

Please cite this article as:

Croce A., Cowling M., Ughetto E. (2020) "Investment motivations and UK business angels' appetite for risk taking: the moderating role of experience", *British Journal of Management*, Volume31, Issue4, October 2020, Pages 728-751.

<https://doi.org/10.1111/1467-8551.12380>

Investment motivations and UK business angels' appetite for risk taking: the moderating role of experience

Annalisa Croce*, Elisa Ughetto**, Marc Cowling***

*Politecnico di Milano, DIG
email: annalisa.croce@polimi.it

**Politecnico di Torino, Department of Management and Production Engineering, 10129 Torino, Italy
Bureau of Research on Innovation, Complexity and Knowledge (BRICK), Collegio Carlo Alberto, 10024
Moncalieri, Italy.
email: elisa.ughetto@polito.it

*University of Derby, College of Business, Law, and Social Sciences
email: m.cowling@derby.ac.uk

Annalisa Croce (Ph.D) is an Associate Professor at Politecnico di Milano, Department of Management, Economics and Industrial Engineering. She has been visiting scholar at the Boston College in USA. She has worked on several research projects funded by the European Union on the financing of high-tech start-ups in Europe. Her work mainly focuses in corporate finance and economics of innovation. She has published in several journals such as Journal of Business Venturing, Research Policy, Entrepreneurship Theory and Practice, Journal of Corporate Finance, Journal of Small Business Management, Review of Finance, European Financial Management and Small Business Economics among others.

Elisa Ughetto (Ph.D) is an Associate Professor at Politecnico di Torino, where she teaches Accounting and Corporate Finance and Entrepreneurial Finance at undergraduate level. She is Associate Editor of Journal of Small Business Management. She has been visiting scholar at the European Investment Fund and at the Washington University in St. Louis. She has worked on several research projects funded by the European Union and the European Investment Bank. Her current research interests are in the area of economics of innovation, finance and management of IPRs. She has contributed articles to international refereed journals, such as Research Policy, Cambridge Journal of Economics, Journal of Corporate Finance, Journal of Banking and Finance, Industrial and Corporate Change, International Journal of Production Economics, Social Science and Medicine, Small Business Economics, International Small Business Journal, Journal of Small Business Management, Journal of Business Research, Regional Studies, International Business Review, The Manchester School, Technological Forecasting & Social Change, R&D Management, International Entrepreneurship and Management Journal.

Marc Cowling (PhD) is Director of Research and Professor at Brighton University Business School. Marc's interests focus on identifying issues around the capitalisation of firms and how firms and financiers interact with one another. Two particular areas of interest are credit rationing and the nature of debt contracts and provision, and the role of venture capital and informal equity in supporting innovation. Currently, he is investigating the consequences of banks market power in the context of small business lending and the dynamics of credit supply over the recessionary cycle, and how informal investors make their portfolio investment decision in the context of crowd funding and P2P. Over the last 25 years, Marc has worked with the World Bank, Swedish Growth Agency, Inter-American Development Bank, Danish Growth Fund, European Union and UK government on issues relating to the design, functioning, and evaluation of financial instruments to correct for gaps in the provision of capital to entrepreneurial businesses.

Investment motivations and UK business angels' appetite for risk taking: the moderating role of experience

Annalisa Croce*, Elisa Ughetto**, Marc Cowling***

*Politecnico di Milano, DIG
email: annalisa.croce@polimi.it

**Politecnico di Torino, Department of Management and Production Engineering, 10129 Torino, Italy
Bureau of Research on Innovation, Complexity and Knowledge (BRICK), Collegio Carlo Alberto, 10024
Moncalieri, Italy.
email: elisa.ughetto@polito.it

*University of Derby, College of Business, Law, and Social Sciences
email: m.cowling@derby.ac.uk

Keywords: risk attitude, business angels, governmental investment schemes, investment motivations

Abstract [In this paper we use a large UK survey of business angels (BAs) investing in two different publicly supported schemes to directly question the role that investment motivations play in shaping investors' appetite for risk. We dive deeper into the relationship between investment reasons and risk taking, by exploring the potential for a moderating effect derived from BAs' past experience (i.e financial and entrepreneurial experience). Our analysis reveals that both investment reasons (for return and for passion) have substantial explanatory power in shaping angels' risk attitude, but their effect is moderated by the investors' prior experiences. This key finding represents important empirical support to what has so far been anecdotal evidence concerning BAs' appetite for risk when investing.]

1. Introduction

How investors and managers deal with risk has been at the heart of a substantial body of research in finance and management for many years (Palmer and Wiseman, 1999; Van de Venter et al., 2012). The concept of risk implies polysemic meanings, depending on the specific context to which it applies (Janney and Dess, 2016). In standard financial theory, risk is seen as variance in outcomes. However, in typical managerial decision-making contexts, other dimensions of risk are likely to emerge beyond simply the variability of returns. Research has shown that most managers and investors interpret risk as the likelihood of venture failure or loss of the invested capital (March and Shapira, 1987). The multiple

meanings associated with the concept of risk have found their ground in distinct theoretical frameworks (Palmer and Wiseman, 1999), ranging from expected utility theory (Starmer, 2000) to more behaviorally driven approaches, such as prospect theory (Kahneman and Tversky, 1979).

A large amount of research in economics, finance and management has been devoted to the assessment of individuals' attitude towards risk (i.e. managers, households, investors), by means of self-reported answers to survey questions, choice experiments, or experiments using risk involving tasks (Metzger and Fehr, 2018). Overall, there appears to be significant agreement among scholars that risk attitude is a subjective attribute with a strong genetic predisposition (Cesarini et al., 2009), which is largely associated with a range of demographic, socio-economic and psychological factors (Van de Venter et al., 2012).

In this paper we add to the knowledge about the general concept of risk appetite, by studying the attitude toward risk of a specific type of equity investors-business angels (henceforth BAs)-who play a key role in the provision of equity capital to financially constrained small firms. An exploration of how willing BAs are to take on risk by investing their personal wealth in what is widely accepted as a very uncertain segment of the capital market and what drives their approach to risk is a worthy endeavor in the context of entrepreneurial finance and management research.

BAs differ substantially in their motivations for investing, in their approaches to investment and portfolio management, as well as in their post-investment involvement (Drover et al., 2017; Wallmeroth et al., 2018). Despite the ever expanding body of work around BAs and the underlying dynamics of their investments (see Tenca et al., 2018 for a recent review), very few studies have explicitly addressed the issue of angels' heterogeneity (Freear et al., 1994; Sorheim and Landström, 2001). In particular, we are not aware of any research that has recognized the inherent differences across angels in their appetite, or willingness, to assume risk. Fiet (1995) compared risk avoidance strategies employed by BAs and venture capital (VC) firm investors, by explicitly asking them about their views on the dangers of market and agency risk. In his study, however, angels are clustered together as if they were a homogeneous category. In other works, BAs' attitude to risk has been mostly implied from observed investments (Lahti, 2011)

or investment/exit strategies and decision making, using protocol analysis techniques and interviews (Harrison et al., 2016; Maxwell et al., 2011; Söderblom et al., 2016). Other studies have measured risk on a broader level, using elements of Hofstede's cultural dimensions indices (Ding et al., 2015) or from a comparative institutions perspective (De Clercq et al., 2012). Thus, despite the central role that angels' risk profile plays in their investment decisions, empirical research has so far fallen short of establishing a coherent research base on the issue.

In this study, we build on, and integrate, these disparate strands of literature to directly address the question of angels' 'appetite for risk when investing'. We adhere to a conceptualization of risk that incorporates the likelihood of capital losses and business failure. Using a large UK survey of BAs investing in two different publicly supported schemes (i.e. the Enterprise Investment Scheme (EIS) and the Venture Capital Trusts (VCTs)), we build upon the current evidence base around BAs' investment process (Croce et al., 2017; Ding et al., 2015; Harrison et al., 2010; Mason and Harrison, 1996; Mitteness et al., 2012), by looking at the relationship between risk attitudes and investment reasons and testing for any role exerted by past experience (i.e. entrepreneurial and financial) in moderating these relationships.

We aim to contribute to the literature in three ways. First, this study extends our knowledge of angels' willingness to 'play the investment game' (Collewaert and Manigart, 2016) in new directions, by casting new light on the factors affecting BAs' appetite for risk. While conventional wisdom has long asserted that BAs are risk takers, limited empirical evidence has so far supported this notion. We argue that BAs are not a homogeneous group with regard to their risk attitudes, and that their willingness to take risks will vary across key dimensions, including personal demographics and their pool of experience in entrepreneurship *per se*, investment, and finance. Second, the paper adds to our understanding of the relationship between the reasons why BAs invest and how this shapes their appetite for risk. To our knowledge, ours is the first empirical study to specifically examine the role that investment motivations play in shaping investors' appetite for risk. In particular, we look at two opposing investment reasons: investing for financial return and investing for passion, referencing them against a standard portfolio

diversification risk mitigation approach. To our knowledge, we lack, somewhat surprisingly, systematic evidence about the role that both passion and return expectations play in driving BAs' appetite for risk taking. Third, we dive deeper into the relationship between investment reasons and risk taking, by exploring the potential for mediation of a BA's past experience as an entrepreneur and as a professional working in the finance field. We feel that both these forms of experience have relevance in shaping a BA's approach to investing. To date, we know little about how personal experience works in concert with BAs' motivations to invest and specifically in influencing their appetite for risk taking. Our analysis reveals that both investment reasons (for return and for passion) have substantial explanatory power in shaping angels' risk attitude, but their effect is moderated by the investors' prior experiences. This key finding represents important empirical support to what has so far been anecdotal evidence concerning BAs' appetite for risk when investing.

The remainder of this paper is organized as follows. We proceed by reviewing the literature on BAs' risk attitude (Section 2). Section 3 clarifies our research setting and proposes testable hypotheses. The dataset and the summary statistics on the main variables used in our analysis are described in Section 4. Section 5 discusses the results of our econometric analysis. In Section 6, we draw conclusions and explain the implications of our findings.

2. Background literature on BAs and risk

Past studies have highlighted that BAs constitute a heterogeneous group of investors and that this heterogeneity can have an influence on their behaviors and investment strategies (Sørheim and Landström, 2001). Differences among BAs relate to their investing experience and background (Croce et al., 2018; Sørheim and Landström, 2001), motivations (Robinson and Cottrell, 2007; Szerb et al., 2007), investment practices, and post-investment involvement in investee companies (Lathi, 2011).

Despite this growing literature, studies examining the heterogeneity among angels in their risk profile are very limited. This is quite surprising since risk taking is a fundamental dimension to explain individual differences in behavior, and is at the heart of BAs' decisions. BAs are considered to have "skin in the game" because they incur significant levels of risk by being involved in the launch and initial development of early stage, high risk ventures (Mason and Harrison, 2004; Söderblom et al., 2016), and invest their personal wealth.

BAs are generally clustered together when it comes to evaluate their risk propensity. A number of works have drawn a comparison with VC investors in terms of risk avoidance strategies, without distinguishing the different attitudes to risk that characterize the group of angels. Fiet (1995) suggests that, while VC fund managers are more concerned with market risk (later extended to a wider construct of performance risk), BAs attach more importance to agency risk (recast as relationship risk by Fili and Grünberg, 2015 and Söderblom et al., 2016)¹. To manage such risk, BAs must above all emphasize post-investment relationships: they can intervene with value-adding activities to compensate for operational weaknesses and lack of internal competencies (Duxbury et al., 1996; Wetzel, 1983). Alternatively, they can devote more time to monitoring, by attending board meetings or requiring financial reporting. Compared to VCs, BAs have been typically associated with a more patient attitude toward their

¹ The concept of market risk refers to the likelihood that the venture is not performing according to the established plans because there are some obstacles arising from the external environment (e.g. market) or internal to the firm. Agency risk is the risk that is associated with a potential of the entrepreneur to act in a sub-optimal way, akin to ex-post moral hazard. Where entrepreneurs engage in this type of behavior, this can represent an investment return risk to investors (Fiet, 1995; Maxwell et al., 2011; Sørheim and Landström, 2001).

divestment strategies (Harrison et al., 2016), which indirectly captures the risk attitude of the investors themselves. However, their patient attitude (in terms of investment intentions, engagement and exit behavior) does not seem to be equally present across geographical areas. European BAs are found to be less patient and less risk-averse than their US peers (Brettel, 2003), with a tendency to invest lower amounts but achieve higher investment returns.

Risk attitude does not simply arise from differences in personality traits but also spans the context of decision-making situations that individuals face (Ray, 1994). The perception of risk varies as BAs accumulate more experience and wealth over time and according to their involvement in their investee ventures (Avdeitchikova et al., 2008). It results that angels' risk propensity might not be the same along the entire investment cycle. The study by Söderblom et al. (2016), based on interviews with both BAs and entrepreneurs, explores the triggers that force angels to shift their strategies over the investment cycle in order to mitigate the risks they face. In this context, Huang and Pearce (2015) argue that angels rely on intuition and heuristic-based reasoning (i.e. "gut feel"), which leads them to make investments that would otherwise be considered overly risky. Hence, it is this "intuiting process" that enables BAs to reframe investment risk into "a narrative that reshapes and reconstructs the inherent risk and uncertainty of the investment—in turn, allowing investors to substantiate their decision and take action" (Huang, 2018, page 4). The use of heuristics in investment decisions helps investors to better cope with the risk of investment opportunities. Maxwell et al. (2011) examine the risky decision-making process of BAs, observing 150 interactions between entrepreneurs and BAs in a Canadian reality TV show. They find that angels use non-compensatory decision-making heuristics (i.e. elimination-by-aspects) to trim investment proposals to a more manageable size. The same process is employed by angels when evaluating anticipated risk and return (Jeffrey et al., 2016). In the same line, Wiltbank et al. (2009) distinguish between BAs who employ a strategic approach based on prediction logic and those emphasizing non-predictive control logic. The uncertainty that surrounds angel investing may reduce the accuracy and usefulness of prediction. The use of heuristics (at the basis of the non-predictive logic) is instead

associated with a risk-reducing strategy that allows investors to better deal with uncertainties by limiting their downside failures, without capping their potential returns from successful exits.

3. Hypotheses setting

BAs may invest for different reasons, ranging from diversification potential, fiscal exemptions, maximization of return and passion. Each of these reasons may involve different approaches to risk taking. In this work, we focus on two specific investment reasons: investing for return maximization and investing for passion. We assume that investing for diversification potential and for fiscal exemptions reasons does not statistically influence a BA's risk attitude. We also do not expect that a BA's risk attitude, when investing according to these two motivations, is influenced by experience².

3.1 Investing for return reasons and BAs' risk attitude

The finance tradition typically defines risk as variance in outcomes (e.g. cash flows or profits) based on a known probability distribution of potential outcomes. In other words, risk reflects the probability that actual returns deviate from expected returns (Fisher and Hall, 1969). Traditional portfolio theory predicts that higher levels of return can compensate for correspondingly higher levels of risk (Lubatkin and Chatterjee, 1994).³ It follows that, in efficient markets, rational investors looking for high expected returns should be willing to accept high levels of risk. Standard financial theory is however neutral in terms of individual risk appetite or preference, being risk taking a pure rational choice.

² We keep fiscal exemption as a separate category, as income tax relief appears to be a key driver of investors' decisions to invest. Both VCT and EIS schemes aim to help certain types of smaller, higher-risk, unquoted companies to raise external growth capital by providing tax reliefs to investors. This may impact their willingness to take risks. However, at the same time, the survey suggests that, investment returns, passion and philanthropy are also factors driving investment decisions.

³ A rational investor will maximize his expected return given a certain degree of systematic risk (because the firm-specific, idiosyncratic risk is eliminated through portfolio diversification) or for a given expected return, he/she will choose the appropriate level of risk.

Recent theoretical developments in behavioral finance have challenged this view, emphasizing a number of stylized facts that are not in line with the predictions of the traditional approach⁴. According to this perspective, investors are not always inspired by substantial rationality, but their behavior is influenced by emotional and cognitive aspects, individual traits, motivations, and preferences (Filbeck et al., 2005). This in turn has brought individuals' risk attitude in the forefront of academic research. Experimental evidence has allowed to study the determinants of human behavior more directly (Åstebro et al., 2014), often revealing a negative, not positive, risk and return association in managerial decision-making (Andresen and Bettis, 2015). Empirical evidence of this risk-return paradox has proved that investors, in certain circumstances, may accept bets involving a higher risk even if this does not provide a "risk premium" (see Andresen and Bettis, 2015; Chari et al., 2019 for a discussion).

Little research has discussed the risk-return trade-off as a behavioral model in the literature on entrepreneurial finance, and on BAs in particular. Jeffrey et al. (2016) show that BAs do not follow the recommendation of traditional portfolio theory in a time-constrained situation. In other words, in the selection stage of investment opportunities, they evaluate risk and return separately rather than in a compensatory manner (Jeffrey et al., 2016; Maxwell et al., 2011). However, the authors warn that they are not generalizing a failure to follow portfolio theory when BAs take actions other than the evaluation of investment opportunities. Hence, they are advancing the idea that angels may behave differently according to the situation incurred.

We believe that the heterogeneity which characterizes BAs in their investment abilities and approaches is also reflected in their willingness to assume risk. We incorporate the insights of prior literature by assuming that traits of individual psychology (e.g. inclination, optimism, overconfidence etc.) are implicitly embedded in the different motivations BAs have to invest. These motivations govern their attitude toward risk, which in turn affects the observed patterns of investing.

⁴ We are grateful to two anonymous reviewers who encouraged us to pursue this dimension of reasoning.

One of the main motivations to undertake an investment is the hope of earning returns. BAs have aspirations of achieving positive returns, so that they tend to reject opportunities that fall below their aspiration level (Jeffrey et al., 2016; Mason and Harrison, 1996). While they are aware of the risk of potential losses they might incur⁵, they also know that higher returns typically require higher risk taking. The financial return motivation incorporates their return expectations and thus their risk preference. We believe that individuals that are motivated by financial gains have greater expectations that their investments will provide commensurately higher returns for them, leading them to prefer bets that yield higher risk. This is consistent with Hoffmann et al. (2015) and Merkle et al. (2014) who document a positive correlation between investors' return expectations and their risk taking behavior. We argue that BAs with a stronger preference toward investing for return reasons will, *ceteris paribus*, show a higher risk propensity. This discussion leads us to advance the following hypothesis:

H1. BAs investing for return reasons are more likely to be risk lovers

3.2 Investing for passion reasons and BAs' risk attitude

Social psychologists have regarded passion as a strong indicator of how motivated individuals are to exploit a self-defining task or an activity in which they invest time and energy (Vallerand et al., 2003). Passion has been described as a motivational construct encompassing affective, cognitive, and behavioral manifestations (Chen et al., 2009). In other conceptualizations, passion reflects intense positive feelings, and a strong identification with the activities that cause such feelings and that are important for an individual's self-identity (Cardon et al., 2009; 2013; Murnieks et al., 2014).

Building off passion-related theory, we translate the passion construct to an investor setting. Investment of personal time and money entails a "psychological ownership in the venture" (Pierce et al., 2001). Such emotional involvement, the 'love of the game', is central to our understanding of investors' behavior and, by extension, of investors' risk attitude.

⁵ It has been reported that only 7% of BAs' investments account for three-quarters of their financial returns (Shane, 2008).

Consistent with Cardon et al. (2009) and Vallerand et al. (2003), we define passion, in the context of angel investing, as love for, and identification with, the investment process as such. In other words, for a BA, passion entails intense positive feelings towards the engagement in the investment process, with which he/she identifies and that becomes an essential part of his/her self. We also adhere to a specific dimension of passion, which is characterized by process-focused motivation rather than on outcomes and goals (what Stroe et al. (2018) call “harmonious passion”). Passionate BAs invest in start-ups because they derive pleasure from a number of activities, ranging from the pure exercise of their “gut feel” in selecting investment opportunities (Huang, 2018) to the provision of advice and hands-on assistance to their investees (Wetzel, 1983). BAs display passion in those tasks and activities that are particularly germane to entrepreneurial growth: they actively accompany the entrepreneur to seek out new opportunities, come up with new business ideas, and contribute to strategic planning.

However, an angel’s passion for investing may not be equally intensive along the entire investment process. For instance, while some BAs may be passionate about their engagement in all the phases that characterize the investment process (i.e. screening, due diligence, post-investment involvement), others may be emotionally involved just in some of them.

We argue that passion is a meaningful, albeit rarely recognized, factor affecting the risk attitude of BAs. Passion is a strong motivational force to face the extreme uncertainty and unpredictability of investment decisions that early-stage investors take, where the likelihood of success, financial return, or even survival of a given venture can be very low. The intense positive feelings that BAs derive in the investment activity and in being involved in the life of a venture, albeit all the uncertainties implied, make them feel in control of the activities they are engaged in. Thus, they tend to be more flexible in their goal pursuit, open to new experimentation and more likely to face unexpected outcomes (Stroe et al., 2018). Therefore, we posit that BAs investing for passion reasons will be, *ceteris paribus*, more willing to assume risk and suggest the following hypothesis:

H2. BAs investing for passion reasons are more likely to be risk lovers

3.3 Experience and BAs' risk attitude

A large body of empirical and theoretical work in the fields of psychology and sociology suggests that experience forges individuals' attitudes and mental models, and has a bearing on the way they interpret and make sense of their reality, which in turn influences their strategic decisions and risk taking (Coté, 2011; Kish-Gephart and Campbell, 2015). In addition to theorizing about the relative importance of motivations on angels' attitude toward risk, we contend that BAs' experience will moderate these relationships. In particular, we theorize on two types of experience: financial and entrepreneurial experience.

The burgeoning literature on financial literacy has documented a strong association between higher levels of financial knowledge and quality of households' financial decisions, such as wealth accumulation, retirement planning, investment and stock market participation (see Lusardi and Mitchell, 2014 for a review). However, limited research has explored the link between risk appetite and financial knowledge (Wang, 2009). Financial knowledge results from financial education and experience (Bannier and Neubert, 2016). We argue that the possession of financial skills drawn from past experiences provides BAs with a sense of competence and control that is used to maximize their skills and proficiency in managing the investment process. Financial knowledge allows investors to be more qualified in understanding, interpreting, and evaluating information on the entrepreneurial venture. This sense of confidence imposes upon the reasons that drive an angel to invest for passion or for return and heightens his/her willingness to take risks. In other words, we argue that the value of prior financial experience is that it sets BAs on a different path in terms of accepting risk, and this supersedes BAs' investment return and passion reasons. Put differently, the attitude towards risk will be stronger for investors with previous financial experience investing for both return and passion motivations. Thus, we advance the following hypothesis:

H3. BAs with financial experience are more risk loving than those without, independently from the motivations to invest

BAs use experience-based schemas, relying much on their intuitions (i.e. “gut feel”) to assess deals (Huang and Pearce, 2015; Huang, 2018). This is particularly accentuated when they have a prior entrepreneurial experience. Investors having a first-hand entrepreneurial experience are better qualified at identifying and capturing opportunities that are inherently uncertain (Brockhaus, 1980). In fact, BAs who have started up entrepreneurial ventures themselves are guided by a predisposed stance on risk and uncertainty, which dictates the approach they take towards processing information and managing the complexity of an investment decision (Huang, 2018). Their past experience as entrepreneurs strengthens their reliance on their “gut feel” to evaluate entrepreneur characteristics (like motivation and commitment) and the venture’s likelihood of success (Huang and Pearce, 2015). Investors with an entrepreneurial background are also deemed to display a greater amount of overconfidence and over-optimism (Busenitz and Barney, 1997; Zhang and Cueto, 2017), which is further enhanced if passion lives in their spirits. In fact, they are more likely to have experienced the heights of emotions and enthusiasm associated with entrepreneurial passion (Cardon et al., 2013; Warnick et al., 2018). Passion may lead these individuals to fall into the bias of overconfidence and over-optimism trap (Busenitz and Barney, 1997), driving them to decrease their perceptions of true risk, thus increasing their general appetite for risk taking.

The intuitive decision making process that angels use, coupled with a fair degree of overconfidence, which is strengthened with entrepreneurial experience, enhances the effect that passion displays on BAs’ risk attitude. In other words, we contend that entrepreneurial experience is likely to reinforce the relationship between passion as a reason to invest and the investors’ willingness to take risk. Support for this comes from a study by Murnieks et al. (2016), who find that BAs’ entrepreneurial experience positively moderates the value provided by passion and tenacity. We argue that BAs that exhibit passion for investing, coupled with prior entrepreneurial experience, are more likely to pursue risk oriented behaviors. Thus, it is passion that guides risk taking when BAs have an entrepreneurial experience. Consistent with these arguments, we propose:

H4. BAs with entrepreneurial experience are more risk loving than those without, when they invest for passion reasons

Sample characteristics and descriptive statistics

4.1 Data

Data are derived from a survey into the use and impact of the Enterprise Investment Scheme (EIS) and Venture Capital Trusts (VCTs). The survey was addressed to investors investing personal wealth amounts into the two schemes. Random-probability telephone surveys were undertaken from 5 August to 5 September 2014 and were addressed to 546 investors, covering both EIS and VCTs schemes. The survey explored three themes. The first theme relating to “general investment activity” was designed to describe the investment attitude of the BA in his/her past and in the specific EIS and VCTs schemes (e.g. investment experience, investment duration, risk profile), as well as his/her knowledge of the changes that occurred beginning from April 2011 in the schemes. The second theme investigated the reasons for investing and the third theme related to the precise nature of the investments made (e.g. number of investments, invested amount, geography, cash value of the investment, type of involvement in the investee companies, proportions of returns reinvested in the schemes).

We perform our analysis on 356 investors for which we have no missing on the variables included in the model (out of 546 investors to which the survey has been initially addressed, 65.20%). Out of these 356 respondents, 190 participate to the EIS scheme only (as managers of EIS funds or as direct investors), 81 invest in VCTs only (as managers of VCTs or as direct investors) and 85 declare to invest in both schemes. Out of the 275 investors involved in EIS, 67.27% (185) perform direct investments in companies qualified for EIS, while only 20.36% (56) operate indirectly through an EIS fund. Some 12.36% of respondents (44) use other government sponsored equity schemes (such as Bridges, Early growth fund, Regional Venture Capital Funds, Seed Enterprise Investment Scheme, UK High-Technology funds). Moreover, apart the EIS/VCTs and the other Government equity schemes

previously cited, 294 BAs (out of 356 respondents, 82.58%) make other investments in companies. This reinforces our assumption that individuals investing in such schemes can be considered as *de facto* BAs.

4.2 Variables and summary statistics

Our main variable of interest in the empirical analysis is the risk-taking attitude of BAs. The answers to the risk attitude question are categorized in a 4-scale variable: low risk, medium-low risk, medium-high risk and high risk. Table 1 reports the BAs' risk attitude distribution. 49% of BAs fall into the medium-high risk class and 22.47% in the high risk class, suggesting a high level of average risk tolerance from investors. We define a categorical variable "*risk propensity*" taking a value of 1 for low risk BAs, a value of 2 for medium-low risk BAs, a value of 3 for medium-high risk BAs, and a value of 4 for high risk BAs.

[Insert Table 1 here]

In relation to the stated investment motivations provided by BAs, Table 2 reports the distribution of responses on this. We group these responses into four different categories: return, passion, fiscal and diversification. The majority of respondents think that the most important reason to invest is Return: we include in this category the desire "to increase his/her own personal wealth/best option for investing" (51.40%) and "to maintain own income" (8.99%). Another trait, which is usually associated with BAs, is that they invest for Passion reasons. We include in this category the following reasons: "to help grow the companies you invest in" (11.24%), "to give your life purpose" (1.97%), "to pass on your company experience" (0.84%) and "to fill in your free time" (0.28%). The Diversification category includes the response "to diversify your assets and wealth" (14.04%) as principal reason to invest. The Fiscal category includes the remaining 11.24% indicating "to offset your tax liabilities" as principal reason to invest.

[Insert Table 2 here]

In Table 3 we report our first evidence on the relationship between risk and BAs' investment motivations. The data shows that, in case of BAs investing for Return and Passion motivations, more than 70% fall in the medium-high/high risk classes, suggesting a basic positive correlation between risk

propensity and motivations related to Return or Passion. This evidence is less marked in the other motivation categories.

[Insert Table 3 here]

As to BAs' entrepreneurial experience, 48.03% (171 out of 356) have prior entrepreneurial experience. Accordingly, we define the dummy variable Entrepreneurial Experience taking value 1 for BAs with previous entrepreneurial experience, and zero otherwise. Financial experience, defined as having work experience in the financial services sector, is evident for 31.74% of BAs. Similarly, we define a dummy variable Financial Experience taking value 1 for these BAs with previous financial experience (for further details on BAs' sectoral experience please see Table A1 in the Appendix), and zero otherwise.

In order to consider how investment motivations and BAs' past financial and entrepreneurial experiences might act as direct and moderating factors in shaping BAs' risk propensity, we assume that risk appetite is also related to other variables. We firstly consider BAs' investment experience, and create an additional dummy variable indicating whether the investment experience of a BA is greater than 25 years. Secondly, we control for whether or not the BA is a serial entrepreneur (Wright et al., 1997) (out of 171 BAs with previous entrepreneurial experience, 89 are serial entrepreneurs), the BA's experience in high-tech industries (13.48% of BAs report an experience in the high-tech sector) and the actual BA's labor market status (e.g. employed, entrepreneur, retired). Furthermore, we include the characteristics of investment (i.e. EIS or VCTs) and stake retention (i.e. a dummy variable indicating whether a BA retains his/her investment stake in a company for more than 9 years). Finally, we also control for the commitment of the BA in the investment (in terms of both proportion of wealth invested and amount invested). It is interesting to observe that BAs, on average, have a significant part of their total wealth invested in companies: out of 356 BAs, 128 (35.96%) have more than 50% of wealth invested in companies. In terms of the cash amounts invested, 201 respondents invest more than £50,000 (56.46% of the sample).

A list of the variables used in the empirical analysis is reported in Table 4: we provide a definition of the variables used in the empirical analysis and the related descriptive statistics. In Table A2 we report

the correlation matrix. Fairly low correlations among the independent variables indicate that multicollinearity is not an issue.

[Insert Table 4 here]

5. Empirical results

We perform an empirical analysis in which the dependent variable is a BA's risk propensity, taking value from 1 to 4 as described in the previous Section. We first run in Table 5 an ordered probit model in which we regress the risk propensity to control variables (Model 0 in column I) and motivations (Baseline in column II). We enter control variables into the model first (i.e. including the BA's experience in Model 0), followed by the independent variables (the BA's motivations in the Baseline), and then the two-way interaction terms (column III-V) to create a full model (Cohen and Cohen, 1983).

Looking at the results in column II of Table 5, regression estimates of the impact of investment motivations on BAs' risk propensity suggest a positive effect of Passion and Return (Diversification is used as our base case), with the Return coefficient being of slightly higher magnitude than Passion. These findings support Hypotheses 1 and 2, which state that BAs investing for return or passion reasons are more likely to be risk lovers.

As to the moderator variables, results suggest that a BA's entrepreneurial experience and financial experience have a positive effect on a BA's risk propensity. This relationship is consistent in almost all the models (the only exceptions are columns IV and V, where entrepreneurial experience loses statistical significance). An appetite for risk is greater if the investor has previous entrepreneurial experience even though the actual number of companies founded does not have an effect per se. Indeed, while the variable entrepreneurial experience is significant at the 1% level in almost every model specification (with the exceptions of columns IV and V), the variable Serial Entrepreneur is consistently insignificant. As to financial experience, appetite for risk is greater if the investor has previous financial sector work experience. We thus find that experience across several domains is an important driver of risk tolerance, or willingness to assume risk. We may state that more experienced and informed BAs, having faced risk

in a variety of contexts prior to becoming angel investors, are better informed about the risks they assume when investing and enter the market with their eyes wide open.

Regarding our control variables, the results confirm that higher financial commitment in terms of percentage of wealth invested (and amount invested in Baseline, column II) the greater the appetite for risk. As expected, BAs who are more fully committed to angel investing as an activity (higher proportions of total wealth invested and larger total investments) are the most risk-loving. Being currently employed is positively related to risk appetite, but being an entrepreneur, surprisingly, has no effect. We may interpret this result considering that angels that currently have an outside income from employment are also more willing to take on risk, as the alternative income streams reduce the opportunity cost of failed investments. Conversely, being an entrepreneur, make the outside income more volatile and this does not favor a significantly greater appetite for risk. Variables such as investment experience, experience in high-tech sectors, and the length of the stakes retention do not appear to display any significant effect either. Also, BAs are indifferent in a risk sense to the scheme they invest in.

[Insert Table 5 here]

In order to test Hypotheses 3 and 4, we include the interactions terms as shown in Table 5 (in column III and IV for financial and entrepreneurial experience respectively, while in column V we include both the effects). To interpret the results, we calculate the marginal effect of investment motivations on BAs' risk taking according to their experience profile. When we consider financial experience, results suggest that motivations lose significance in explaining the attitude to risk for BAs with financial experience (column III and column V). Concerning BAs' entrepreneurial experience, estimates in column IV and column V also confirm a moderator effect: passion seems to be significantly correlated with a greater appetite for risk for BAs with entrepreneurial experience, while in the absence of entrepreneurial experience, return motivations are associated with risk-loving BAs.

Marginal effects of the interactions are reported for all models in Table 6 to explore with greater precision their exact nature⁶. Moreover, to provide a more intuitive lecture of our results, we plot the marginal effects based on estimates reported in column III and column IV of Table 5, respectively for financial and entrepreneurial experience (Figure 1-Figure 4).

[Insert Table 6 here]

Figure 1 shows that in absence of financial experience, there is a positive relationship between having a return reason for investing and risk propensity: in fact, for low or medium-low risk BAs, the coefficient is negative and significant, indicating that investing for return is associated with a lower probability of falling into these categories of risk. Conversely, the probabilities of falling into medium-high and high risk classes are significantly higher than 0 when a BA invests for return reasons. In other words, BAs lacking financial experience are more risk seeking when they invest for return motivations. Interestingly, when BAs have financial experience, the impact of investing for return reasons is not significant across all categories of risk appetite. Therefore, having previous experience in the financial sector moderates the relationship between risk profile and the return reason for investing.

[Insert Figure 1 here]

Results on the moderator effect of financial experience are very similar when we look at the passion reason for investing. Marginal effects are reported in Table 6 and plotted in Figure 2. Figure 2 shows that in the absence of financial experience, there is a positive relationship between passion as a reason for investing and risk propensity: in fact, for low or medium-low risk appetite BAs the coefficient is negative and significant, indicating that investing for passion is associated with a lower probability of falling into these categories of risk. Conversely, the probability of falling into the high risk category is significantly higher when a BA invests for passion reason (i.e. investing for passion reason seems to be not significantly related to the probability to fall in medium-high risk categories). Again, when BAs have financial experience, the impact of investing for passion motives does not appear to be significant across any risk-appetite classes. In line with the results we found in respect of return motivations, having

⁶ We estimate the marginal effects using the command *margins* on stata 15.

previous experience in the financial sector completely moderates the relationship between the risk profile and passion motivation for investing.

[Insert Figure 2 here]

Summarizing, the financial experience of a BA is, *per se*, associated with a greater appetite for risk and completely moderates the effect of investment motivations on BAs' risk profile. Hypothesis 3 is confirmed: the value of financial experience is that it sets BAs on a different path for taking risk, which diminishes the individual effect of investment motivations. In other words, experience in the finance field leads to a higher risk propensity, independently of the reasons that BAs have to invest. On the contrary, when BAs lack such experience, then passion and return reasons to invest are mainly guiding their risk appetite.

Looking at entrepreneurial experience, we find different results. Marginal effects, reported in Table 6 and plotted in Figure 3, show that in the absence of entrepreneurial experience, there is a positive relationship between return reason for investing and risk propensity: in fact, for low or medium-low risk classes of BAs the coefficient is negative and significant, indicating that investing for return is associated with a lower probability of falling into these categories of risk. Conversely, the probability of falling in the high risk category is significantly higher when a BA invests for return reasons (but not significant in the medium-high risk category). When BAs have entrepreneurial experience, the impact of investing for return reasons does not lose significance. On the contrary, a return motivation increases in significance in all categories of risk propensity as indicated by the slope of the curves in Figure 3. Therefore, having previous experience as an entrepreneur does not change the relationship between risk profile and having a return reason for investing.

[Insert Figure 3 here]

Marginal effects on the moderator effect of entrepreneurial experience, when we look at passion reason for investing, are reported in Table 6 and plotted in Figure 4. Results suggest that, for BAs without

entrepreneurial experience, the relationship between passion for investing and risk propensity is not significant: in fact, the coefficient is not significant across any risk categories, indicating that investing for passion does not influence the appetite for risk for BAs without entrepreneurial experience. Conversely, passion turns out to be significant when BAs have previous entrepreneurial experience: the probabilities of falling into a low or medium-low risk category are lower and the probability of being in the high risk category is significantly higher when a BA invests for passion reasons. Thus, it is passion that guides risk taking when BAs have entrepreneurial experience.

[Insert Figure 4 here]

Summarizing, appetite for risk seems to be positively related to return motivation for BAs without entrepreneurial experience, while, for previous entrepreneurs, passion seems to be the guiding motivation to be risk loving.⁷ Therefore, we confirm Hypothesis 4: BAs that manifest passion for investing coupled with prior entrepreneurial experience are more likely to follow a risk oriented investment behavior. When BAs do not have entrepreneurial experience, it is the return motivation that significantly drives their risk propensity.

We also perform a number of robustness checks⁸. We first group diversification and fiscal motivations into a general category “Other motivations”. Having theorized on return and passion reasons, we assume that the remaining categories are not significantly related with a BA’s risk profile and are not even influenced by BAs’ experience. Results of Baseline and Models with interactions are reported in Table 7 and confirm the results discussed before.

[Insert Table 7 here]

Second, we consider that the variables “proportion of wealth invested” and “amount invested”, both used as control variables in our principal model, could bias our results. In fact, they may be highly

⁷ We obtain very similar results when we consider as moderator the actual status of entrepreneur instead of previous entrepreneurial experience. Similarly to what found for past entrepreneurial experience, while the fact of being an entrepreneur does not influence a BA’s risk attitude, it moderates the role of investment motivations: for actual entrepreneurs, investing for passion is associated to a higher risk profile. Conversely, for non-entrepreneurs, the return motivation is significantly related to a BA’s risk profile.

⁸ We thank an anonymous referee for his/her kind suggestion about these robustness checks.

correlated to BAs' risk attitude: the more a BA is inclined to take risk, the higher is the relative proportion of his wealth or the amount invested. Therefore, as a robustness check, we also run our estimates by removing both variables from our models. Results are reported in Table 8 and confirm the results discussed before.

[Insert Table 8 here]

6. Conclusion

In this paper, we explicitly examine the willingness of UK BAs to accept risk using a large survey of angels currently active in the market. Our initial evidence shows some important features of angels and their relative risk attitudes. For example, 60.4% of angels explicitly target investment returns as their prime motivation. On average, nearly 36% of UK angels invest more than 50% of their total wealth, which implies that their fortunes are inextricably linked to the outcomes of their investments. And, on average, the UK BA is relatively risk-loving.

From our more detailed econometric analysis of the determinants of BAs' willingness to tolerate investment risk, we observe a significant degree of consistency across alternative model specifications. Specifically, we find that experience across several domains, including previous entrepreneurial experience and financial sector experience, are important drivers of risk tolerance, or willingness to assume risk. This is consistent with more experienced and informed BAs, being better informed about the risks they assume when investing, appear to enter the market with their eyes wide open, having faced risk in a variety of contexts prior to becoming an angel investor. It would also appear that angels who are more fully committed to angel investing as an activity (higher proportions of total wealth invested and larger total investments) are the most risk-loving. But we also find that angels that currently have an outside income from employment are also more willing to take on risk. This might suggest that alternative income streams reduce the opportunity cost of failed investments.

On reasons for investing, we observe that target financial returns and passion are positively associated with willingness to take risks, compared to a simple desire to diversify ones investment

portfolio. To a lesser degree investing for fiscal reasons (reducing ones tax burden) is too. But we also test whether different types of experience moderate these relationships between willingness to take risks and investment purpose. On this, we consistently find evidence to suggest that financial and entrepreneurial experience add more to our understanding of risk, and importantly, that these key relationships exert different effects across the risk profile distribution. Results of our study suggest that, having previous experience in the financial sector, is, *per se*, associated with a greater appetite for risk and completely moderates the relationship between the risk profile and motivations for investing. Investment motivations do not explain the attitude to risk for BAs with financial experience while, when BAs lack such experience, then passion and return reasons to invest are mainly guiding their risk appetite. Moreover, we find that entrepreneurial experience has a different effect according to the investment motivation: appetite for risk seems to be positively related to return motivation for BAs without entrepreneurial experience, while, for previous entrepreneurs, passion seems to be the guiding motivation to be risk loving.

We conclude that UK BAs are fairly risk-loving in terms of their approach to investment risk and that experiential human capital in related domains underpins this attitudinal characteristic. It is also clear that once they make the decision to become involved in the informal capital market, they back this up with a significant financial commitment, to the extent that their future wealth and income streams are strongly connected to the performance of their investments. There also appears to be a strong potential to develop a virtuous circle where historically successful entrepreneurs re-cycle their wealth into the next generation of entrepreneurs.

Our findings have implications for policy. BAs are key agents in the provision of risk capital to smaller and younger businesses and the study of what affects their attitude toward risk is crucial in evaluating if there is a case for public policy intervention to stimulate BAs' capital markets, and how policy might best approach this. Our results suggest that BAs are heterogeneous in their risk attitude and that policy makers might need differentiated support measures designed to fit different investors' types.

As always, our paper is not exempt from limitations. While the survey was asking BAs the reasons why they invested in the schemes and passion is one possibility, we cannot disentangle the dimensions that constitute it (i.e intense positive feelings and identity centrality) as is done in the recent literature on passion (Cardon et al., 2013). One potential avenue of research in this stream could be to analyze BAs' passion to invest by focusing on the construct of passion. Empirical research on BAs should move beyond the analysis of personality traits of BAs but to look more specifically at the importance of the cognitive processes (Goss, 2008; Grégoire et al., 2011) and affect and emotions that drive BAs' investment decisions (Cardon et al., 2013). Maybe the different investment reasons could help explain the prevalence for certain investment criteria over others, or why some BAs evaluate passion of the entrepreneur more than other criteria. Therefore, we call for scholars to address questions like: which domains (inclination to passion or to return) are really shaping BAs' willingness to enter new deals? Does this vary with BAs' background or is this consistent for all BAs? What are the boundary conditions and mechanisms that determine BAs' investment decisions? To what extent investment reasons are contagious and may affect group thinking in BA networks? Which is the effect on financial outcomes? To what extent do BAs vary in their risk propensity?

Understanding the source of these differences remains a fruitful area of research for entrepreneurship scholars. We recognize that a focus on UK schemes imposes limitations to the scope of our work, and suggest that future research could explore the issues we raise in this article in other contexts as well. Given the importance of BAs in today's economy, a better understanding of the risk attitude and its role in investment has the potential to improve the quality of decision making in the risk charged environments that BAs face.

References

- Andersen, T. J., and Bettis, R.A. (2015). 'Exploring longitudinal risk-return relationships', *Strategic Management Journal*, 36(8), pp. 1135–1145.
- Åstebro, T., Herz, H., Nanda, R., and Weber, R.A. (2014). 'Seeking the roots of entrepreneurship: Insights from behavioral economics', *Journal of Economic Perspectives*, 28 (3), pp. 49–70.
- Avdeitchikova, S., Landström, H., and Månsson, N. (2008). 'What do we mean when we talk about business angels? Some reflections on definitions and sampling', *Venture Capital*, 10(4), pp. 371-394.
- Bannier, C.E., and Neubert, M. (2016). 'Gender differences in financial risk taking: The role of financial literacy and risk tolerance', *Economics Letters*, 145, 130–135.
- Brettel, M. (2003). 'Business angels in Germany: A research note', *Venture Capital*, 5(3), pp. 251-268.
- Brockhaus, R.H. (1980). 'Risk taking propensity of entrepreneurs', *Academy of Management Journal*, 23(3), pp. 509–520.
- Busenitz, L.W. and Barney, J.B. (1997). 'Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making', *Journal of Business Venturing*, 12(1), pp. 9–30.
- Cardon, M.S., Wincent, J., Singh, J., and Drnovsek, M. (2009). 'The nature and experience of entrepreneurial passion', *Academy of Management Review*, 34(3), pp. 511–532.
- Cardon, M.S., Gregoire, D.A., Stevens, C.E., and Patel, P.C. (2013). 'Measuring entrepreneurial passion: Conceptual foundations and scale validation', *Journal of Business Venturing*, 28, pp. 373–396.
- Cesarini, D., Dawes, C. T., Johannesson, M., Lichtenstein, P., and Wallace, B. (2009). 'Genetic variation in preferences for giving and risk-taking', *Quarterly Journal of Economics*, 124(2), pp. 809–842.
- Chari, M.D.R., David, P., Duru, A., and Zhao, Y. (2019). 'Bowman's risk-return paradox: An agency theory perspective', *Journal of Business Research*, 95, pp. 357-375.
- Chen, X., Yao, X., and Kotha, S. (2009). 'Passion and preparedness in entrepreneurs' business plan presentations: A persuasion analysis of venture capitalists' funding decisions', *Academy of Management Journal*, 52(1), pp. 199–214.

- Cohen, J., and Cohen, P. (1983). 'Applied multiple regression/correlation analysis for the behavioral sciences'. Hillsdale, NJ: Erlbaum.
- Collewaert, V., and Manigart, S. (2016). 'Valuation of angel-backed companies: The role of investor human capital', *Journal of Small Business Management*, 54(1), pp. 356-372.
- Coté, S. (2011). 'How social class shapes thoughts and actions in organizations', *Research in Organizational Behavior*, 31, pp. 43–71.
- Croce, A., Tenca, F., and Ughetto E. (2017). 'How business angel groups work: rejection criteria in investment evaluation', *International Small Business Journal*, 35 (4), pp. 405-426.
- Croce, A., Guerini, M., Ughetto E. (2018). 'Angel financing and the performance of high-tech start-ups: an exploratory study', *Journal of Small Business Management*, 56 (2), pp. 208-228.
- De Clercq, D., Meuleman, M., and Wright, M. (2012). 'A cross-country investigation of micro-angel investment activity: The roles of new business opportunities and institutions', *International Business Review*, 21(2), pp. 117-129.
- Ding, Z., Au, K., and Chiang, F. (2015). 'Social trust and angel investors' decisions: A multilevel analysis across nations', *Journal of Business Venturing*, 30(2), pp. 307-321.
- Drover, W., Busenitz, L., Matusik, S., Townsend, D., Anglin, A., and Dushnitsky, G. (2017). 'A review and road map of entrepreneurial equity financing research: venture capital, corporate venture capital, angel investment, crowdfunding, and accelerators'. *Journal of Management*, 43(6), pp. 1820-1853.
- Duxbury, L., Haines, G., and Riding, A. (1996). 'A personality profile of Canadian informal investors', *Journal of Small Business Management*, 34(2), pp. 44-55.
- Fiet, J.O. (1995). 'Risk avoidance strategies in venture capital markets', *Journal of Management Studies*, 32 (4), pp. 551–574.
- Fili, A., and Grünberg, J. (2015). 'Business angel post-investment activities: A multi-level review', *Journal of Management and Governance*, 20 (1), pp. 89–114.
- Filbeck, G., Hatfield, P., and Horvath, P. (2005). 'Risk aversion and personality type', *Journal of Behavioral Finance*, 6, pp. 170-180

- Fisher, N. and Hall, G.R. (1969). 'Risk and corporate rates of return', *Quarterly Journal of Economics*, 83, pp.79–92.
- Freear, J., Sohl, J.E., and Wetzel, W.E. (1994). 'Angels and non-angels: Are there differences?', *Journal of Business Venturing*, 9, pp. 109-123.
- Goss, D. (2008). 'Enterprise ritual: A theory of entrepreneurial emotion and exchange', *British Journal of Management*, 19(2), pp.120-137.
- Grégoire, D.A., Corbett, A.C., and McMullen, J.S. (2011). 'The cognitive perspective in entrepreneurship: An agenda for future research', *Journal of Management Studies*, 48, pp. 1443–1477.
- Harrison, R., Mason, C., and Robson, P. (2010). 'Determinants of long-distance investing by business angels in the UK', *Entrepreneurship and Regional Development*, 22(2), pp. 113-137.
- Harrison, R., Botelho, T., and Mason, M.C. (2016). 'Patient capital in entrepreneurial finance: A reassessment of the role of business angel investors', *Socio-Economic Review*, 14 (49), pp. 669–689.
- Hoffmann, A.O.I., Post, T., and Pennings, J.M.E. (2015). 'How investor perceptions drive actual trading and risk-taking behavior', *Journal of Behavioral Finance*, 16(1), pp. 94-103.
- Huang, L., and Pearce, J.L. (2015). 'Managing the unknowable: The effectiveness of early stage investor gut feel in entrepreneurial investment decisions', *Administrative Science Quarterly*, 60(4), pp. 634–670.
- Huang, L. (2018). 'The role of investor Gut Feel in managing complexity and extreme risk'. *Academy of Management Journal*, 61(5), pp. 1821-1847.
- Janney J.J., and Dess, G.G. (2006). 'The risk concept for entrepreneurs reconsidered: New challenges to the conventional wisdom', *Journal of Business Venturing*, 21, pp. 385–400.
- Jeffrey, S.A., Levesque, M., and Maxwell, A. (2016). 'The non-compensatory relationship between risk and return in business angel investment decision making', *Venture Capital*, 18(3), pp. 189-209.
- Kahneman, D., and Tversky, A. (1984). 'Choices, values, and frames', *American Psychologist*, 39(4), pp. 341–350.
- Kish-Gephart, J. J., and Campbell, J. T. (2015). 'You don't forget your roots: The influence of CEO social class background on strategic risk taking', *Academy of Management Journal*, 58(6), pp. 1614–1636.

- Lahti, T. (2011). 'Categorization of angel investments: An explorative analysis of risk reduction strategies in Finland', *Venture Capital*, 13(1), pp. 49-74.
- Lubatkin, M., and Chatterjee, S. (1994). 'Extending modern portfolio theory into the domain of corporate strategy: does it apply?', *Academy of Management Journal*, 37(1), pp. 109– 136.
- Lusardi, A., and Mitchell, O.S. (2014). 'The economic importance of financial literacy: Theory and evidence', *Journal of Economic Literature*, 52(1), pp. 5-44.
- March, J.G., and Shapira, Z. (1987). 'Managerial perspectives on risk and risk taking', *Management Science*, 33 (11), pp. 1404–1418.
- Mason, C.M., and Harrison R.T. (1996). 'Why business angels say no: A case study of opportunities rejected by an informal investor syndicate', *International Small Business Journal*, 14 (2), pp. 35–51.
- Mason, C., and Harrison, R. (2004). 'Does investing in technology-based firms involve higher risk? An exploratory study of the performance of technology and non-technology investments by business angels', *Venture Capital*, 6 (4), pp. 313–332.
- Maxwell, A.L., Jeffrey, S.A., and Lévesque, M. (2011). 'Business angel early stage decision making', *Journal of Business Venturing*, 26(2), pp. 212–225.
- Merkle, C., and Weber, M. (2014). 'Do investors put their money where their mouth is? Stock market expectations and investing behavior', *Journal of Banking and Finance*, 46, pp. 372–386.
- Metzger, B.A., and Fehr, R.R. (2018). 'Measuring financial risk attitude: How to apply both regulatory and scientific criteria to ensure suitability', *Journal of Behavioral Finance*, 19 (2), pp. 221-234.
- Mitteneß, C., Sudek, R., and Cardon, M.S. (2012). 'The importance angels place on passion when making investment decisions: Why does it matter to some and not all angels?', *Journal of Business Venturing*, 27(5), pp. 592–606.
- Murnieks, C.Y., Mosakowski, E., and Cardon, M.S. (2014). 'Pathways of passion: Identity centrality, passion, and behavior among entrepreneurs', *Journal of Management*, 40 (6), pp. 1583–1606.

- Murnieks, C.Y., Cardon, M.S., Sudek, R., White, T. D., and Brooks, W.T. (2016). 'Drawn to the fire: The role of passion, tenacity and inspirational leadership in angel investing', *Journal of Business Venturing*, 31(4), pp. 468-484.
- Palmer T.B, and Wiseman, R.M. (1999). 'Decoupling risk taking from income stream uncertainty: A holistic model of risk', *Strategic Management Journal*, 20, pp.1037-1062.
- Pierce, J.L., Kostova, T., and Dirks, K.T. (2001). 'Toward a theory of psychological ownership in organizations', *Academy of Management Review*, 26(2), pp. 298–310.
- Ray, D.M. (1994). 'The role of risk-taking in Singapore', *Journal of Business Venturing* 9(2), pp. 157–157.
- Robinson, M.J., and Cottrell, T.J. (2007). 'Investment patterns of informal investors in the Alberta private equity market', *Journal of Small Business Management*, 45(1), pp. 47-67.
- Shane, S. (2008). 'The importance of angel investing in financing the growth of entrepreneurial ventures', Washington, DC: Small Business Administration Office of Advocacy Working Paper.
- Söderblom A., Samuelsson, M., and Mårtensson, P. (2016). 'Opening the black box: triggers for shifts in business angels' risk mitigation strategies within investments', *Venture Capital*, 18(3), pp. 211-236.
- Sørheim, R., and Landström, H. (2001). 'Informal investors: A categorization, with policy implications', *Entrepreneurship and Regional Development*, 13 (4), pp. 351–370.
- Starmer, C. (2000). 'Developments in non-expected utility theory: The hunt for a descriptive theory of choice under risk', *Journal of Economic Literature*, 38(2), pp. 332–382.
- Stroe, S., Parida, V., and Wincent, J. (2018). 'Effectuation or causation: An fsQCA analysis of entrepreneurial passion, risk perception, and self-efficacy'. *Journal of Business Research*, 89, pp. 265-272.
- Szerb, L., Rappai, G., Makra, Z., and Terjesen, S. (2007). 'Informal investment in transition economies: Individual characteristics and clusters', *Small Business Economics*, 28(2-3), pp. 257-271.
- Tenca, F., Croce, A., and Ughetto, E. (2018). 'Business angels research in entrepreneurial finance: A literature review and a research agenda', *Journal of Economic Surveys*, 32(5), pp. 1384-1413.

- Vallerand, R.J., Mageau, G.A., Ratelle, C., Leonard, M., Blanchard, C., Koestner, R., and Gagne, M. (2003). 'Les Passions de l' Ame: Oon obsessive and harmonious passion', *Journal of Personality and Social Psychology*, 85, pp.756–767.
- Van de Venter, G., Michayluka, D., and Davey, G. (2012). 'A longitudinal study of financial risk tolerance', *Journal of Economic Psychology*, 33, pp. 794-800.
- Wallmeroth, J., Wirtz, P., and Groh, A.P. (2018). 'Venture capital, angel financing, and crowdfunding of entrepreneurial ventures: A literature review', *Foundations and Trends in Entrepreneurship*, 14 (1), pp. 1-129.
- Wang, A. (2009). 'Interplay of investors' financial knowledge and risk taking', *The Journal of Behavioral Finance*, 10(4), pp. 204-213.
- Warnick, B.J., Murnieks, C.Y., McMullen, J.S., and Brooks, W.T. (2018). 'Passion for entrepreneurship or passion for the product? A conjoint analysis of angel and VC decision-making'. *Journal of Business Venturing*, 33(3), pp. 315-332.
- Wetzel Jr., W.E. (1983). 'Angels and informal risk capital', *Sloan Management Review*, 24(4), pp. 23-34.
- Wiltbank, R., Read, S., Dew, N., and Sarasvathy, S. (2009). 'Prediction and control under uncertainty: outcomes in angel investing', *Journal of Business Venturing*, 24(2), pp. 116-133.
- Wright, M., Robbie, K., and Ennew, C. (1997). 'Serial entrepreneurs', *British Journal of Management*, 8(3), pp.251-268.
- Zhang, S. X., and Cueto, J. (2017). 'The study of bias in entrepreneurship', *Entrepreneurship Theory and Practice*, 41(3), pp. 419–454.

Tables

Table 1. BAs' risk attitude

Attitude to risk	N	%
low risk	50	14.04
medium-low risk	51	14.33
medium-high risk	175	49.16
high risk	80	22.47
Total	356	100

Table 2. The most important reasons to invest in VCTs/EIS

Most important reasons to invest	n. respondents	%
To increase your personal wealth/best option for investing	183	51.40
To pass on your company experience	3	0.84
To help grow the companies you invest in	40	11.24
To diversify your assets and wealth	50	14.04
To give your life purpose	7	1.97
To fill in your free time	1	0.28
To offset your tax liabilities	40	11.24
To maintain your income	32	8.99

Table 3. BAs' risk propensity and investment motivations

BAs' risk propensity	BAs' investment motivation									
	Diversification		Fiscal		Passion		Return		Total	
Low risk	13	26.00%	8	20.00%	6	11.76%	23	10.70%	50	14.04%
Medium-low risk	7	14.00%	8	20.00%	8	15.69%	28	13.02%	51	14.33%
Medium-high risk	22	44.00%	12	30.00%	27	52.94%	114	53.02%	175	49.16%
High risk	8	16.00%	12	30.00%	10	19.61%	50	23.26%	80	22.47%
Total	50	100%	40	100%	51	100%	215	100%	356	100%

Table 4. List of explanatory variables used in the empirical analysis and descriptive statistics

	Definition	Description	Mean	Median	SD	Min	Max
<i>Dependent variable</i>							
Risk propensity	The BA's attitude to risk taking, defined on a scale from 1 (risk averse) to 4 (risk loving)	The specific question in the survey is: "How would you classify your attitude to risk taking when investing?" Responses indicate 4 categories: low, medium-low, medium-high, high	2.801	3	0.945	1	4
<i>Investment motivations variables</i>							
Return	Dummy variable equal to 1 if the BA has stated that the return offered is the main reason for investment in the schemes and 0 otherwise	The specific question in the survey is: "What is the most important reason that you invest in other companies?" Responses included in this category are: "to increase his/her own personal wealth/best option for investing" and "to maintain own income"	0.604	1	0.490	0	1
Passion	Dummy variable equal to 1 if the BA has stated that passion is the main reason for investment in the schemes and 0 otherwise	Responses included in this category are: "to help grow the companies you invest in", "to give your life purpose", "to pass on your company experience" and "to fill in your free time"	0.143	0	0.351	0	1
Fiscal	Dummy variable equal to 1 if the BA has stated that fiscal opportunities is the main reason for investment in the schemes and 0 otherwise	The response included in this category is: "to offset your tax liabilities"	0.112	0	0.316	0	1
Diversification	Dummy variable equal to 1 if the BA has stated that the aim of diversification is the main reason for investment in the schemes and 0 otherwise	The response included in this category is: "to diversify your assets and wealth"	0.140	0	0.348	0	1
<i>BA's experience</i>							
Financial experience	Dummy variable equal to 1 if the BA has a previous	The specific question in the survey is: "In which sector have you worked the most?" Responses to this question include: Agriculture; Forestry and Fishing; High Tech; Energy and	0.317	0	0.466	0	1

	experience in the financial sector and 0 otherwise	Water Supply; Manufacturing; Construction; Distribution, Restaurants and Catering; Transport and Communication; Recreational activities; Civil Service / Public Sector; Media/Design/Advertising; Education / Healthcare; Financial / Insurance Services; Law and Legal services; Retail / Sales; Other business services and Other services. The distribution of responses is reported in the Appendix. We define the dummy Financial experience as taking value 1 if the response is “Financial / insurance services”					
Entrepreneurial experience	Dummy variable equal to 1 if the BA has a previous entrepreneurial experience and 0 otherwise	The specific question in the survey is: “Have you ever run a company of your own before?”	0.480	0	0.500	0	1
Controls variables							
Investment experience	Dummy variable equal to 1 if the BA has an investment experience of more than 25 years and 0 otherwise	The specific question in the survey is: “For how long have you been investing in companies?”. Responses to this question include the following categories: <ul style="list-style-type: none"> - Less than 5 years, - 5 years but less than 10 years, - 10 years but less than 15 years, - 15 years but less than 20 years, - 20 years but less than 25 years, - 25 years but less than 30 years, - 30 years but less than 35 years, - 35 years but less than 50 years, - 50 years or more. We define the dummy investment experience using as threshold the median/average value, equal to the category “20 years but less than 25 years”, indicating whether the investment experience is higher than 25 years.	0.506	1	0.501	0	1
Serial entrepreneur	Dummy variable equal to 1 if the BA is a serial entrepreneur and 0 otherwise	The survey includes the following question: “How many companies have you run?”. We define the dummy Serial entrepreneur whether the answer indicates a number higher than 1 and 0 otherwise.	0.250	0	0.434	0	1
High-tech sector experience	Dummy variable equal to 1 if the BA has a previous entrepreneurial experience	The specific question in the survey is: “In which sector have you worked the most?” Responses to this question include: Agriculture; Forestry and Fishing; High Tech; Energy and	0.135	0	0.342	0	1

	in the high tech sector and 0 otherwise	Water Supply; Manufacturing; Construction; Distribution, Restaurants and Catering; Transport and Communication; Recreational activities; Civil Service / Public Sector; Media/Design/Advertising; Education / Healthcare; Financial / Insurance Services; Law and Legal services; Retail / Sales; Other business services and Other services. The distribution of responses is reported in the Appendix. We define the dummy High-tech sector experience as taking value 1 if the response is “High Tech”					
Stakes retention	Dummy variable equal to 1 if the BA on average retains his/her investment stakes for less than 10 years and 0 otherwise	The survey includes the following question: “For how many years on average do you retain your investment stakes?” Answers are included in the following categories: - 1 year or less; - 2 years; - 3 years; - 5 years; - 6-9 years; - 10-15 years; - over 15 years. We define the dummy Stakes retention using as threshold the median/average value, equal to the category "6-9 years", indicating whether the average retention is higher or equals to 10 years.	0.351	0	0.478	0	1
VCT	Dummy variable equal to 1 if the BA has made investments in companies through the VCT scheme and 0 otherwise		0.466	0	0.500	0	1
Proportion of wealth invested	Dummy variable equal to 1 if the BA invested a proportion of his/her total wealth in companies higher than 50% and 0 otherwise	The survey includes the following question: “And what proportion of your total wealth have you currently got invested?” Answers are included in the following categories: - less than 5%; - 5% to 9%; - 10% to 14%; - 15% to 19%; - 20% to 49%; - 50% to 74%; - More than 75%.	0.360	0	0.481	0	1

		We define the dummy Proportion of wealth invested using as threshold the median/average value, equal to the category "20% to 49%", indicating whether the proportion of wealth invested is higher or equals to 50%.					
Amount invested	Dummy variable equal to 1 if the BA invested an amount over 50,000£ and zero otherwise	<p>The survey includes the following question for EIS and VCT scheme respectively: "Would you say that the amount invested in EIS/VCT it is approximately". Answers are included in the following categories:</p> <ul style="list-style-type: none"> - less than 50,000£; - 50,000£-99,999£; - 100,000-199,999£; - 200,000£-499,999£; - 500,000£-999,999£; - 1 million £ or more. <p>We define the dummy Amount invested using as threshold the median/average value, equal to the category "less than 50,000£", indicating whether the amount invested is higher than 50,000£.</p>	0.565	1	0.497	0	1
Employed	Dummy variable equal to 1 if the BA is currently employed and 0 otherwise		0.317	0	0.466	0	1
Entrepreneur	Dummy variable equal to 1 if the BA is currently an entrepreneur and 0 otherwise		0.340	0	0.474	0	1
Retired	Dummy variable equal to 1 if the BA is currently retired and 0 otherwise		0.343	0	0.475	0	1

Table 5. Principal estimates. BA's risk attitude, motivations and individual experience.

	Model 0		Baseline		Interaction with financial experience		Interaction with entrepreneurial experience		Both interactions	
Financial experience	0.3032	**	0.3883	***	0.6714	**	0.3733	**	0.6877	**
	(0.139)		(0.144)		(0.333)		(0.146)		(0.334)	
Entrepreneurial experience	0.5618	***	0.539	***	0.5385	***	0.241		0.2426	
	(0.155)		(0.158)		(0.16)		(0.338)		(0.34)	
Fiscal			0.3411		0.5455	*	0.1936		0.4564	
			(0.246)		(0.324)		(0.34)		(0.432)	
Passion			0.5457	**	0.7213	**	0.08		0.2534	
			(0.237)		(0.294)		(0.352)		(0.381)	
Return			0.5842	***	0.7148	***	0.4385	*	0.5734	**
			(0.184)		(0.244)		(0.246)		(0.292)	
Fiscal # financial experience					-0.4767				-0.5346	
					(0.502)				(0.52)	
Passion # financial experience					-0.4557				-0.6259	
					(0.5)				(0.51)	
Return # financial experience					-0.2783				-0.2969	
					(0.365)				(0.365)	
Fiscal # entrepreneurial experience							0.284		0.2104	
							(0.49)		(0.507)	
Passion # entrepreneurial experience							0.8175	*	0.8954	*
							(0.465)		(0.472)	
Return # entrepreneurial experience							0.282		0.2907	
							(0.357)		(0.358)	
Investment experience	0.0508		-0.0444		-0.0442		-0.0386		-0.0328	
	(0.134)		(0.14)		(0.141)		(0.14)		(0.141)	

Serial entrepreneur	-0.1999 (0.172)		-0.1938 (0.178)		-0.2047 (0.179)		-0.2245 (0.181)		-0.2474 (0.181)	
High-tech sector experience	0.2526 (0.18)		0.2773 (0.185)		0.2851 (0.186)		0.2781 (0.186)		0.2838 (0.186)	
Stakes retention	-0.0499 (0.133)		0.0374 (0.138)		0.0347 (0.139)		0.0093 (0.139)		0.0009 (0.14)	
Proportion of wealth invested	0.4782 (0.127)	***	0.4981 (0.132)	***	0.4963 (0.132)	***	0.5048 (0.132)	***	0.506 (0.132)	***
Amount invested	0.2022 (0.124)		0.2501 (0.128)	*	0.2395 (0.131)	*	0.2377 (0.128)	*	0.2261 (0.131)	*
VCT	0.1308 (0.13)		0.1319 (0.133)		0.1376 (0.134)		0.114 (0.134)		0.1145 (0.135)	
Employed	0.5232 (0.16)	***	0.4656 (0.165)	***	0.4594 (0.165)	***	0.4666 (0.165)	***	0.4596 (0.165)	***
Entrepreneur	0.2978 (0.163)	*	0.2685 (0.167)		0.2701 (0.167)		0.2703 (0.168)		0.2706 (0.168)	
Constant	2.1247 (0.375)	***	2.678 (0.424)	***	2.8345 (0.452)	***	2.4262 (0.458)	***	2.5974 (0.482)	***
Company region dummies	Yes		Yes		Yes		Yes		Yes	
N	370		356		356		356		356	

The Table reports the results of several ordered probit models. The dependent variable is the BA's attitude to risk taking, defined on a scale from 1 (risk averse) to 4 (risk loving). Model 0 only reports control variables. In the Baseline Model investment motivations variables are included. The last three columns report the results of models testing the moderator effects of BA experience. Column III reports the results of the model in which financial experience is included as moderator. Column IV reports the results of the model in which entrepreneurial experience is included as moderator. Column V reports the results of the model in which both financial and entrepreneurial experience are included as moderators. The base category for investment motivations is "Diversification". Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table 6. Marginal effects

<i>BA risk</i>	<i>Interaction variable</i>	Interaction with financial experience				Interaction with entrepreneurial experience				Both interactions					
		Return motivation		Passion motivation		Return motivation		Passion motivation		Return motivation		Passion motivation			
		<i>coeff</i>	<i>Std.Err.</i>	<i>coeff</i>	<i>Std.Err.</i>	<i>coeff</i>	<i>Std.Err.</i>	<i>coeff</i>	<i>Std.Err.</i>	<i>coeff</i>	<i>Std.Err.</i>	<i>coeff</i>	<i>Std.Err.</i>		
Low risk	without financial experience	-0.17	0.062	***	-0.128	0.041	***			-0.164	0.063	***	-0.1	0.051	*
	with financial experience	-0.063	0.043		-0.032	0.044				-0.052	0.042		0.0225	0.076	
Medium-low risk	without financial experience	-0.06	0.017	***	-0.068	0.026	***			-0.061	0.017	***	-0.062	0.0232	***
	with financial experience	-0.048	0.03	*	-0.028	0.042				-0.044	0.0311		0.002	0.0414	
Medium-high risk	without financial experience	0.074	0.032	**	-0.001	0.028				0.0644	0.0365	*	-0.042	0.0344	
	with financial experience	-0.023	0.019		-0.026	0.054				-0.0318	0.0214		-0.052	0.0356	
High risk	without financial experience	0.156	0.0488	***	0.198	0.088	**			0.1606	0.0475	***	0.204	0.076	***
	with financial experience	0.135	0.083	*	0.087	0.14				0.129	0.083		0.0279	0.118	
Low risk	without entrepreneurial experience							-0.109	0.0644	*	-0.183	0.078			
	with entrepreneurial experience							-0.116	0.049	**	-0.1	0.03	***	-0.131	0.053
Medium-low risk	without entrepreneurial experience							-0.039	0.021	*	-0.007	0.034			
	with entrepreneurial experience							-0.073	0.0244	***	-0.083	0.0238	***	-0.075	0.0225
Medium-high risk	without entrepreneurial experience							0.057	0.037		0.007	0.03			
	with entrepreneurial experience							-0.165	0.0195		-0.106	0.054	*	-0.009	0.023
High risk	without entrepreneurial experience							0.091	0.048	*	0.018	0.082			
	with entrepreneurial experience							0.206	0.0697	***	0.289	0.099	***	0.216	0.069

Table 7. Robustness check: Only Return and Passion motivations versus “Other motivations”.

	Baseline		Interaction with financial experience		Interaction with entrepreneurial experience		Both interactions	
Financial experience	0.3751 (0.144)	***	0.4391 (0.256)	*	0.3489 (0.145)	**	0.4136 (0.257)	
Entrepreneurial experience	0.5497 (0.158)	***	0.5612 (0.16)	***	0.3804 (0.256)		0.3967 (0.258)	
Passion	0.3881 (0.207)	*	0.4559 (0.247)	*	-0.0273 (0.318)		0.0368 (0.339)	
Return	0.4314 (0.146)	***	0.4582 (0.189)	**	0.3478 (0.198)	*	0.3704 (0.239)	
Passion #financial experience			-0.2437 (0.458)				-0.378 (0.468)	
Return # financial experience			-0.06 (0.302)				-0.0406 (0.304)	
Passion #entrepreneurial experience					0.7094 (0.416)	*	0.7655 (0.423)	*
Return # entrepreneurial experience					0.1535 (0.285)		0.1478 (0.286)	
Investment experience	-0.0396 (0.14)		-0.0337 (0.141)		-0.0318 (0.14)		-0.0197 (0.141)	
Serial entrepreneur	-0.2178 (0.177)		-0.2264 (0.178)		-0.2561 (0.179)		-0.272 (0.18)	
High-tech sector experience	0.2641 (0.185)		0.263 (0.185)		0.2567 (0.185)		0.2548 (0.185)	
Stakes retention	0.0066 (0.136)		0.0061 (0.137)		-0.0196 (0.137)		-0.0257 (0.138)	
Proportion of wealth invested	0.4965 (0.132)	***	0.4967 (0.132)	***	0.507 (0.132)	***	0.5086 (0.132)	***
Amount invested	0.252 (0.128)	**	0.2584 (0.129)	**	0.2401 (0.128)	*	0.2466 (0.129)	*
VCT	0.1196 (0.133)		0.115 (0.133)		0.0991 (0.134)		0.0926 (0.134)	
Employed	0.4669 (0.165)	***	0.466 (0.165)	***	0.4668 (0.165)	***	0.4667 (0.165)	***
Entrepreneur	0.272 (0.167)		0.2703 (0.167)		0.2769 (0.168)	*	0.2743 (0.168)	
Constant	2.4982 (0.404)	***	2.5437 (0.418)	***	2.3157 (0.425)	***	2.3639 (0.439)	***
Company region dummies	Yes		Yes		Yes		Yes	
N	370		356		356		356	

The Table reports the results of four ordered probit models, testing the significance of Return and Passion motivations on a BA’s risk profile and the moderator effects of BA experience. The dependent variable is the BA’s attitude to risk taking,

defined on a scale from 1 (risk averse) to 4 (risk loving). Column I reports the Baseline. Column II reports the results of the model in which financial experience is included as moderator. Column III reports the results of the model in which entrepreneurial experience is included as moderator. Column IV reports the results of the model in which both financial and entrepreneurial experience are included as moderators. The base category for investment motivations is “Other motivations”. Robust standard errors are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 8. Robustness check: Exclusion of the variables related to the amount invested by BAs.

	Model 0		Baseline		Interaction with financial experience		Interaction with entrepreneurial experience		Both interactions	
Financial experience	0.3515	**	0.4123	***	0.6714	**	0.3733	**	0.6877	**
	(0.141)		(0.143)		(0.333)		(0.146)		(0.334)	
Entrepreneurial experience	0.558	***	0.569	***	0.5385	***	0.241		0.2426	
	(0.157)		(0.157)		(0.16)		(0.338)		(0.34)	
Fiscal			0.3381		0.5455	*	0.1936		0.4564	
			(0.245)		(0.324)		(0.34)		(0.432)	
Passion			0.4195	*	0.7213	**	0.08		0.2534	
			(0.233)		(0.294)		(0.352)		(0.381)	
Return			0.5477	***	0.7148	***	0.4385	*	0.5734	**
			(0.182)		(0.244)		(0.246)		(0.292)	
Fiscal # financial experience					-0.4767				-0.5346	
					(0.502)				(0.52)	
Passion # financial experience					-0.4557				-0.6259	
					(0.5)				(0.51)	
Return # financial experience					-0.2783				-0.2969	
					(0.365)				(0.365)	
Fiscal # entrepreneurial experience							0.284		0.2104	
							(0.49)		(0.507)	
Passion # entrepreneurial experience							0.8175	*	0.8954	*
							(0.465)		(0.472)	
Return # entrepreneurial experience							0.282		0.2907	
							(0.357)		(0.358)	
Investment experience	0.0888		0.0189		-0.0442		-0.0386		-0.0328	
	(0.135)		(0.138)		(0.141)		(0.14)		(0.141)	
Serial entrepreneur	-0.1691		-0.1533		-0.2047		-0.2245		-0.2474	
	(0.173)		(0.176)		(0.179)		(0.181)		(0.181)	
High-tech sector experience	0.2832		0.2744		0.2851		0.2781		0.2838	
	(0.183)		(0.184)		(0.186)		(0.186)		(0.186)	
Stakes retention	-0.0815		-0.0117		0.0347		0.0093		0.0009	
	(0.134)		(0.137)		(0.139)		(0.139)		(0.14)	
VCT	0.1566		0.1847		0.1376		0.114		0.1145	
	(0.13)		(0.131)		(0.134)		(0.134)		(0.135)	
Employed	0.4437	***	0.4261	***	0.4594	***	0.4666	***	0.4596	***
	(0.163)		(0.163)		(0.165)		(0.165)		(0.165)	
Entrepreneur	0.2413		0.2361		0.2701		0.2703		0.2706	
	(0.165)		(0.166)		(0.167)		(0.168)		(0.168)	
Constant	1.7758	***	2.2833	***	2.8345	***	2.4262	***	2.5974	***
	(0.367)		(0.41)		(0.452)		(0.458)		(0.482)	
Company region dummies	Yes		Yes		Yes		Yes		Yes	
N	370		356		356		356		356	

The Table reports the results of five ordered probit models. The dependent variable is the BA's attitude to risk taking, defined

on a scale from 1 (risk averse) to 4 (risk loving). Column I reports Model 0, with no motivations and no interacted terms. Column II reports the Baseline, in which motivations are included. Column III reports the results of the model in which financial experience is included as moderator. Column IV reports the results of the model in which entrepreneurial experience is included as moderator. Column V reports the results of the model in which both financial and entrepreneurial experience are included as moderators. The base category for investment motivations is “Diversification”. Robust standard errors are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Figure 1. Mediator effect of financial experience: Return motivation and risk propensity

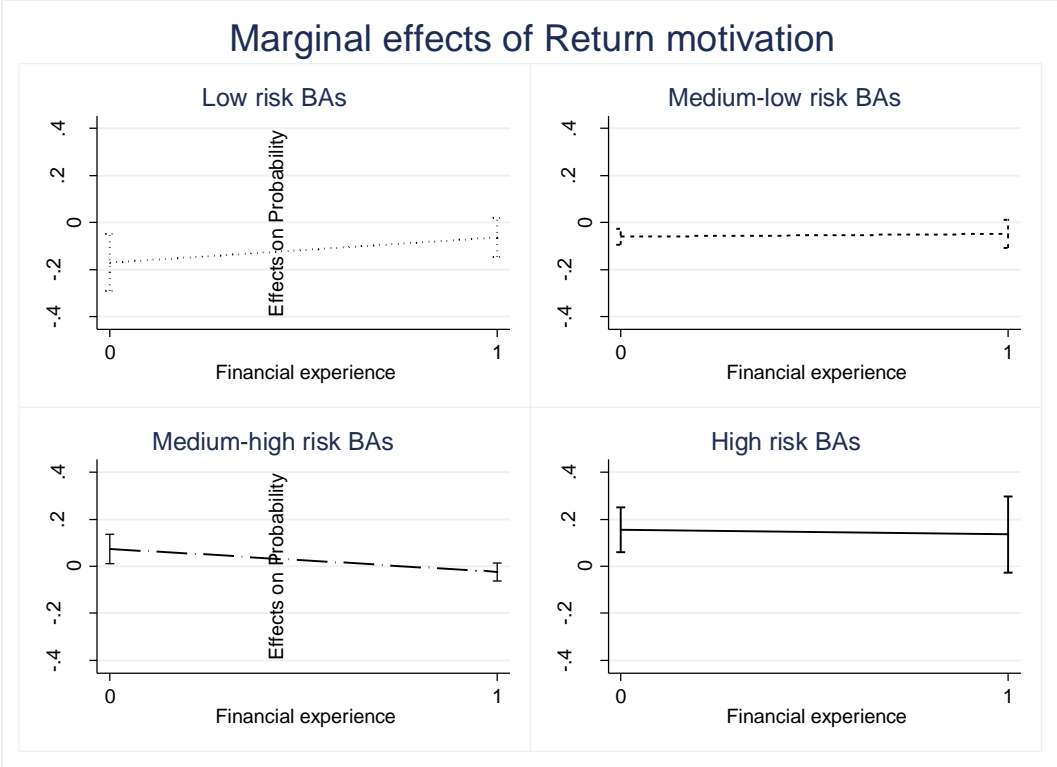


Figure 2. Mediator effect of financial experience: Passion motivation and risk propensity

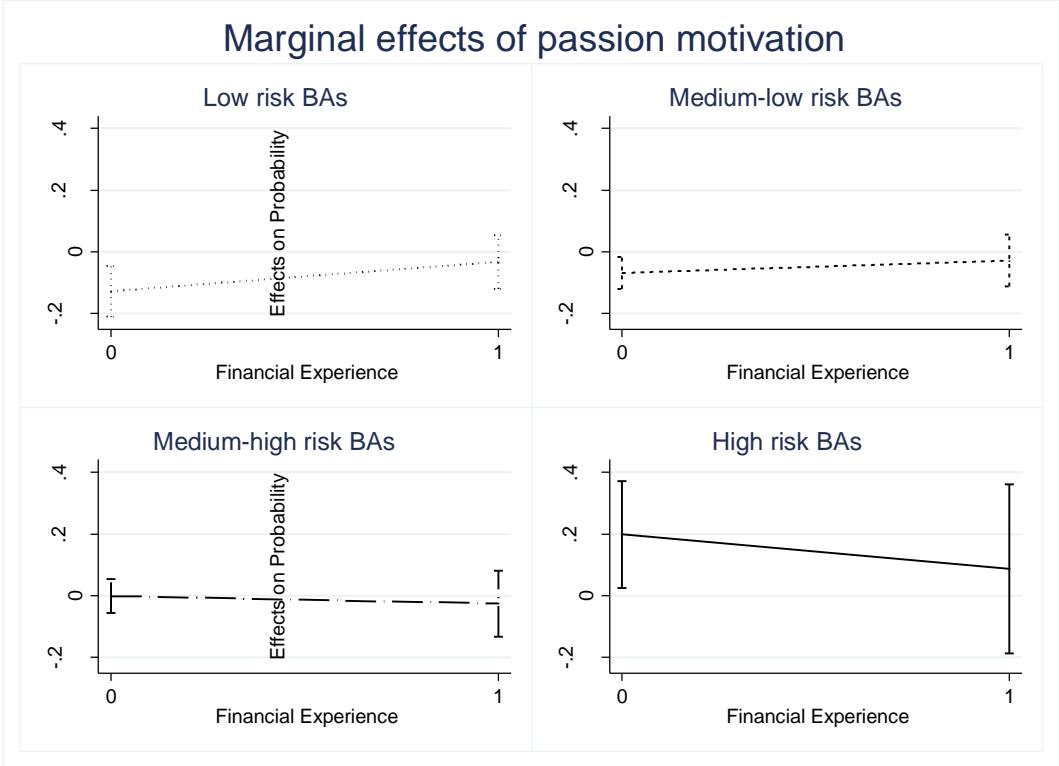


Figure 3. Mediator effect of entrepreneurial experience: Return motivation and risk propensity

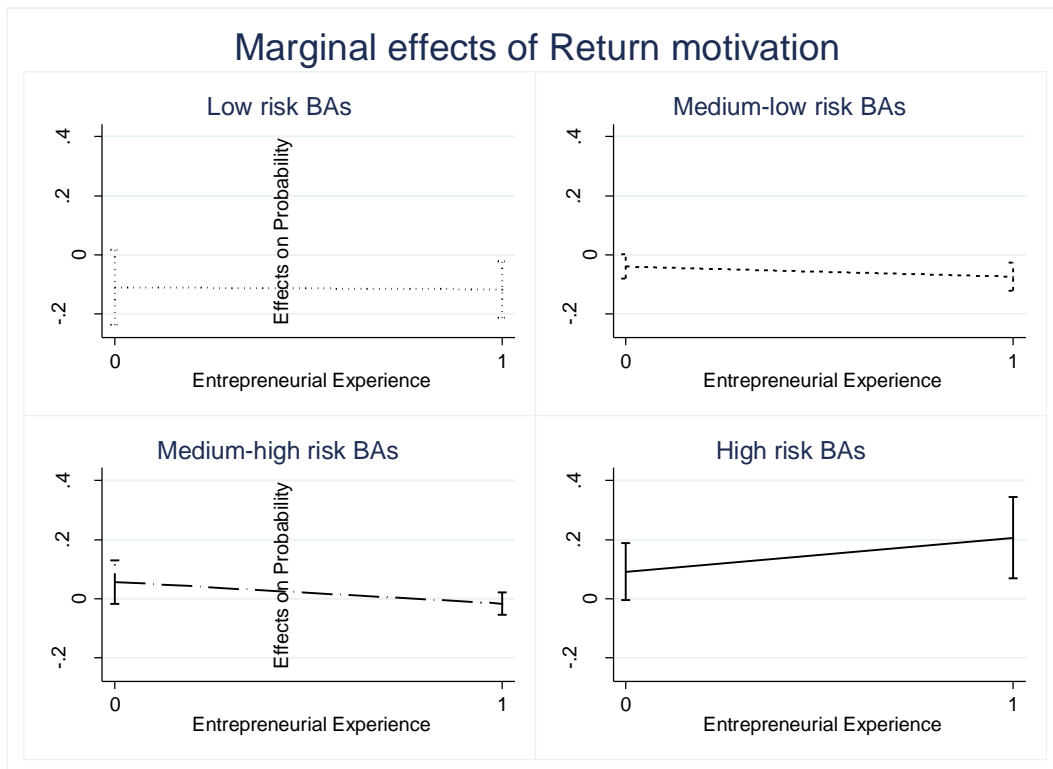
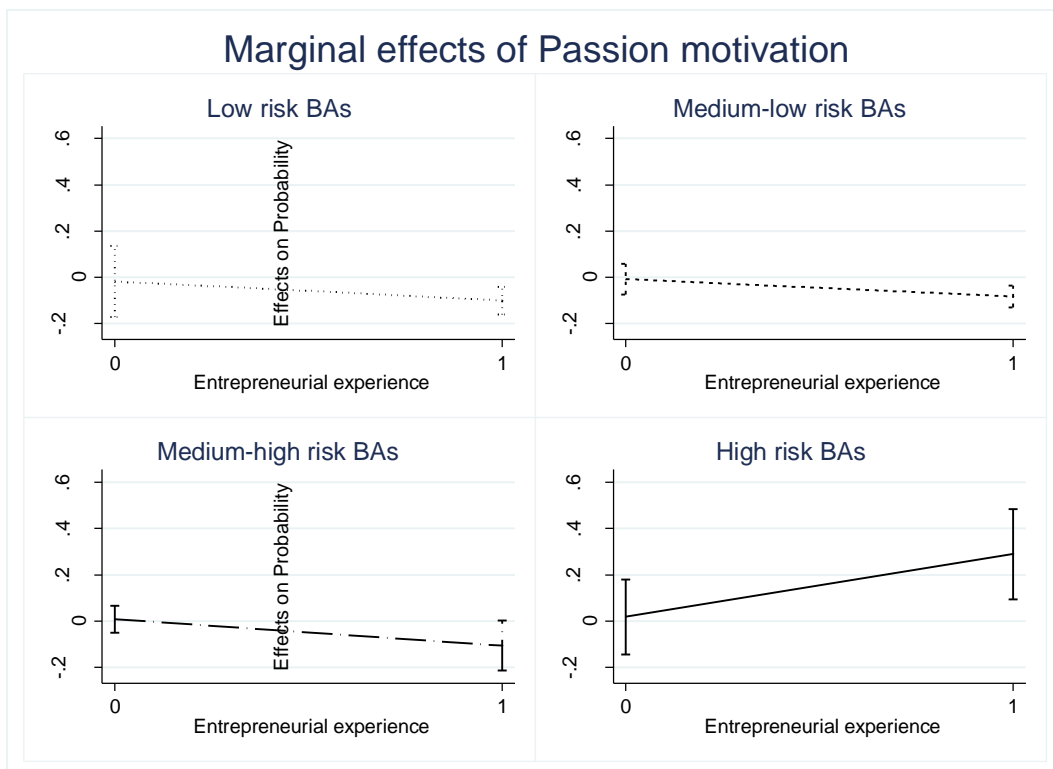


Figure 4. Mediator effect of entrepreneurial experience: Passion motivation and risk propensity



Appendix

Enterprise Investment Scheme (EIS) and Venture Capital Trusts (VCTs)

The Enterprise Investment Scheme (EIS) and Venture Capital Trusts (VCTs) were introduced by the UK government in 1994 and 1995 respectively and were explicitly designed to help smaller, higher risk, unquoted companies raise finance from private individuals either directly or through pooled investment funds.¹ Both schemes were expanded in April 2011, to broaden the size of companies to be invested in, as well as increasing total investment limits.

Both schemes still exist today and essentially offer a wide range of tax reliefs to investors willing to provide equity investments to relatively young and high growth businesses. The underlying rationale for these schemes is that the tax incentives provided to individuals should partially compensate them for the high potential risk to their investment capital associated with investments in younger, unquoted companies.

The EIS is administered by the HM Revenue and Customs (HMRC). EIS provides both income tax and capital gains reliefs to investors that invest either directly or indirectly (through an EIS fund) in qualifying unquoted companies. A company can qualify for the scheme after an audit undertaken by the Small Companies Enterprise Centre (SCEC). Eligible companies must not be quoted on a stock exchange or have gross assets exceeding £15 million (before April 2011 the limit was set at £7m) or more than 250 full-time employees (before April 2011 the limit was set to 49 employees). Companies are allowed to use the money raised by the share issue (the ceiling is now £5 million in total in any 12 month period from all the three Venture Capital Schemes, i.e. EIS, SEIS and Venture Capital Trusts) for the purpose of an existing qualifying trade or for RandD activities within 2 years of the shares being issued. Investors can

¹ Another tax based Venture Capital Scheme introduced by the UK government is the Seed Enterprise Investment Scheme (SEIS) which was not the object of the survey and thus is not considered in this paper.

take a maximum shareholding stake of 30%, and benefit through 30% tax relief, deferred capital gains tax, and capital gains tax exemptions, on a maximum £1m investment.

The Venture Capital Trusts (VCTs) offers similar tax advantages for individuals who invest indirectly in eligible unquoted companies, by subscribing ordinary shares in a specific VCT. The VCT, which must be listed on the UK Stock Exchange and approved by HMRC, then invests into a range of eligible companies. Asset and employment size restrictions for companies qualifying for VCT investments are identical to the EIS ones. As it happens for ordinary investment trusts, VCTs are managed by fund managers, who are often members of larger investment groups. The 2011 April reform also removed the £1m limit which a single VCT can invest in any one company.

Tables

Table A1. BAs' sectoral experience: In which sector have you worked the most?

BAs' sectoral experience	n. respondents	%
Agriculture, Forestry and Fishing	3	0.84
High Tech	48	13.48
Energy and Water Supply	30	8.43
Manufacturing	22	6.18
Construction	11	3.09
Distribution, Restaurants and Catering	7	1.97
Transport and Communication	14	3.93
Recreational Activities	3	0.84
Civil Service / Public Sector	8	2.25
Media / Design / Advertising	5	1.40
Education / Healthcare	29	8.15
Financial / Insurance services	113	31.74
Law and Legal services	18	5.06
Retail / Sales	14	3.93
Other business services	22	6.18
Other services	7	1.97
Don't know	1	0.28
Refused	1	0.28
Total	356	100

Table A2. Correlation matrix of the variables used in the empirical analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Risk propensity	1.000																
2 Return	0.115	1.000															
3 Passion	0.002	-0.505 *	1.000														
4 Fiscal	-0.038	-0.439 *	-0.146 *	1.000													
5 Diversification	-0.129	-0.499 *	-0.165 *	-0.144 *	1.000												
6 Financial experience	0.151 *	-0.052	-0.072	0.025	0.124	1.000											
7 Entrepreneurial experience	0.173 *	-0.095	0.120	0.032	-0.017	-0.052	1.000										
8 Investment experience	-0.019	0.107	0.036	-0.129	-0.069	-0.014	-0.039	1.000									
9 Serial entrepreneur	0.053	-0.116	0.190 *	-0.041	0.009	-0.045	0.601 *	-0.013	1.000								
10 High-tech sector experience	0.066	0.068	0.003	-0.062	-0.041	-0.269 *	0.098	-0.037	0.076	1.000							
11 Stakes retention	-0.082	-0.066	0.052	-0.094	0.126	-0.148 *	-0.059	0.315 *	-0.058	-0.049	1.000						
12 VCT	0.036	0.043	-0.077	-0.047	0.060	0.040	-0.099	0.294 *	-0.072	-0.089	0.162 *	1.000					
13 Proportion of wealth invested	0.196 *	0.104	-0.123	-0.026	0.000	0.042	0.030	0.109	0.000	0.013	-0.012	0.133	1.000				
14 Amount invested	0.157 *	-0.074	-0.013	0.061	0.062	0.136	0.130	0.072	0.141 *	-0.051	-0.066	0.083	0.139 *	1.000			
15 Employed	0.151 *	0.046	-0.055	-0.013	0.002	0.118	-0.173 *	-0.219 *	-0.157 *	0.067	-0.097	0.004	-0.058	0.002	1.000		
16 Entrepreneur	0.057	-0.086	0.113	0.045	-0.034	0.008	0.367 *	-0.145 *	0.229 *	0.012	-0.130	-0.290 *	-0.043	0.032	-0.489 *	1.000	
17 Retired	-0.205 *	0.040	-0.059	-0.032	0.032	-0.124	-0.197 *	0.359 *	-0.075	-0.077	0.225 *	0.286 *	0.100	-0.034	-0.492 *	-0.518 *	1.000