Item 2. You base your decision to invest in the project on the value added that you are able to deliver through your accompaniment of the company.

The followings are the questionnaire items used to derive predictive-oriented investment style.

- Item 3. When you gather information on the project, you study expert forecasts
- Item 4. When you look at the forecasts for the project, you use them to establish the net present value of the company (discounted cash flows)
- Item 5. When you evaluate the venture's strategy, you study the strategy of competitors
- Item 6. You base your decision to invest on the internal rate of return (IRR) of the project.

Appendix B. Overall determinants of BAs involvement in BAG

	Time spent	Investment activities	Group management activities	Time spent	Investment activities	Group management activities
	(1)	(2)	(3)	(4)	(5)	(6)
BAs' individual characteristics						
Retirement Status	1.97*** (0.001)	1.13** (0.030)	0.78 (0.140)	1.12*** (0.009)	0.89** (0.021)	0.44 (0.165)
Professional Experience						
Entrepreneur	-0.03 (0.955)	-0.99* (0.060)	-0.18 (0.787)	0.01 (0.983)	-0.66* (0.094)	-0.23 (0.478)
CEO	0.17 (0.744)	0.94** (0.037)	1.09* (0.070)	0.03 (0.955)	0.71** (0.040)	0.35 (0.224)
Investment Experience						
Years since first investment	0.04 (0.465)	0.20*** (0.001)	0.07 (0.350)	-0.01 (0.906)	0.14*** (0.001)	0.06* (0.088)
Cumulative amount invested	0.43** (0.012)	0.12 (0.532)	0.47** (0.015)	0.20 (0.162)	0.10 (0.439)	0.24** (0.022)
Decision Making						
Control-oriented Style	1.59 (0.227)	2.11** (0.015)	-0.91 (0.451)	1.28 (0.261)	1.59* (0.060)	0.18 (0.803)
Prediction-oriented Style	1.12 (0.667)	-4.76* (0.058)	2.82 (0.165)	0.35 (0.881)	-3.68** (0.030)	1.29 (0.361)

(continued on next page)

(continued)

	Time spent	Investment activities	Group management activities	Time spent	Investment activities	Group management activities
	(1)	(2)	(3)	(4)	(5)	(6)
BAs' characteristics as members of a BA group						
Financial Commitment to the BAG	0.71 (0.426)	1.44* (0.088)	1.80** (0.042)	0.62 (0.371)	1.05* (0.094)	0.75 (0.150)
Reasons to join a BAG						
Investment opportunities	0.27 (0.231)	-0.10 (-0.360)	-0.63*** (-2.594)	0.15 (0.739)	-0.07 (-0.392)	-0.25* (-1.735)
Personal contacts	0.50** (0.037)	0.27 (1.024)	1.22*** (3.705)	0.27 (1.491)	0.25 (1.522)	0.54*** (3.925)
Local development	-0.16 (0.366)	-0.90*** (-3.308)	0.10 (0.545)	-0.06 (-0.447)	-0.68*** (-4.051)	-0.05 (-0.351)
Benefit from experience of other members	-0.20 (0.414)	0.09 (0.392)	-0.49** (-2.145)	-0.15 (-0.697)	0.09 (0.448)	-0.23 (-1.425)
Satisfaction with BAG services	0.02 (0.944)	0.42 (0.328)	0.67 (0.163)	0.07 (0.837)	0.32 (0.247)	0.12 (0.584)
Observations	57	57	57	57	57	57
R ² (or pseudo-)	0.274	0.307	0.322	0.517	0.626	0.555
P-value	2.17e-09	8.43e-11	1.70e-06	0.0007	3.79e-10	2.65e-06
Model degrees of freedom	25	25	25	25	25	25

This table presents results of ordered probit regressions in columns (1), (2) and (3), OLS in column (4) and SURE in columns (5) and (6). The dependent variable is an ordinal variable indicating how many days per year a BA dedicates to BAG activities in columns (1) and (4), or the number of investment/group management activities (up to 4) in columns (2), (3), (5) and (6). *Retirement Status* is a dummy variable equal to one if the BA is retired. *Professional Experience* variables are dummies equal to one if the BA has a least one year of experience. *Years since first investment* is a discrete variable indicating the number of years since a BA made his first investment as Business Angel. *Cumulative amount invested* is an ordinal variable indicating the cumulative investment since a BA started to invest as Business Angel. *Decision Making* variables are the means of the respectively 2 and 4 items corresponding to control and prediction. *Financial Commitment to the BAG* is the share of the number of investments made by a BA via the BAG on his total number of investments. *Reasons to join a BAG* is composed of 4 ordinal variables indicating why a BA joined a BAG. *Satisfaction with BAG services* is an ordinal variable indicating the overall satisfaction of a BA with BAG services. Each regression includes a constant term (except ordered probit regressions), a dummy variable equal to 1 if the respondent is a member of the CLUB BAG, 0 if not (SAMBAG BAG), and a set of control variables including the age of the BA, the BA level of education and other professional experiences. *, ** and *** indicate significance levels at respectively 10%, 5% and 1%, p-values are in parentheses.

The present research adds analytical precision to previous exploratory work on the subject by Wirtz et al. (2020), (1) by extending the scope of explanatory variables, specifically adding motivation to join and satisfaction with the BAG (indeed, motivation to join shows up to be a significant driver of involvement in BAG activities), (2) through the clear quantitative specification of the testable model and (3) by conducting various robustness checks using an enlarged sample from more than one BAG. It is the first rigorous econometric study of its kind in the relatively young field of BAG research, where access to high-quality quantitative data remains very challenging.

One interesting finding which is related to the two-BAG setup of the present research concerns the BAG-dummy. The latter has apparently a certain influence on angel involvement. Interestingly, the networks are very similar with regard to several key characteristics. The qualitative description and comparison show, however, that one important difference is the presence of professional salaried full-time staff. Studying the importance of BAG professionalization through hiring full-time dedicated staff could be an interesting avenue for future research. It is also of interest to practitioners, because full-time staff may help the angels to focus on investment related activities and delegate group-management activities to specifically hired professionals. The descriptive statistics also suggest that a large proportion of retired members may compensate for the absence of a large professional staff in running BAG-management activities. For practitioners running resource-constrained BAGs, attracting competent members with retirement status could be an interesting solution. This tentative finding could be tested and adequately modelised in future studies.

Obviously, our results have still to be interpreted with a great deal of caution at the present stage, due to the still limited size of our cross-country sample (2 BAGs). Furthermore, we cannot completely exclude the existence of yet unexplored organizational and environmental differences between the two BAGs investigated in this paper. Future contributions might study on a comparative basis the volume, responsibilities, workload and compensation structures of the dedicated personnel hired by angel groups all around the world.

Further, a promising avenue for future research would be to investigate whether differences between AIOs in terms of angels' cognitive resources, decision-making style and active involvement in angel group activities affect the survival and the performance of the funded ventures.

References

- Aernoudt, R., 1999. Business angels, should they fly on their own wings? *Ventur. Cap.* 1 (2), 87–195.
Aernoudt, R., 2005. Executive forum: seven ways to stimulate business angels' investments. *Ventur. Cap.* 7 (4), 359–371.

- Aernoudt, R., San José, A., Roure, J., 2007. Executive forum: public support for the business angel market in Europe: a critical review. *Ventur. Cap.* 9 (1), 71–84.
- Alsos, G.A., Clausen, T.H., 2014. The start-up processes of tourism firms - the use of causation and effectuation strategies. In: Alsos, G.A., Eide, D., Madsen, E.L. (Eds.), *Handbook of Research on Innovation in Tourism*. Edward Elgar, Cheltenham, pp. 181–202.
- Alsos, G.A., Clausen, T.H., Ulla, H., Solvoll, U., 2016. Entrepreneurs' social identity and the preference of causal and effectual behaviours in start-up processes. *Entrep. Reg. Dev.* 28 (3–4), 234–258.
- Baldock, R., Mason, C., 2015. Establishing a new UK finance escalator for innovative SMEs: the roles of enterprise capital funds and angel co-investment fund. *Ventur. Cap.* 17 (1–2), 59–86.
- Becker, G., 1994. *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, 3rd ed. The University of Chicago Press. Available at: <http://www.nber.org/books/beck94-1>.
- Bellavitis, C., Filatochev, I., Souitaris, V., 2017. The impact of investment networks on venture capital firm performance: a contingency framework. *British J. Manag.* 28 (1), 102–119.
- Bonini, S., Capizzi, V., 2019. The role of venture capital in the emerging entrepreneurial finance ecosystem: future threats and opportunities. *Ventur. Cap.* 21 (2–3), 137–175.
- Bonini, S., Capizzi, V., Valletta, M., Zocchi, P., 2018. Angel network affiliation and business angels' investment practices. *J. Corp. Finan.* 50 (6), 592–608.
- Bonini, S., Capizzi, V., Valletta, M., Zocchi, P., 2019. The performance of angel-backed companies. *J. Bank. Financ.* 100 (3), 328–345.
- Bonnet, C., Wirtz, P., 2010. Investor type and new-venture governance: cognition vs. interest alignment. Working Papers CREGO 1100704. Université de Bourgogne - CREGO EA7317 Centre de recherche en gestion des organisations.
- Bonnet, C., Wirtz, P., 2011. Investor type, cognitive governance and performance in young entrepreneurial ventures: A conceptual framework. *Adv. Behav. Financ. Econ.* 1 (1), 42–62. <https://halshs.archives-ouvertes.fr/halshs-00642737>.
- Bonnet, C., Wirtz, P., 2012. Raising capital for rapid growth in young technology ventures: when business angels and venture capitalists coinvest. *Ventur. Cap.* 14 (2–3), 91–110.
- Bonnet, C., Wirtz, P., Haon, C., 2013. Liftoff: when strong growth is predicted by angels and fuelled by professional venture funds. *Revue de l'Entrepreneuriat.* 12 (4), 59–78.
- Brüderl, J., Preisendörfer, P., Ziegler, R., 1992. Survival chances of newly founded business organizations. *Americ. Socio. Rev.* 57 (2), 227–242.
- Brush, C.G., Edelman, L.F., Manolova, T.S., 2012. Ready for funding? Entrepreneurial ventures and the pursuit of angel financing. *Ventur. Cap.* 14 (2–3), 111–129.
- Business Angels Europe (BAE), 2014. *The European Business Angels Market: An Approximation (Editor BAND)*.
- Butticé, V., Croce, A., Ughetto, E., 2021. Network dynamics in business angel group investment decisions. *J. Corp. Finan.* 66 (1) <https://doi.org/10.1016/j.jcorpfin.2020.101812>.
- Capizzi, V., 2015. The returns of business angel investments and their major determinants. *Ventur. Cap.* 17 (4), 271–298.
- Carpentier, C., Suret, J.-M., 2015. Angel group Members' decision process and rejection criteria: a longitudinal analysis. *J. Bus. Ventur.* 30 (6), 808–821.
- Chemmanur, T.J., Krishnan, K., Nandy, D.K., 2011. How does venture capital financing improve efficiency in private firms? A look beneath the surface. *Rev. Financ. Stud.* 24 (12), 4037–4090.
- Christensen, J., 2011. Should government support business angel networks? The tale of Danish business angels network. *Ventur. Cap.* 13 (4), 337–356.
- Collewaert, V., Manigart, S., 2016. Valuation of angel-backed companies: the role of investor human capital. *Small Bus. Manag.* 54 (1), 356–372. <https://doi.org/10.1111/jsbm.12150>.
- Collewaert, V., Manigart, S., Aernoudt, R., 2010. Assessment of government funding of business angel networks in Flanders. *Reg. Stud.* 44 (1), 119–130.
- Collewaert, V., 2012. Angel Investors' and Entrepreneurs' Intentions to Exit Their Ventures: A Conflict Perspective. *Enterp. Theory Pract.* 36 (4), 753–779.
- Collewaert, V., Filatochev, I., Khoury, T., 2018. The view of angels from above: Angel governance and institutional environments. *Acad. Manag. Perspect.* 2018 <https://doi.org/10.5465/amp.2017.0191>. Published online: 16 Nov 2018. Available at: <https://doi.org/10.5465/amp.2017.0191>.
- Croce, A., Tenca, F., Ughetto, E., 2017. How business angel groups work: rejection in investment evaluation. *Int. Small Bus. J.* 35 (4), 405–426. Available at: DOI: <https://doi.org/10.1177/0266242615622675>.
- Croce, A., Guerini, M., Ughetto, E., 2018. Angel financing and the performance of high-tech start-ups. *Small Bus. Manag.* 56 (2), 208–228.
- Croce, A., Grilli, L., Murtinu, S., 2019. Why do entrepreneurs refuse venture capital? *Ind. Innov.* 26 (6), 619–642.
- Croce, A., Ughetto, E., Cowling, M., 2020. Investment motivations and UK business angels' appetite for risk taking: the moderating role of experience. *Br. J. Manag.* 31 (4), 728–751.
- Cumming, D., 2006. The determinants of venture capital portfolio size: empirical evidence. *J. Bus.* 79 (3), 1083–1126.
- Cumming, D., Zhang, M., 2018. Angel investors around the world. *J. Int. Bus. Stud.* 50 (5), 692–719.
- Davidsson, P., Honing, B., 2003. The role of social and human capital among nascent entrepreneurs. *J. Bus. Ventur.* 18 (3), 301–331.
- Deakins, D., Sullivan, R., Whittam, G., 2000. Developing business start-up support programs: evidence from Scotland. *Local Econ.* 15 (2), 159–167. Available at: <https://doi.org/10.1080/02690940050122703>.
- Dimov, P., Shepherd, D.A., 2005. Human capital theory and venture capital firms: exploring "home runs" and "strike outs". *J. Bus. Ventur.* 20 (1), 1–21.
- Edelman, L.F., Manolova, T.S., Brush, C.G., 2017. Angel Investing: A Literature Review. *Foundations and Trends® in Entrepreneurship* 13 (4–5), 265–439.
- European Commission, 2011. Green paper: the EU corporate governance framework. COM 2011, 189.
- European Union, 2007. Directive 2007/36/EC of the European Parliament and of the Council of 11 July 2007 on the exercise of certain rights of shareholders in listed companies. OJ L 184. 14.7.2007, pp. 17–24.
- European Union, 2017. Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law. OJ L 169. 30.6.2017, pp. 46–127.
- Farrel, E., 1998. Informal venture capital investment in Atlantic Canada: a representative view of angels. Report submitted to Atlantic Canada Opportunities Agency (February 1998).
- Fiet, J.O., 1995. Reliance upon informants in the venture capital industry. *J. Bus. Ventur.* 10 (3), 195–223.
- Freear, J., Sohl, J.E., Wetzel, W., 2002. Angles on angels: financing technology-based ventures – a historical perspective. *Ventur. Cap.* 4 (4), 275–287.
- Frese, T., Geiger, I., Dost, F., 2019. An empirical investigation of determinants of effectual and causal decision logics in online and high-tech start-up firms. *Small Bus. Econ.* 1–24. Available at: <https://doi.org/10.1007/s11187-019-00147-8>.
- Gompers, P., Kovner, A., Lerner, L., Scharfstein, D., 2008. Venture capital investment cycles: the impact of public markets. *J. Financ. Econ.* 87 (1), 1–23.
- Gregson, G., Mann, S., Harrison, R., 2013. Business angel syndication and the evolution of risk capital in a small market economy: evidence from Scotland. *Manag. Decis. Econ.* 34 (2), 95–107.
- Hall, B.H., Lerner, J., 2010. The Financing of R&D and Innovation. Working paper, 15325. <https://doi.org/10.3386/w15325>.
- Hamori, M., Koyuncu, B., 2015. Experience Matters? The Impact of Prior CEO Experience on Firm Performance. *Human Resource Management* 54 (1), 23–44.
- Harrison, R., Mason, C., 1992. The roles of investors in entrepreneurial companies: a comparison of informal investors and venture capitalists. In: Churchill, N.C., Birley, S., Bygrave, W.D., Muzyka, D.F., Wahlbin, C., Wetzel Jr., W.E. (Eds.), *Frontiers of Entrepreneurship Research 1992*. Babson/Babson, ParkCollege, pp. 388–404.
- Harrison, R., Mason, C., 2019. Venture Capital 20 years on: reflections on the evolution of a field. *Ventur. Cap.* 21 (1), 1–34. <https://doi.org/10.1080/13691066.2019.1562627>.
- Hellmann, T., Puri, M., 2002. Venture capital and the professionalization of start-up firms: empirical evidence. *J. Financ.* 57 (1), 169–197.
- Hüffmeier, J., Filusch, M., Mazei, J., Hertel, G., Mojzisch, A., Krumm, S., 2017. On the Boundary Conditions of Effort Losses and Effort Gains in Action Teams. *Journal of Applied Psychology* 102 (12), 1673–1685.
- Kaplan, S., Stromberg, P., 2003. Financial contracting theory meets the real world: evidence from venture capital contracts. *Rev. Econ. Stud.* 70 (2), 281–315.
- Karau, S., Williams, K., 1993. Social loafing: a meta-analytic review and theoretical integration. *J. Pers. Soc. Psychol.* 65 (4), 681–706.
- Kelly, P., Hay, M., 2003. Business angels contracts: the influence of context. *Ventur. Cap.* 5 (4), 287–312.

- Kerr, W.R., Lerner, J., Schoar, A., 2014. The consequences of entrepreneurial finance: a regression discontinuity analysis. *Rev. Financ. Stud.* 27 (1), 20–55.
- Kraaijenbrink, J., Ratinho, T., Groen, A., 2012. Planning the unknown: the simultaneity of predictive and non-predictive entrepreneurial strategies. In: Paper Presented at Babson College Entrepreneurship Research Conference. Fort Worth, TX, June 6–9, 2012.
- Kraemer-Eis, H., Botsari, A., Prencepe, D., 2016. The European Venture Capital Landscape: An EIF Perspective. EIF Research & Market Analysis. Volume I: The Impact of EIF on the VC Ecosystem. 2016/34, 1–64.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1997. Legal determinants of external finance. *J. Financ.* 52 (3), 1131–1150.
- Lahti, T., 2011. Categorization of angel investments: an explorative analysis of risk reduction strategies in Finland. *Ventur. Cap.* 13 (1), 49–74.
- Lahti, T., Keinonen, H., 2016. Business angel networks: A review and assessment of their value of entrepreneurship. In: Landström, H., Mason, C. (Eds.), *Handbook of Research on Business Angels*. Edward Elgar Publishing Cheltenham, UK, pp. 354–380.
- Landström, H., 1993. Informal risk capital in Sweden and some international comparisons. *J. Bus. Ventur.* 8, 525–540.
- Landström, H., Mason, C., 2016. Business angels as a research field. In: Landström, H., Mason, C. (Eds.), *Handbook of Research on Business Angels*. Edward Elgar Publishing, Cheltenham, UK, pp. 1–24. <https://doi.org/10.4337/9781783471720.00005>.
- Lerner, J., Schoar, A., Sokolinski, S., Wilson, K., 2018. The globalization of Angel Investments: evidence across countries. *J. Financ. Econ.* 127 (1), 1–20.
- Macht, S., 2011. Inexpert business angels: how even investors with ‘nothing to add’ can add value. *Rev. Financ. Econ.* 20 (7–8), 269–278.
- Mason, C., 2006. Informal sources of venture finance. In: Parker, S. (Ed.), *The Life Cycle of Entrepreneurial Ventures*. Springer, Berlin, pp. 259–299.
- Mason, C., 2009. Public policy support for the informal venture capital market in Europe: a critical review. *Int. Small Bus. J.* 27 (5), 536–556.
- Mason, C., Harrison, R., 1999. Public policy and the development of the informal venture capital market: UK experience and lessons for Europe. In: Cowling, K. (Ed.), *Industrial Policy in Europe*. Routledge, London.
- Mason, C., Harrison, R., 2000. The size of the informal capital market in the United Kingdom. *Small Bus. Econ.* 15 (2), 137–148.
- Mason, C., Harrison, R., 2002. Barriers to investment in the informal venture capital sector. *Enterp. Reg. Dev.* 14 (2), 271–287.
- Mason, C., Botelho, T., 2014. The 2014 Survey of Business Angel Investing in the UK: A Changing Market Place. Scotland: Adam Smith Business School, University of Glasgow.
- Mason, C., Botelho, T., 2017. Comparing the Initial Screening of Investment Opportunities by Business Angel Group Gatekeepers and Individual Angels (March 27, 2017). 2017 Emerging Trends in Entrepreneurial Finance Conference. <https://ssrn.com/abstract=2941852orhttp://dx.doi.org/10.2139/ssrn.2941852>.
- Mason, C., Botelho, T., Harrison, R., 2013. The Transformation of the Business Angel Market: Evidence from Scotland. Available at: <https://doi.org/10.2139/ssrn.2306653>.
- Mason, C., Botelho, T., Harrison, R., 2016. The transformation of the business angel market: empirical evidence and research implications. *Ventur. Cap.* 18 (4), 321–344.
- Mason, C., Harrison, R., 2015. Business Angel Investment Activity in the Financial Crisis: UK Evidence and Policy Implications. *Environ. Plan. C.* 33 (1), 43–60. <https://doi.org/10.1068/c12324b>.
- Maula, M., Autio, E., Murray, G., 2005. they know, who do they know and should entrepreneurs care? *Ventur. Cap.* 7 (1), 3–21.
- Mittens, C.R., Baucus, M.S., Sudek, R., 2012. Horse vs. jockey? How stage of funding process and industry experience affect the evaluations of angel investors. *Ventur. Cap.* 14 (4), 241–267.
- Morrisette, S., 2007. A profile of angel Investors. *J. Priv. Equity.* 10 (3), 52–66.
- Nanda, R., Rhodes-Kropf, M., 2013. Investment cycles and startup innovation. *J. Financ. Econ.* 110 (2), 403–418.
- Natusch, I., 2003. Mezzanine Method of Financing. Round Table Talks, IKB – Deutsche Industriebank, October. Available at: http://www.brsi.de/pdfs/Mezzanine_Finanzierungsformen_engl.pdf.
- OECD, 2011. *Financing High Growth Firms: The Role of Angel Investors*. OECD Publishing, Paris.
- OECD, 2017. *Business and Finance Outlook*. OECD Publishing. Available at: <http://www.oecd.org>.
- OECD, 2019. *Corporate Governance. Factbook 2019*.
- Paul, S., Whittam, G., 2010. Business angels syndicates: an exploratory study of gatekeepers. *Ventur. Cap.* 12 (3), 241–256.
- Paul, S., Whittam, G., Wyper, J., 2007. Towards a model of the business angel investment process. *Ventur. Cap.* 9 (2), 107–119.
- Politis, D., 2008. Business angels and value added: what do we know and where do we go? *Ventur. Cap.* 10 (2), 127–147.
- Politis, D., Landström, H., 2002. Informal investors as entrepreneurs – the development of an entrepreneurial career. *Ventur. Cap.* 4 (2), 78–101.
- Riding, A., Madill, J., Haines, G., 2007. Incrementality of SME loan guarantees. *Small Bus. Econ.* 29 (1–2), 47–61.
- San Jose, A., Roure, J., Aernoudt, R., 2005. Business angels academies: unleashing the potential for business angel investment. *Ventur. Cap.* 7 (2), 149–165.
- Sarasvathy, S.D., 2001. Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Ac. Manag. Rev.* 26 (2), 243–263.
- Sarasvathy, S.D., Dew, N., 2005. New market creation through transformation. *J. Evol. Econ.* 15 (5), 533–565.
- Scheela, W., Isidro, E., 2009. Business angel investing in an emerging Asian economy. *J. Priv. Equity* 12 (4), 44–56. Available at: <https://doi.org/10.3905/JPE.2009.12.4.044>.
- Shane, S., 2000. Prior knowledge and the discovery of entrepreneurial opportunities. *Organ. Sci.* 11, 448–469. <https://doi.org/10.1287/orsc.11.4.448.14602>.
- Shane, S., 2009. *Fool’s Gold? The Truth behind Angel Investing in America*. Oxford University Press, New York.
- Smolka, K., Verheul, I., Burmeister-Lamp, K., Pursey, P.M., Heugens, A.R., 2018. Get it together! Synergistic effects of causal and effectual decision-making logics on venture performance. *Enterp. Theory Pract.* 42 (4), 571–604.
- Sohl, J., 2007. The Organization of the Informal Venture Capital Market. In: Landström, H. (Ed.), *Handbook of Research on Venture Capital*. Edward Elgar, Cheltenham.
- Sørheim, R., Landström, H., 2001. Informal investors - A categorization, with policy implications. *Entrepreneurship & Regional Development: An Int. J.* 13 (4), 351–370.
- Sudek, R., Mittens, C., Baucus, M., 2008. Betting on the Horse or the Jockey: The Impact of Expertise on Angel Investing (In Academy of management best paper proceedings).
- Van Osnabrugge, M., 2000. A comparison of business angel and venture capitalist investment procedures: an agency-theory based analysis. *Ventur. Cap.* 2 (2), 91–109.
- Wallmeroth, J., Wirtz, P., Groh, A.P., 2018. Venture capital, angel financing, and crowdfunding of entrepreneurial ventures: a literature review. *Found. Trend. Enterp.* 14 (1), 1–129.
- Walske, J.M., Zacharakis, A., 2009. Genetically engineered: why some venture capital firms are more successful than others. *Enterp. Theory Pract.* 33 (1), 297–318. <https://doi.org/10.1111/j.1540-6520.2008.00290.x>. Available at SSRN: <https://ssrn.com/abstract=1321564>.
- Wetzel, W.E., 1983. Angels and Informal Risk Capital. *Sloan Manag. Rev.* 24 (4), 23–34.
- Wilson, K.E., Duruffè, G., Hellmann, T., 2018. From start-up to scale-up. Examining public policies for the financing of high-growth ventures. In: Mayer, C., Micossi, S., Onado, M., Pagano, M., Polo, A. (Eds.), *Finance and Investment: The European Case*. Oxford University Press, Oxford, UK, pp. 179–220.
- Wiltbank, R., 2005. Investment practices and outcomes of informal venture investors. *Ventur. Cap.* 7 (4), 343–357.
- Wiltbank, R., Dew, N., Read, S., Sarasvathy, S.D., 2006. What to do next? The case for non-predictive strategy. *Strat. Mgmt J.* 27 (6), 981–998.
- Wiltbank, R., Read, S., Dew, N., Sarasvathy, S., 2009. Prediction and control under uncertainty: outcomes in angel investing. *J. Bus. Ventur.* 24 (2), 116–133.
- Wirtz, P., Bonnet, C., Cohen, L., Haon, C., 2020. Investing human capital: business angel cognition and active involvement in business angel groups. *Rev. de l’Entrepreneuriat* 19 (1), 43–60.
- Wong, A., Bhatia, M., Freeman, Z., 2009. Angel finance: the other venture capital. *Strateg. Chang.* 18 (78), 221–230.
- Zacharakis, A., Meyer, G.D., 2000. The potential of actuarial decision models: can they improve the venture capital investment decision? *J. Bus. Ventur.* 15 (4), 323–346.
- Zu Knyphausen-Aufsess, D., Westphal, R., 2008. Do business angel networks deliver value to business angels? *Ventur. Cap.* 10 (2), 149–169.