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SCHOOL OF ECONOMICS AND BUSINESS**

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**BUSINESS ANGELS AND EARLY-STAGE INVESTMENT:
DETERMINANTS THAT IMPACT DECISION-MAKING
PROCESSES**

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BUSINESS ANGELS AND EARLY-STAGE INVESTMENT: DETERMINANTS THAT IMPACT DECISION-MAKING PROCESSES

SUMMARY

Business angels are wealthy individuals who provide the most important direct source of early-stage risk capital to young ventures, enabling their survival and growth. For new ventures, business angels fill the gap in financing left when the financial sources provided by founders, family and friends have been exhausted and institutional funds are yet not available. They are a particularly important source of finance for ventures with high growth potential, the survival and long-term growth of which can have a direct impact on regional economic growth (Avdeitchikova & Landström, 2018). Despite this importance, over 70% of opportunities offered by entrepreneurs are rejected by business angels, mostly in the screening and evaluation stages of the investment process (Maxwell, 2018). The literature on the business angels' investment process has indicated that more nuanced knowledge related to the stages of the process is needed in order to mitigate high rejection rates. Because the investment process itself is subjective in nature, it is likely that business angels' cognitive and self-regulatory processes contribute to their decision to accept or reject the investment opportunities pitched by start-up entrepreneurs. Even before the initial stages of the investment process, cognitive and self-regulatory processes enable business angels to become alert to investment opportunities.

In this dissertation, we shed light on how cognitive processes/antecedents contribute to the emergence of alertness to investment opportunities and angels' evaluation of an investment opportunity. Most business angels do not understand what kinds of criteria prevail when they make investments in new ventures (Maxwell, 2018). In this research, we captured insights into business angels' decision-making through semi-structured interviews in order to better understand the cognitive aspects of the investment process dynamics. By analyzing the narrative data collected through the interviews, we established patterns in relation to the extant theory. Based on the data from the interviews, we built conceptual models and proposed specific hypotheses to be empirically tested.

In our study, we propose that in the early stages of the investment process business angels evaluate investment opportunities using cognitive and self-regulatory processes, drawing from the theory of planned behavior (Ajzen, 1991). These processes serve as heuristics to reduce the cognitive efforts involved in reaching an investment decision. Because the investment process itself is intentional, business angels are driven by their goals, such as expected profit from an investment, a post-investment role for themselves, or the mere desirability of the investment. Moreover, business angels' promotion focus plays a significant role in the process, emphasizing the salience of regulatory focus not only during the opportunity identification and new venture creation process for entrepreneurs, but also in the early stages of the investment process.

The most important findings of this dissertation could be summarized as follows: Business angels are goal-oriented individuals who regulate their perception of the situation to engage in alert scanning and search for profit opportunities. Alert scanning and search is stimulated by promotion focus, which motivates business angels to seek out information. Such a state of increased attention helps business angels to associate, connect, and organize seemingly unrelated information in their environment, which is characterized by information asymmetry. Promotion focus directs business angels' attention toward information that fits with their regulatory focus, acting as a kind of decision heuristic when evaluating the potential of an investment opportunity. Business angels seek to align the perceived positive outcomes of an investment (e.g., potential profit, their own role in the investment) with their promotion focus, thereby instigating feelings of pleasure. When this happens, the need for rational analysis decreases and thus the role of cognitive style is diminished. Instead, business angels place weight on experiences that have proven successful in the past. Within this context, it is possible that business angels' prior investment experiences influence their inclination to engage in risky behavior in the future.

The findings of this dissertation could help entrepreneurship theory and practice to explain how business angels become alert to investment opportunities and evaluate them in the early stages of the investment process. The findings suggest that all stakeholders in the investment process – business angels, entrepreneurs, educators, business angel networks, and policymakers – should create strategies that will enable angels to better understand their cognitive and regulatory processes and related heuristics. Ideally, during the early stages of an investment opportunity evaluation, business angels should nurture their promotion regulatory focus. Based on our findings, we suggest that prospective entrepreneurs develop their business model presentations to target a business angel audience in a promotion-focused manner.

Key words: business angels, investment process, regulatory focus, entrepreneurial alertness, cognitive style, risk propensity, goal orientation, mixed methods

POSLOVNI ANGELI IN NALOŽBE V ZGODNJI FAZI: DEJAVNIKI, KI VPLIVAJO NA PROCESSE ODLOČANJA

POVZETEK

Poslovni angeli so premožni posamezniki in so najpomembnejši neposredni vir tveganega kapitala za mlada podjetja, tj. v zgodnji fazi njihovega razvoja, pri čemer poslovni angeli pripomorejo k preživetju in rasti teh podjetij. Pri mladih podjetjih zapolnjujejo finančno vrzel med ustanovitelji, družinskimi člani in prijatelji ter institucionalnimi viri financiranja. Za mlada podjetja z možnostjo za visoko rast so posebno pomemben vir financiranja, saj ima lahko uspeh takih podjetij neposreden vpliv na gospodarsko rast v regiji. Kljub velikemu pomenu tovrstnega financiranja poslovni angeli zavrnejo več kot sedemdeset odstotkov vseh naložbenih priložnosti, ki jih predstavijo podjetniki, največkrat v fazah začetnega preverjanja in evalvacije te priložnosti. Iz literature o odločitvenih procesih poslovnih angelov je razvidno, da je o fazah odločitvenega procesa potrebno večplastno znanje, da bi lahko omilili visoko stopnjo zavrnitev naložbenih priložnosti. Ker je naložbenje po svoji naravi zelo subjektivno, je precej verjetno, da bodo miselni in samoregulacijski procesi poslovnih angelov doprinesli k njihovi odločitvi, ali dano naložbeno priložnost sprejmejo ali zavrnejo. Ti procesi naredijo poslovne angele budne v zvezi z naložbenimi priložnostmi še pred začetno fazo naložbenja. Poleg tega ti procesi odgovarjajo na večno podjetniško vprašanje, zakaj nekateri posamezniki postanejo podjetniki, drugi pa ne.

Ta disertacija obravnava omenjena vprašanja z osvetlitvijo, kako miselni procesi ali predhodni dejavniki prispevajo k pojavu budnosti v zvezi z naložbenimi priložnostmi in na evalvacijo te priložnosti. V tej raziskavi smo s polstrukturiranimi intervjuji pridobili uvide v načine, kako se poslovni angeli odločajo o naložbenih priložnostih. Vsak intervju smo analizirali in odkrili vzorce v odnosu do obstoječe teorije. Na podlagi podatkov, pridobljenih z intervjuji, smo zgradili konceptualne modele in navedli specifične hipoteze za empirično preverjanje.

Na podlagi teorije o načrtovanem vedenju, ki je široko uporabljen model pričakovane vrednosti namenskega vedenja, trdimo, da poslovni angeli pri naložbenju v zgodnji fazi poslovanja podjetja tako priložnost evalvirajo z miselnimi in samoregulacijskimi procesi. Ti procesi so uporabni kot heuristike, saj zmanjšujejo miselni napor pri sprejemanju odločitve. Ker je naložbeni proces načrten, ženejo poslovne angele njihovi cilji, na primer pričakovani donos, kakšno vlogo bodo imeli v podjetju po naložbi ali zaželenost naložbe. Poleg tega ima proaktiven fokus poslovnega angela pomembno vlogo v procesu, saj poudarja pomen regulacijskega fokusa ne le med prepoznavanjem priložnosti in pri podjetnikih pri procesu ustvarjanja novega podjetja, ampak tudi pri naložbenju v zgodnji fazi poslovanja podjetja.

Najpomembnejše izsledke te disertacije lahko povzamemo, kot sledi. Poslovni angeli so ciljno usmerjeni posamezniki, ki svoje dojemanje položaja usmerjajo tako, da zaženejo budno preverjanje in iskanje donosnih priložnosti. Proaktiven fokus vzdržuje visoko raven

budnega preverjanja in iskanja ter poslovnim angelom pomaga, da zmanjšajo informacijsko asimetrijo v svojem okolju z navezovanjem, povezovanjem in organiziranjem na videz nepovezanih informacij. Ker proaktivno osredotočeni poslovni angeli več pozornosti namenjajo informacijam, ki se ujemajo z njihovim regulacijskim fokusom, ima lahko proaktiven fokus vlogo odločitvene hevristike, kadar poslovni angeli evalvirajo naložbeno priložnost. Iz vzporedne primerjave prednosti zaznanega dobička in njihove vloge pri naložbi (na primer njihove cilje) z njihovim proaktivnim fokusom je razvidno, da poslovni angeli občutijo užitek in naložbo povežejo s pozitivnimi lastnostmi in morebitnimi dobički. Ko se to zgodi, proaktivni fokus prevlada nad načrtovalnim slogom razmišljanja in zmanjša željo poslovnega angela po racionalni analizi, namesto tega pa okrepi pretekle izkušnje, ki so se izkazale za učinkovite. Možno je, da pretekle pozitivne naložbene izkušnje poslovnih angelov okrepijo njihovo nagnjenost k prihodnjim tveganjem.

Izsledki te disertacije bi lahko podjetniški teoriji in praksi pomagali razložiti, kako postanejo poslovni angeli pri naložbenju v zgodnji fazi poslovanja podjetja budni v zvezi z naložbenimi priložnostmi in kako jih evalvirajo. Izsledki kažejo, da bi morali vsi zainteresirani deležniki v naložbenem procesu – poslovni angeli, podjetniki, izobraževalci, mreže poslovnih angelov in ustvarjalci politik – ustvarjati strategije, ki bi poslovne angele pomagale poučiti o njihovemu mišljenju in samoregulaciji ter bi negovale njihov proaktivni fokus. Podjetniki pa bi morali pripraviti svoje predstavitve, poslovne načrte in odgovore na vprašanja poslovnih angelov na proaktivno osredotočen način.

Ključne besede: poslovni angel, naložbeni proces, regulacijski fokus, podjetniška budnost, slog razmišljanja, nagnjenost k tveganjem, ciljna usmerjenost, mešane metode.

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1 INTRODUCTION

The possibility of successfully securing funding in the early stages of venture development can be crucial for venture survival and growth (Alsos, Isaksen, & Ljunggren, 2006). Even though the success of new ventures is in the interest of entrepreneurs, public policy, and key stakeholders in the entrepreneurial ecosystem (Mason, 2006a), many new ventures have difficulties finding the financial support to achieve their growth potential (Van Osnabrugge, 2000). Many new ventures are financed from “internal” sources, mainly through funds from owners, family, or friends, or through different bootstrapping techniques (Freear, Sohl, & Wetzel, 2002). Consequently, they must rely on their founder's social capital to forge contacts with all stakeholders, such as clients, investors, debtors, and subcontractors (Bosma, Van Praag, Thurik, & De Wit, 2004), in order to support the eventual success of the venture (Semrau & Sigmund, 2012). Once founders' private capital is depleted in early-stage ventures, they require external sources of funding, such as bank loans, venture capital funds, and private investors or business angels. Bank loans require the security of personal assets, which are scarce in early ventures. Younger ventures also endure the liability of newness, such as lack of organizational legitimacy. In addition, young ventures suffer a liability of smallness, in that, they have higher failure rates than their older counterparts. This causes a contradictory situation for young ventures: While they need external support, they do not appear to be good exchange partners (Sigmund, Semrau, & Wegner, 2015). Instead, to protect their own interests, venture capital funds invest in larger ventures because of the high costs incurred in conducting due diligence. Therefore, the role of business angels in financing new ventures is of unprecedented importance.

As the essential process of getting funding is unpredictable, many researchers have explored various aspects and outcomes of venture funding over the past 30 years (Drover et al., 2017). Research on angel investments has also gained attention, particularly since Wetzel published a seminal study on business angels (Wetzel & Seymour, 1981). Wetzel was one of the first to coin the term “business angel” to refer to individuals who make risky investments in young entrepreneurial ventures. He sought to shed light on the importance of business angels and their investments, giving them visibility as a key stakeholder in an entrepreneurial ecosystem and emphasizing their salience in early venture financing (Mason, 2018). Business angels invest their own money in the venture in the hope of financial return. After making their investment, business angels often take an active involvement in the business – not replacing the entrepreneur (Bruton, Fried, & Hisrich, 2000), but working alongside him or her (Maxwell, 2018).

Freear, Sohl, and Wetzel's (1995) survey found that around one quarter of respondents used external equity financing for their ventures, showing preference for business angel financing over venture capital fund financing. In the United States and in Europe, business angels represent the biggest share of the early-stage investment market (EBAN, 2017). Currently, business angel investments in Europe amount to only EUR 3–4 billion per year compared to

nearly EUR 20 billion in the United States, despite the GDP in Europe currently being some USD 20 trillion greater than that of the United States (based on data provided by the Angel Capital Association (ACA) and the European Business Angel Network (EBAN)). In Europe, pre-seed and seed phase companies receive the vast amount of investment, with seed stage taking the largest amount. However, business angels tend to invest smaller amounts per investment, focusing on enabling business model development, boosting venture activities, and making the business more professional (Politis, Gabrielsson, & Shveykina, 2012). Despite the market size and importance of business angels, there is still little understanding of business angels' investment process (Tenca, Croce, & Ughetto, 2018).

Business angels' investment decision-making is a multi-stage process (Maxwell, Jeffrey, & Lévesque, 2011), with different factors considered at each stage (Van Osnabrugge, 2000). Authors have identified various models to explain business angels' investment process (see Maxwell, 2018, for a detailed review). Based on their observations of venture capital investors' decision-making, Tyebjee and Bruno (1984) and Fried and Hisrich (1994) developed an initial multi-stage model of the investment decision-making process. To verify whether business angels indeed follow the same process as venture capitalists, Duxbury, Haines, and Riding (1997) developed a model revealing the differences between the two investment processes. Van Osnabrugge (2000) attributed these differences to differences in agency relationships: Business angels need to justify their decisions only to themselves, whereas venture capitalists must be responsible to their investors and thus must engage in a more formal investment process than business angels (Maxwell, 2018). Riding, Madill, and Haines (2007) extended Duxbury et al.'s (1997) model to include subsequent stages of the investment process because they observed that business angels' post-investment expectations influence their interactions with entrepreneurs in the terms of the nature of the long-term relationship and angels' role in the venture. Finally, Maxwell et al. (2011) further enhanced the multi-stage investment model by focusing on the selection stage of the process, which is usually viewed as the most delicate stage. Maxwell et al. (2011) investigated different factors related to the entrepreneur, the venture and the predicted relationships at each stage, confirming the earlier findings of Mason and Rogers (1997) regarding the varying nature of the interactions throughout the multi-stage process. Moreover, Maxwell et al. (2011) found that experienced investors use decision heuristics when faced with multiple investment opportunities in the deal origination stage.

Initial screening takes place once business angels have identified the opportunity and evaluated whether it fits with their individual investment criteria. Rather than conducting an in-depth review of the entrepreneur's business plan at this stage, business angels quickly review the opportunity. Over 70% of opportunities presented are rejected at this stage (Riding, Dal Cin, Duxbury, Haines, & Safrata, 1993) due to issues with the venture itself, concerns about the entrepreneur, the business angel–entrepreneur fit, or the impossibility of participating in post-investment activities (Maxwell, 2018). During the selection (evaluation) stage, business angels and entrepreneurs first meet and interact, and the

investment offer is made or the opportunity rejected. Rejections in this stage are related to the presence of a single fatal flaw, insufficient return or risk, or concerns about the entrepreneur's ability to manage the venture in the best interest of the business angel (Maxwell et al., 2011).

Understanding the business angel's investment decision-making process requires an understanding of intangible characteristics that are supportive to business angels during the evaluation stage of the investment process. In this research, we frame the investment process as an intention-driven process like an opportunity emergence process (Krueger, Reilly, & Carsrud, 2000). This allows us to better understand how business angels' attitudes influence their intention to invest in a given venture. Intentionality has a significant impact on the investment process, as it directs attention, experience, and action (Dimov, 2007). In turn, we need to understand the extent to which business angels' cognitions affect their judgments in this particular stage of the investment process.

The focal interest of this research, therefore, is on the role of the cognitive and self-regulatory processes that support business angels' alertness to investment opportunities, their intention to invest, and the likelihood of positively evaluating an investment opportunity, as the dependent variables. Following the literature on angel investments highlighting the intangible resources of business angels that can influence the process (Cardon, Sudek, & Mitteness, 2009; Mitteness, Sudek, & Cardon, 2012; Sudek, 2006), we investigate the roles of entrepreneurial alertness, regulatory focus, cognitive style, risk propensity, and goal orientation as the independent variables. We connect the cognitive perspective from social psychology (Baron, 2004a, 2004b) with the entrepreneurial and organizational literature on alertness, regulatory focus, cognitive style, and risk propensity. We draw on this framework to develop propositions concerning the context of business angels. Understanding these processes is of interest to different stakeholders in the investment process by increasing the chances of business angels closing a larger portion of deals, by positioning entrepreneurs to obtain the funding they need to expand their ventures, and by supporting educators, policymakers, and practitioners in designing different strategies to increase the percentage of successful interactions between business angels and entrepreneurs and thus the number of investments made.

1.1 Research Problem and Purpose

Riding et al. (2007) noted the need for more research on how the business angels' investment process is initiated, and what criteria business angels use in their decision-making. Tenca et al. (2018) explained how more studies are needed to explore the extent to which the intangible personal aspects of business angels impact the different stages of the investment process. From a theoretical perspective, this dissertation addresses the gap in our understanding of how cognitive processes and their antecedents support early stages of the investment decision-making process in light of its importance to the entrepreneurial creation of new ventures. To date, study in this area has been challenged by the relative lack of

suitable data on both business angels and the investments they make, particularly due to the intentional invisibility of this source of entrepreneurial finance. Obstacles in identifying business angels impact sample sizes, the representativeness of samples, the types of possible analysis, comparability between studies, and study replication (Mason, 2018).

The focus of this dissertation is on exploring how business angels' specific cognitions contribute to the positive evaluation of an identified investment opportunity in the early stages of the investment process (the deal origination and initial screening stages according to Maxwell and colleagues' 2011 model). Prior research has suggested that business angels tend to use heuristics to reduce the overall decision-making effort required (Harrison, Mason, & Smith, 2015; Mason & Rogers, 1997). In fact, evidence from the informal equity markets suggests that business angels often reject opportunities because they do not want to take the time to reduce some of the perceived risks when there are other, less risky opportunities available (Maxwell, 2018). This evidence leads us to think that there are underlying cognitive mechanisms directing business angels' behavior even before the initial interaction between business angel and entrepreneur, during the evaluation stage of the investment process. Thus, the main purpose of this dissertation is twofold: to understand how cognitive processes/antecedents contribute to the emergence of business angels' alertness to investment opportunities and to examine how cognitive processes contribute to the likelihood of business angels positively evaluating an investment opportunity.

1.2 Research Goals

With this dissertation, we aim to achieve the following research goals:

- To test and analyze the impact of investors' individual cognitive factors, such as alertness to investment opportunities, cognitive style, regulatory focus, and risk propensity, in the process of evaluating an investment opportunity;
- To test and analyze the moderation effects between business angels' cognitive style and regulatory focus, and the likelihood of them positively evaluating an investment opportunity;
- To test and analyze how alertness to investment opportunities emerges by proposing and investigating its antecedents;
- To propose practical implications to help business angels and entrepreneurs learn what factors can have an impact on the investment decision and thus improve the percentage of investments being made.

Research Question 1: Cognitive style refers to individual preferences in perceiving and processing information (Allinson & Hayes, 1996; Epstein, Pacini, Denes-Raj, & Heier, 1996; Grigorenko & Sternberg, 1995). Individual differences in cognitive style are relevant

in the context of decision-making (Leonard, Scholl, & Kowalski, 1999), as people engage in decision-making processes that are compatible with their cognitive style (Gardner & Martinko, 1996; Hunt, Krzystofiak, Meindl, & Yousry, 1989). It is important to enrich the understanding of the nature and significance of individual differences in information-processing and decision-making that may influence behavior.

To explore the role of cognitive style in business angels' decision-making processes, we ask the following research question:

- *Research question 1:* What dimensions of cognitive style have a significant impact on business angels' likelihood of positive evaluating an investment opportunity?

Research Questions 2 & 3: Regulatory focus theory explains how people engage in self-regulation – the process of bringing oneself into alignment with one's standards and goals (Higgins, 1998). This theory provides a well-developed framework to better understand the various motivations, beliefs, and behaviors that ultimately dictate whether a given entrepreneurial venture will be successful (Brockner, Higgins, & Low, 2004). Venture capitalists show considerable motivation to make correct rejections – i.e., to separate economically viable opportunities worthy of financial support from ones that are not viable – perhaps even more so than entrepreneurs (Baron, 2002). It is important to explore the joint influence between cognitive style and regulatory focus orientation, asking why, when faced with the same information, some business angels perceive an investment opportunity whereas others do not (Venkataraman, 1997).

To explore the role of business angels' regulatory focus in their decision-making processes, we address the following research questions:

- *Research question 2:* Is there any relationship between business angels' specific cognitive style and their regulatory focus?
- *Research question 3:* How does the interaction between specific cognitive style and regulatory focus impact the business angel's likelihood of positively evaluating an investment opportunity?

Research Questions 4 & 5: Kirzner (1973, 1979) defined the concept of alertness as the ability to identify opportunities that are overlooked by other. Drawing on this definition, Gaglio and Katz (2001) suggested that entrepreneurs may possess a schema or mental framework that assists them in being alert to opportunities. This schema is known as entrepreneurial alertness. However, McMullen and Shepherd (2006) argued that alertness is not entrepreneurial unless it involves judgment and a movement toward action. Expanding on this, Tang, Kacmar, and Busenitz (2012), conceptualized alertness as having three complementary dimensions: scanning and searching for new information, connecting previously disparate information, and evaluating whether the new information represents an opportunity. Recent research has found the first dimension of alertness to be part of the

entrepreneurial cognition process (Alvarez & Busenitz, 2001; Mitchell et al., 2007), characterized by pre-existing knowledge, preparedness, and sensitivity to new opportunities. The second dimension, alert association and connection, addresses how individuals cognitively respond to and process new information cues (Kirzner, 1999). Building on McMullen and Shepherd's (2006) work, Tang et al. (2012) suggested that the third dimension involves making evaluations and judgments about the new changes, shifts, or information and deciding whether they indicate a business opportunity with profit potential. Most recently, Adomako, Danso, Boso, and Narteh (2018) conceptualized entrepreneurial alertness as a cognitive resource that affords the entrepreneur a cognitive capacity to identify opportunities ahead of others.

Risk propensity is an individual's tendency "either to take or to avoid risk" (Sitkin & Pablo, 1992, p. 12). Risk propensity is a personality trait that is directly related to an individual's decision-making behavior (Zhang & Cain, 2017). Risk propensity is not a stable trait because it depends on the level of domain experience (Bryant & Dunford, 2008). It becomes more stable as domain experience increases over time. Differences in individuals' risk propensity inform their risk perception and behavior related to possible decision outcomes (Forlani & Mullins, 2000).

To explore the entrepreneurial alertness of business angels and the role of risk propensity in their decision-making processes, we answer the following research questions:

- *Research question 4:* What are the roles of regulatory focus, entrepreneurial alertness, and risk propensity in the process of business angels' evaluation of an investment opportunity?
- *Research question 5:* Is there any relationship between business angels' regulatory focus, their goal orientation, and specific dimensions of alertness to investment opportunities?

Research Question 6: In entrepreneurship, Haynie and Shepherd (2009) applied the concept of metacognition to explain how an entrepreneur can learn effectively from environmental cues. Goal orientation is one of the five dimensions of metacognition and represents the extent to which the individual interprets situational cues in light of personal, social, and business goals. Business angels' goal orientation describes how they perceive investment-related specificities and what behavioral activities they will use in response.

To explore business angels' goal orientation and its role in their evaluation of an investment opportunity, we pose the following research question:

- *Research question 6:* How does the interaction between a business angel's goal orientation and regulatory focus impact the emergence of alertness to investment opportunities?

1.3 Theoretical and Practical Contributions

This doctoral dissertation contributes to the knowledge base in this field from different perspectives. Our first contribution is to the literature that focuses on the stages of the business angels' investment process. Existing research (Riding, Duxbury, & Haines, 1997) has suggested that business angels reject many opportunities during the early stages of the investment process and less than 5% of fund-seeking entrepreneurs actually receive this type of financing. Following Maxwell and colleagues' (2011) stages of the business angels' investment process, we focus on the early stages of the process, suggesting that cognitive factors can help explain the relationship between business angels' motivation and their positive or negative evaluation of an investment opportunity.

Second, we contribute to the body of literature on the role of an individual's regulatory focus in decision-making outcomes. Even though scholars have long recognized the varying impact of regulatory focus at the different stages of the entrepreneurial process (Brockner et al., 2004), for example in opportunity recognition (Tumasjan & Braun, 2012) and opportunity exploitation (Hmieleski & Baron, 2008; McMullen & Shepherd, 2006), there is scant evidence on how regulatory focus impacts business angels' behaviors.

Regulatory focus theory posits two separate, independent orientations that are related to value motivation. This important individual-level process affects the valence and intensity of personal goals and motivation to achieve these goals (Bryant & Dunford, 2008). We argue that, throughout the stages of the investment process, business angels focus on selective information regarding an investment opportunity at hand, such as gain or losses, and in this they use regulatory focus as a decision heuristic. Regulatory focus as a decision heuristic enables business angels to employ less mental effort in evaluating an investment opportunity (Burmeister-Lamp, Lévesque, & Schade, 2012). By including the idea of a business angel's cognitive style, we acknowledge that, due to differences in personal cognitive style, business angels with similar regulatory focus may interpret investment-opportunity-related information differently, which leads to varied outcomes in angels' evaluation of an investment opportunity.

Third, we extend the body of knowledge on entrepreneurial alertness by examining its role in the likelihood of business angels positively evaluating an investment opportunity. Drawing on the cognitive approach to the alertness process (Amato, Baron, Barbieri, Bélanger, & Pierro, 2016; Tang et al., 2012), we examine the three dimensions of entrepreneurial alertness and its antecedents. Previous research has highlighted the role of a wide array of determinants in the emergence of an individual's alertness, such as prior knowledge, personality traits, and social networks (Ardichvili, Cardozo, & Ray, 2003); the impact of information distribution across agents (Minniti, 2004); environmental munificence (Tang, 2008); and strategic orientation and knowledge acquisition (Ma & Huang, 2016). However, the question of how an individual's self-regulatory motivation facilitates alertness to investment opportunities has remained relatively unexplored. Given the variations that

may occur in business angels' regulatory focus, we argue that business angels' regulatory orientation may positively predict their alertness to investments. Deeper understanding of these processes is important, primarily because of the large social and economic impacts of angel-related financing (Valliere, 2013).

Fourth, we contribute to the literature on goal orientation in entrepreneurship. By using the idea that an entrepreneurial mindset is metacognitive in nature (Haynie, Shepherd, Mosakowski, & Earley, 2010), we can explore the dynamics of the cognitive processes associated with how entrepreneurial alertness evolves. We establish a relationship between goal-related cognitions and alertness that precedes the deal origination phase in the business angels' multi-stage investment process (Maxwell et al., 2011). Existing research has emphasized that how individuals deal with the situation or problem depends on their level of metacognition (Schraw & Dennison, 1994). We propose that goal orientation influences entrepreneurial alertness through the tendency of a goal-motivated individual to search for a certain type of information. Because goal orientation makes individuals highly sensitive and receptive to feedback from the environment, business angels are more likely to adapt to their "evolving and unfolding context" (Haynie et al., 2010, p. 218) and be more alert to information related to an investment opportunity.

Finally, this dissertation has important practical implications both for entrepreneurs, who can use the findings to improve their acquisition of financial resources, and for business angels, who can develop a better understanding of their own decision-making processes. A recent study by Kanze, Huang, Conley, and Higgins (2018) indicated that the ways in which business angels use their regulatory focus to collect information from entrepreneurs when evaluating an investment opportunity impacts the final amount of funding collected. In particular, female entrepreneurs acquire significantly less funding than male entrepreneurs with similar funding requirements. One explanation for this is that business angels tend to pose prevention-oriented questions to female entrepreneurs who in turn respond with prevention-focused answers. By contrast, questions that business angels address to male entrepreneurs are most often promotion-focused and thus male entrepreneurs respond by pitching entrepreneurs in a promotion-focused way. Furthermore, showing how the three dimensions of entrepreneurial alertness emerge has important practical implications for business angels (Valliere, 2013). In particular, this knowledge can facilitate their learning process by integrating new information and overcoming the psychological barriers associated with investment decisions. During the investment process, establishing a better fit in the angel–entrepreneur dyad in terms of angels' psychological characteristics will be of great benefit to both entrepreneurs and business angels. Moreover, as social cognition theory confirms that the inference process of individuals can be improved with formal training or permanent reminders of appropriate inferential techniques (Fiske & Taylor, 1984), policymakers, business schools, and consulting educators could use these findings to develop more effective support, advice, teaching, and practical training to improve success on both sides of the dyad.

1.4 Structure of the Dissertation

The dissertation is prepared in the form of a collection of scientific papers organized into three main chapters plus a concluding discussion. Following the introduction, Chapter 2 looks at the roles of regulatory focus, entrepreneurial alertness, cognitive style, and risk propensity in the investment intentionality of business angels. Although prior literature has argued that perceived desirability and perceived feasibility of the venture are the two main antecedents of the intentional behavior of entrepreneurs, little is known about the intentional behavior of business angels. We address this gap by linking the role of regulatory focus and entrepreneurial alertness to the formation of investment intentions.

In Chapter 3, we investigate how interaction effects of the two cognitive mechanisms – regulatory focus and cognitive style – are associated with the process of evaluating an investment opportunity. Prior research has suggested that the nature of this relationship influences success in attaining equity financing, which is of unprecedented importance for start-up firms due to the liability of newness and the liability of smallness in the early stages of development.

In Chapter 4, we investigate how business angels' regulatory focus and goal orientation are associated with the three dimensions of alertness to an investment opportunity (scanning and search, association and connection, and evaluation and judgment). In recent years, the alertness literature has progressed significantly in explaining the dynamics of opportunity emergence. Yet, little is known about the antecedents motivating the alertness of other important stakeholders in entrepreneurship, such as business angels.

Following Chapter 4, there is a concluding chapter, which summarizes the body of work and reviews the main implications and limitations. The appendices include all relevant materials used for research, such as the questionnaire, cover letters, and list of questions for the semi-structured interviews. The dissertation concludes with an extended abstract in the Slovene language as Appendix A. Appendix B contains a list of questions posed in the semi-structured interviews; Appendix C shows the measurement models used in the research; the questionnaire is given in Appendix D; Appendices E and F include the cover letters sent to EBAN and ACA business angels, respectively; and Appendix G offers data on the sample make-up and descriptive statistics.

2 EXPLORING ANTECEDENTS OF BUSINESS ANGELS' INTENTION TO INVEST

Abstract

In this research, we use regulatory focus theory to explore the cognitive mechanisms that contribute to the formation of business angels' intention to invest. Although prior literature has argued that perceived desirability and perceived feasibility are the two main antecedents of the intentional behavior of entrepreneurs, little is known about the antecedents of the intentional behavior of business angels. We address this gap by linking the role of regulatory focus and entrepreneurial alertness to the formation of investment intentions. We begin by collecting qualitative data via semi-structured interviews with business angels to gain a broad perspective on business angels' intentional behaviors, their goals, planning activities and several characteristics related to cognition. We collected survey data from an international sample of business angels to find that entrepreneurial alertness with its scanning and search dimension plays an important role in intentionality. Furthermore, business angels that have promotion regulatory focus are more likely to form investment intentions.

Key words: intention to invest, entrepreneurial alertness, regulatory focus, cognitive style, risk propensity

JEL classification D81

2.1 Introduction

Business angels serve as the most important direct source of early-stage risk capital to entrepreneurs (Mason, 2006a) and constitute a critical financial source, filling the gap between founders, family and friends, and institutional funds (White & Dumay, 2017). In its 2016 statistics compendium, the European Trade Association for Business Angels, Seed Funds and Early Stage Market Players' (EBAN) estimated that the European early-stage investment market was worth 9.9 billion Euros. The biggest share of that investment (6.7 billion Euros) belonged to business angels, followed by venture capital funds (2.5 billion Euros) and the rapidly growing area of equity crowdfunding investments. The number of business angels in Europe is estimated at upwards of 300,000. In south-east European countries (such as Slovenia, Serbia, Macedonia, Croatia, and Kosovo), 193 business angels were registered through EBAN in 2016, with 90 investments worth 8.8 million Euros. In these countries, the average investment per business angel network (BAN) was 1.76 million Euros, while the European average per BAN was 2.37 million Euros. Anecdotal evidence suggests that there is an even greater number of unregistered (e.g., invisible) business angels, but there are no official data about them and their activities.

Given that public policy in both developed and developing countries has focused on start-up companies as propellers of innovation and economic growth (Mason, Botelho, & Harrison,

2016), it is important to understand what individual-level processes impact business angels' intention to invest. In studying angel investors, prior researchers have argued (Lindsay, 2004) that entrepreneurs and business angels are alike in terms of the determinants and dynamics of their decision-making strategies and processes when acting upon opportunities. Prior research on business angels has mainly focused on the impact of the investor's age, work experience, opportunity evaluation, and degree of involvement; different stages of the investment process; and exit strategies (Moen, Sørheim, & Erikson, 2008). Researchers have also explored how the cognitive processes of business angels are linked to the distinct stages of the investment process (Maxwell et al., 2011). As business angels pass through these different stages, they try to determine the deal that best fits with their personal investment goals (Mitteness, Sudek, & Cardon, 2012). This stream of research, however, has not shed sufficient light on the antecedents and mechanisms that support the formation of business angels' investment intentions. In this study, we aim to explain how different individual cognitive and motivational factors shape business angels' intention to invest. We explore the role of determinants related to opportunity recognition (i.e., entrepreneurial alertness, regulatory focus, cognitive style, and risk propensity) in the context of business angels. To do so, we develop a theoretical model of angels' intentionality and empirically test the proposed relationships. This knowledge has important implications for supporting business angels' investment-related decision-making processes.

We contribute to the literature by examining the role played by business angels' regulatory focus and entrepreneurial alertness in the formation of investment intentions. Even though scholars have long recognized the varying impact of regulatory focus at the different stages of the entrepreneurial process (Brockner et al., 2004; e.g., in opportunity recognition (Tumasjan & Braun, 2012) and opportunity exploitation (Hmieleski & Baron, 2008; McMullen & Shepherd, 2006)), there is scant evidence on how regulatory focus impacts business angels' behaviors. Second, we extend the body of knowledge on entrepreneurial alertness by examining its role in the formation of investment intentions. Drawing on the cognitive approach to the alertness process (Amato et al., 2016; Tang et al., 2012), we examine the three dimensions of entrepreneurial alertness and their relationship to angels' intention to invest. However, in this study, we highlight the role of entrepreneurial alertness as an antecedent of emergence of intention to invest rather than its role in the opportunity identification context. Showing how the three dimensions of entrepreneurial alertness relate to investment intentions has important practical implications for business angels (Valliere, 2013). In particular, this knowledge can facilitate their learning process by integrating new information and overcoming the psychological barriers associated with investment decisions. During the investment process, establishing a better fit in the angel–entrepreneur dyad in terms of angels' psychological characteristics will benefit not only the entrepreneurs and business angels, but also policy creators, business schools, and consulting educators, who could develop more effective support, advice, teaching, and practical training to improve success on both sides of the dyad.

2.2 Literature Review

2.2.1 The Investment Process as Planned Behavior

We review the literature on the investment process as intentional behavior, given that it precedes decision-making and action (Shirokova, Osiyevskyy, & Bogatyreva, 2016). Such behavior involves thinking about potential future actions, processing information cues from the environment, and engaging in careful planning and analysis (Dimov, 2007). Entrepreneurial intention is a function of the perceived feasibility and perceived desirability of a new venture (Krueger et al., 2000). In this study, intention refers to the conscious and planned state of mind that directs and guides business angels toward specific actions (Boyd & Vozikis, 1994). The process of forming an intention relies on angels' cognitive schemas that guide attention and information processing. Schemas are complex and adaptive mental frameworks that individuals use to "make sense of the world" (Valliere, 2013), or frameworks through which new information acquires meaning. Cognitive flexibility, that is, the ability to notice the relationship between two disparate pieces of information (Foo, Uy, & Murnieks, 2015), helps business angels to identify profit opportunities. Whereas "opportunity" for entrepreneurs is tied to a venture idea (Davidsson, 2003), for business angels it is tied to an investment opportunity (Alvarez & Barney, 2007).

The theory of planned behavior (Ajzen, 1991) outlines three attitudinal antecedents of intention. The first two antecedents – personal attitudes toward behavioral outcomes and perceived social norms – reflect perceived desirability. The third – perceived behavioral control – is related to the perceived feasibility of performing the planned behavior. Revisiting Ajzen's (1991) theory, we argue that business angels may be motivated by the investment's favorable (i.e., profit maximization) and unfavorable (i.e., risk exposure) outcomes. Entrepreneurial alertness, regulatory focus, and cognitive style represent angels' cognitive resources, each of which is linked to the idea of profit maximization. These determinants frame business angels' perception of an investment's feasibility and desirability (Fitzsimmons & Douglas, 2011), thereby influencing their intention to invest. We discuss these ideas below.

2.2.2 Entrepreneurial Alertness

Entrepreneurial alertness is defined as an individual's ability to see opportunities where others do not (Kirzner, 1979). Cognitive abilities related to prior knowledge, experiences, creativity, and general mental ability constitute a base for entrepreneurial alertness and influence individuals' information processing (Gielnik, Krämer, Kappel, & Frese, 2014). Recently, Tang et al. (2012) defined entrepreneurial alertness as a process consisting of three sequential stages that enhance the individual's ability to recognize new opportunities: scanning and search, association and connection, and evaluation and judgment. In the scanning and search stage, entrepreneurs are relentless in searching for information and seek to build a broad knowledge base of domain-specific information; such information combined

with the individual's knowledge base builds grounds for opportunity identification (Tang et al., 2012). The function of one's existing knowledge base is to moderate the collection of new knowledge, to fit new knowledge with existing knowledge, and to accommodate new situations. The association and connection stage relates to entrepreneurs' cognitive ability to "connect the dots" between diverse material (Baron, 2006) by receiving new information and integrating it into an existing cognitive framework. When a broader perspective is formed, entrepreneurs may need to repeat the scanning and search stage in order to make adjustments or fine-tune the search to produce more associations. Evaluation and judgment is the final stage of the alertness process, wherein entrepreneurs determine whether an opportunity is worth pursuing. This stage is crucial for identifying opportunities and evaluating whether opportunities fit with the entrepreneur's existing cognitive framework.

Transferring these findings to research on business angels, we observe that the feedback that business angels receive during an entrepreneur's presentation/pitch shapes their perception of whether or not the investment constitutes an opportunity (Amato et al., 2016). Even though angels cannot influence the intensity of environmental change (Shane, 2003), they can keep their cognitive schemas activated at a level at which they can be triggered by even the smallest stimuli. As such, their schemas continuously develop through experience and repetition, creating strong associations between particular stimuli. At this very early stage of the investment process, scanning and search is expected to have the most significant influence. As business angels search for information (Kaish & Gilad, 1991), scanning and search mechanisms increase the likelihood of business angels identifying important events and trends, and thus adapting to environmental shifts (Stewart, May, & Kalia, 2008). This leads us to propose the following hypotheses (H1a&H1b&H1c):

- The scanning and search dimension of entrepreneurial alertness is positively associated with business angels' intention to invest.
- The association and connection dimension of entrepreneurial alertness is positively associated with business angels' intention to invest.
- The evaluation and judgment dimension of entrepreneurial alertness is positively associated with business angels' intention to invest.

2.2.3 Regulatory Focus

Regulatory focus theory (Higgins, 1997, 1998) describes an individual's orientation toward future goals by explaining how goal-directed behavior is regulated by two distinct, asymmetric self-regulatory mindsets: promotion focus and prevention focus. Both foci integrate an individual's motivation to achieve desired end-states and avoid undesired end-states, balancing between potential benefits and potential losses. Promotion-focused individuals are motivated to accomplish goals through growth, trying to reach their ideal selves (Higgins, 1997). Such individuals may thus be more likely to identify new investment opportunities. By contrast, prevention-focused individuals are motivated by security, duty,

and responsibility when striving toward their goals, and tend to avoid errors of commission (Higgins, 1997).

We argue that these two foci are particularly crucial during the early stage of the investment decision-making process. Prior research on regulatory focus (Crowe & Higgins, 1997) has shown that promotion-focused individuals tend to primarily detect those signals that justify a positive response, while prevention-focused individuals tend to avoid making mistakes and thus prefer a negative response. The entrepreneurial intention of promotion-focused individuals increases as the subjectively perceived benefits of entrepreneurial action increase (McMullen & Shepherd, 2002). In the early stage of the entrepreneurial process, Tumasjan and Braun (2012) found that entrepreneurs' promotion focus positively influences opportunity identification. By contrast, in the pre-selection stage, prevention focus slows down the formation of an investment intention, since prevention-focused business angels would rather avoid investments with pure potential than "pick" winners (Mason & Harrison, 2002a). Given the focus on avoiding potential losses, a prevention focus mindset is likely to emerge after the intention has been established and the entrepreneur must assess the feasibility of the investment. Accordingly, we propose the following hypotheses (H2&H3):

- Promotion focus is positively associated with intention to invest.
- Prevention focus is negatively associated with intention to invest.

2.2.4 Cognitive Style

Witkin, Moore, Goodenough, & Cox (1977, p. 15) defined cognitive style as "individual differences in the way people perceive, think, solve problems, learn and relate to others." Such cognitive differences emerge as individuals adapt to their external context through specific cognitive abilities and personality traits (Kozhevnikov, Evans, & Kosslyn, 2014). In an entrepreneurial context, cognitive style refers to one's decision-making style and higher-level information processing. Specific cognitive styles are suited to different phases of the entrepreneurial process (Krueger & Kickul, 2006), including the formation of entrepreneurial intentions (Barbosa, Gerhardt, & Kickul, 2007). Individuals with a planning cognitive style use a narrow range of solutions to problems; they apply a traditional, conservative approach to increase efficiency; and they are loyal to conventional rules (Cools & Van den Broeck, 2007). Notably, they dedicate a lot of time to planning and preparation in order to reach their goals. Because they are more rigorous in processing information before making decisions, they tend to be less susceptible to risk (Barbosa et al., 2007) and insist on respect for rules and agreements. Prior research suggests that when entrepreneurs adopt a planning cognitive style, they tend to think linearly and rationally. Previous findings have also indicated that, during the investment decision-making process, business angels make plans and focus on commercial outcomes (Mason & Harrison, 2008). Thus, we propose (H4):

- Planning cognitive style is positively associated with intention to invest.

2.2.5 Risk Propensity

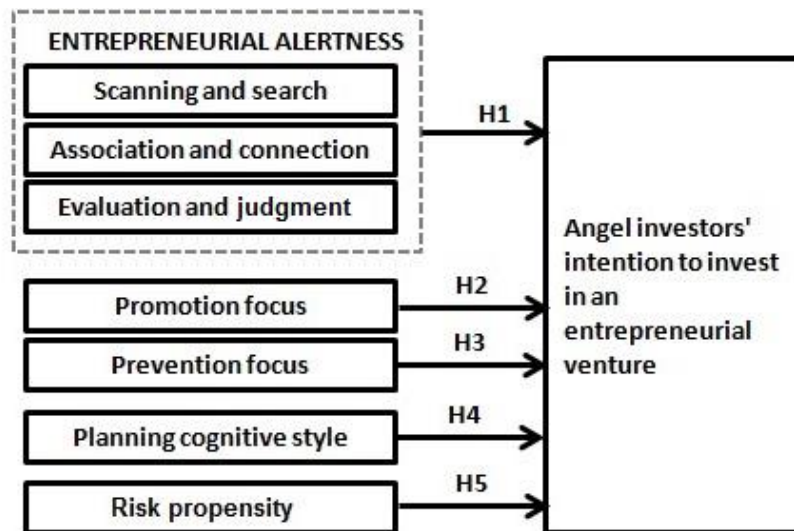
Risk propensity is an individual's tendency "either to take or to avoid risk" (Sitkin & Pablo, 1992, p. 12). Risk propensity is a personality trait that is directly related to an individual's decision-making behavior (Zhang & Cain, 2017). Risk propensity is not a stable trait because it depends on the level of domain experience (Bryant & Dunford, 2008). It becomes more stable as domain experience increases over time. Differences in individuals' risk propensity inform their risk perception and behavior related to possible decision outcomes (Forlani & Mullins, 2000).

Entrepreneurship research has examined several drivers of individuals' risk perception. For example, Palich and Ray Bagby (1995) confirmed previous findings that entrepreneurs employ different heuristics and biases that are negatively associated with risk perception (Keh, Foo, & Lim, 2002). When faced with information overload in the process of forming an intention to invest, business angels choose which information to select, encode, and process. Business angels with a higher risk propensity will perceive fewer risks related to a potential investment opportunity than those who have a lower risk propensity (Forlani & Mullins, 2000; Sitkin & Weingart, 1995). Taken together, these studies highlight the importance of risk propensity for the decision-making process related to a new venture; they also suggest that risk propensity may be a potential antecedent to the formation of business angels' intention to invest. In turn, these findings suggest the following hypothesis (H5):

- Risk propensity is positively associated with intention to invest.

In the proposed framework (Figure 1), we integrate ideas from the theory of planned behavior (Ajzen, 1991), entrepreneurial alertness (Kirzner, 1979), regulatory focus (Higgins, 1997, 1998), cognitive style (Witkin et al., 1977), and risk propensity (Forlani & Mullins, 2000). This framework suggests that entrepreneurial alertness, promotion focus, prevention focus, and risk propensity directly influence business angels' intention to invest. Entrepreneurial alertness makes business angels open to collecting new domain-specific knowledge – a process that is supported by promotion focus and planning cognitive style. Higher risk propensity leads to the perception of less risk and thus facilitates the formation of an investment intention.

Figure 1: Proposed theoretical model integrating entrepreneurial alertness, regulatory focus, planning cognitive style and risk propensity



Source: Own work

2.3 Methodology

2.3.1 Research Design

In order to understand what cognitive processes are important in business angels' decision-making, we used an exploratory mixed methods approach (Bryman, 2006; Greene, 2007). Mixed methods approaches incorporate both qualitative and quantitative techniques at each stage of the research (Johnson & Onwuegbuzie, 2004) and pay particular attention to firmly related phenomena (Creswell, 2003). As our goal was to examine the intangible mechanisms underlying business angels' intention to invest, rather than to analyze investment outcomes, qualitative data further assisted us in the interpretation, clarification, description, and validation of the quantitative results (Johnson, Onwuegbuzie, & Turner, 2007). Qualitative and quantitative data were collected during the first quarter of 2015 from two independent sources: semi-structured, open-ended interviews and an online survey.

2.3.2 Qualitative Study Among Business Angels

In order to aid in the conceptual development of the study and have grounds for selecting constructs and their scales in the quantitative survey, we decided to start our empirical research by conducting semi-structured interviews with business angels. We expected that business angels would provide information that illuminated their personal attitudes and perceptions on aspects related to investment decision-making.

The recruitment process for the personal interviews was carried out through e-mails and telephone calls to encourage business angels to participate in the research. Because business angels tend to prefer anonymity (Wetzel, 1983), the support from EBAN and word of mouth from the initial contacts helped us to recruit volunteers for the interview from the hidden population (Mason, Botelho, & Zygmunt, 2017). The first criterion for selecting the 20

business angels controlled for their past investment experience in executing early-stage funding deals. To ensure the reliability of the information provided by participants, we followed Wiltbank, Read, Dew, and Sarasvathy's (2009) list of tangible baseline factors identified as significant in the context of business angels' investment process, for example, the number of total venture investments, investment experience, entrepreneurial experience, the number of investments made in the seed-stage, and due diligence. We conducted 16 interviews via Skype with participants located in Austria, Denmark, England, Estonia, Finland, France, Germany, Switzerland, and the United States, and four face-to-face interviews with participants from Austria, Slovenia, Switzerland, and the United States. To minimize potential shortfalls between different native speakers (Brislin, 1970), all interviews were conducted in English. The selected business angels were middle-aged (an average of 52 years of age), male (90%), self-employed consultants (80%). They were highly experienced in entrepreneurship (80% had founded one or multiple businesses; the other 20% had participated in managers' buy-out/buy-in), with an average number of 3.34 start-ups founded. Most of them (90%) invested financial resources in conventional angel investments (85%). The focus of investment interest was on technology-based firms (40%), and the majority invested in both technology- and non-technology-based firms (60%). All together they invested in deals with a median of 10 completed deals, a figure similar to that of Mason and colleagues' (2017) study. By comparing the sample in this study to recent studies of business angels by Mason et al. (2017) and Mason and Botelho (2014), we can authenticate the representativeness of the sample.

We asked participants broad, open-ended questions related to their typical habits during the investment process. To foster a relaxing atmosphere, we started with questions about their background, work experience, investment experience, motivation for investment, and current work status. The participants were not informed of the particular focus of the research (e.g., business angels' cognitive processes); we told them that we were exploring business angels' decision-making behavior in order to avoid potential self-report bias. Each interview lasted one hour. We took manual notes instead of recording the participants in order to avoid any visual and emotional pressure on participants (Bryman, 2006). We used the same set of questions for all interviews throughout the interview process. The list of interview questions is given in Appendix B.

2.3.3 Quantitative Study Among Business Angels

The empirical sample for the research was compiled through an online survey among business angels from Europe (EBAN) and the United States (ACA). We sent the survey link to 343 angel groups in Europe and 273 in United States, and 87 completed surveys were returned (15% response rate). After eliminating 32 incomplete surveys, the dataset for quantitative analysis was drawn from 55 valid responses. Such sample size met the size requirements established by using Monte Carlo simulations (Wolf, Harrington, Clark, & Miller, 2013). In Wolf and colleagues' (2013) case, a sample size of 50 participants was

required to achieve minimal bias, adequate statistical power, and overall propriety (in the case of single-factor CFA models with eight indicators with loadings of 0.65).

Respondents were mostly male (94%) and on average 54 years old (ranging from 34 to 73 years old). More than half of the business angels in the sample were from European countries (53%), and 47% were from the United States. Among European countries, the largest percentage of participants was from Switzerland (20%).

The results of the non-response bias analysis (Armstrong & Overton, 1977) demonstrated that there were no statistically significant differences between the groups in alert scanning and search ($p = 0.743$), alert association and connection ($p = 0.878$), alert evaluation and judgment ($p = 0.831$), promotion focus ($p = 0.254$), prevention focus ($p = 0.335$), planning cognitive style ($p = 0.318$), risk propensity ($p = 0.348$), or intention to invest ($p = 0.645$). Since no significant differences were found, it was concluded that non-response bias was not a concern in this study. Certainly, identifying business angels through business angel networks may have excluded data from non-registered angels or from angels who lacked success and so left the groups, suggesting presence of survivor bias and self-selection bias (Harrison & Mason, 2007).

There are marked similarities between the demographic characteristics of the respondents in our sample and those of the largest sample of business angels (Mason & Botelho, 2014). In our sample, 75% of business angels had at least a university degree and 48.6% had a postgraduate (Master's or MBA) degree. The only statistically significant differences between the samples were in the mean age of 54 years and the 6% share of women angels. However, these differences were not sufficiently significant to warrant a re-examination of the sample's reliability, particular with respect to the lack of gender diversity (Harrison & Mason, 2007).

2.3.3.1 Measures

Dependent variable

Entrepreneurial intent was measured using Chen, Greene, and Crick's (1998) entrepreneurial decision scale, which consists of items assessing individuals' intention to start a business. The original measure assesses entrepreneurial intention with five items on a 5-point Likert scale (1=very unlikely; 5=very likely). Respondents were asked to indicate the likelihood of engaging in certain investment activities over the following year. Confirmatory factor analysis results in good overall fit of the model after addition of one error covariance between similarly worded items (RMSEA = 0.07; NFI = 0.99; NNFI = 1; CFI = 1; IFI = 1, SRMR = 0.01; SB $\chi^2 = 5.15$; $df = 4$; $p = 0.272$).

Independent variables

Entrepreneurial alertness was measured using a 13-item scale developed by Tang et al. (2012). This is a 7-point Likert-type scale ranging from 1=never to 7=always and includes three dimensions: scanning and search, association and connection, and evaluation and judgment. The scanning and search dimension was assessed with six items (e.g., I have frequent interactions with others to acquire new information); association and connection was assessed with three items (e.g., I see links between seemingly unrelated pieces of information); and evaluation and judgment was assessed with four items (e.g., I have a gut feeling for potential opportunities). The fit indices of the measurement model for entrepreneurial alertness scale indicated good model fit (RMSEA = 0.05; NFI = 0.98; NNFI = 0.99; CFI = 1; IFI = 1, SRMR = 0.03; SB χ^2 = 59.4; df = 49; p = 0.146), supporting convergent and discriminant validity.

Regulatory focus was measured using the 11-item regulatory focus scale developed by Higgins and colleagues (2001). The scale assesses the history of individuals' success at promotion and prevention tasks in their lives. Regulatory focus was scored on a 5-point Likert-type scale (1=never or seldom; 5=very often). Scale items included, for example, Compared to most people, are you typically unable to get what you want out of life?; and How often did you obey rules and regulations that were established by your parents? The fit indices in the measurement model for the regulatory focus scale demonstrated good overall fit (RMSEA = 0.08; NFI = 0.93; NNFI = 0.97; CFI = 0.99; IFI = 0.99, SRMR = 0.05; SB χ^2 = 25.6; df = 19; p = 0.141).

Planning cognitive style was assessed using the Cognitive Style Indicator (CSI) scale (Cools & Van den Broeck, 2007) and measured on a 7-point Likert-type scale (1=totally disagree to 7=totally agree). The CSI consists of seven items measuring the planning style dimension (e.g., I prefer clear structures to do my job). The fit indices in the measurement model for the planning cognitive style demonstrated good overall fit (RMSEA = 0; NFI = 0.98; NNFI = 1; CFI = 1; IFI = 1, SRMR = 0.02; SB χ^2 = 6.77; df = 8; p = 0.561).

Risk propensity was measured using the riskiness dimension taken from the Strategic Orientation of Business Enterprise (STROBE) scale (Venkataraman, 1989) and scored on a 7-point Likert scale (1=strongly disagree, 7=strongly agree). The measurement model fit of the risk propensity scale indicated good model fit (RMSEA = 0.03; NFI = 0.98; NNFI = 0.99; CFI = 0.99; IFI = 0.99, SRMR = 0.03; SB χ^2 = 2.13; df = 2; p = 0.346).

Control variables

The country of origin was considered as a control to check for differences between the American and European angels with respect to their intention to invest. Second, the investor's entrepreneurial experience was considered as a control variable, because the investor's prior knowledge and experience is likely to impact his/her intention to invest (e.g., Tumasjan & Braun, 2012). Investor's experience was assessed according to the baseline

factors Wiltbank et al. (2009) identified as being important for angel investors. The baseline model includes total venture investments, investment experience, entrepreneurial experience, due diligence, deals through personal relationships, prior investments, and post-investment participation. The overall fit of the measurement model for investor's experience was good (RMSEA = 0.04; NFI = 0.94; NNFI = 1; CFI = 1; IFI = 1, SRMR = 0.07; SB χ^2 = 36; df = 34; p = 0.373). Composite reliability was 0.93.

2.4 Results of Empirical Analysis and Discussion

2.4.1 Results from Qualitative Study

We employed an inductive perspective to analyze the interviews. We aimed to identify different levels of intention to invest; to discover if selected business angels had past investment experience; to identify patterns related to alertness for new information; to identify angels' goals; to collect data on the amount of time business angels dedicate to planning activities and their motivation for investing; and finally to determine angels' risk propensity.

The interview data were open-coded for themes related to different facets of the decision-making process in the context of investment decisions. We coded transcripts specifically to identify the degree of investment intention. Intention to invest was defined as a plan to invest money in a new, unquoted venture, as indicated in business angels' descriptions of such plans. In order to increase reliability, we coded intention to invest as low or high, instead of using a single option (Kerlinger & Lee, 1999). After repeat readings of the transcripts, we defined high intention to invest in those business angels who discussed past investment experience (including entrepreneurial experience), currently considered investments, and precise future investment plans. As one business angel stated: "I'm based exclusively on proven attributes and experiences." Twelve business angels met these requirements. Low intention to invest was associated with eight business angels who discussed past investment experience and currently considered investments, and were open to the possibility of making an investment. Low intention to invest was exemplified by the business angel who stated: "I'm focused on an exit strategy at this moment to get my money out. I wouldn't mind getting into a new investment if a good opportunity comes up."

Furthermore, we open-coded (Strauss & Corbin, 1998) all data that could be considered a reflection of business angels' decision-making values, attitudes toward risk, and predictions of future outcomes. We noted the frequent appearance of the word "information" in terms of information search, information exchange, valuable information, utilizing information, limited information, accurate information, and information-based planning. A few participants mentioned information exchange as a prerequisite for investing. For example, one interviewee stated: "Clearly being an effective communicator is critical. I talked to many angels before I started investing and learned from their best practices and experiences." Other open codes were created based on the meanings that emerged from the data. Table 1

summarizes the leading keywords in coding for alertness, regulatory focus, planning cognitive style, and risk propensity.

Table 1: Main coding keywords from qualitative interviews

Open code	Properties	Examples of participants' words
Seeking information	Being alert Being active	Accurate information, search for information, exchanging information, valuable information, utilizing information, limited information; Reduce uncertainty about that information; Create value; Seize opportunities
Searching for opportunities	Being aware of uncertainty Being creative Wanting to act	
Goal achievement	Motivated Being vigilant Being eager Sensitive	Opportunities for gain, creating and accepting new ideas; Not make mistakes, feel secure; Play to win, feel excited, learn things quickly; How you feel when you succeed or fail
Implementation intention	Being analytical Being conservative	Detailed explanation, interested in figures, information-based planning, poor potential, expected earning, detailed business plan; Conservative approach
Operating in a risky environment	Being aware of risk	Risk-taking, risk-avoiding, uncertainty, unrealistic expectations, very few business plans highlight risk, confidence, risk analysis, over-optimistic cash flow, challenge, investment discipline, persistence

Source: Own work

Table 2 shows an analysis of the interview sample divided into the two groups of high and low intention to invest, along with coding frequencies. We found that all of the business angels interviewed exhibited entrepreneurial alertness in the terms of a proactive approach rooted in their different cognitive capacities and in other resources such as past investment and/or entrepreneurial experience, ability to process information, and goal expectations (Tang et al., 2012). Promotion focus enhances business angels' motivational strength toward investing by giving them a "subjective sense of importance to the activity" (Spiegel, Grant-Pillow, & Higgins, 2004, p. 40) and consequently a stronger sense of engagement in the investment. Low planning in this early stage of the investment process indicates that business angels do not extensively think about or analyze possible barriers, such as poor investment quality or acceptable investment terms (Mason & Harrison, 2002b). Rather, they attach more value to optimistic forecasts of possible gains, demonstrating a high propensity for risk-taking.

Table 2: Number of interviewees ($N = 20$) according to their entrepreneurial alertness, regulatory focus, planning cognitive style, and risk propensity code, by level of intention (column percentages are shown)

VARIABLE	INTENTION TO INVEST	
	LOW (8 BA)	HIGH (12 BA)
Entrepreneurial alertness low	0 (0%)	0 (0%)
Entrepreneurial alertness high	8 (100%)	12 (100%)
Prevention low	0 (0%)	5 (41.7%)
Prevention high	8 (100%)	7 (58.3%)
Planning low	7 (87.5%)	9 (75%)
Planning high	1 (12.5%)	3 (25%)
Promotion low	7 (87.5%)	3 (25%)
Promotion high	1 (12.5%)	9 (75%)
Risk propensity low	7 (87.5%)	3 (25%)
Risk propensity high	1 (12.5%)	9 (75%)

Source: Own work

2.4.2 Results from Quantitative Study

Confirmatory factor analysis was conducted on the items representing the latent constructs (intention to invest, entrepreneurial alertness, regulatory focus, risk propensity) included in our conceptual model. Composite measures were calculated as averages of the items measuring the same construct; these were used in the statistical regression models. Due to multicollinearity, several multiple linear regression models were attempted, each with one entrepreneurial alertness dimension and planning cognitive style dimension. The significance level was set to $\alpha = 0.05$, two-tailed. SPSS 23.0 and LISREL 8.80 were used for statistical analysis.

Multiple linear regression analysis was employed to test the relationships between entrepreneurial alertness, regulatory focus, planning cognitive style, risk propensity, and intention to invest. Control variables were considered but omitted from the final regression models due to a statistically non-significant relationship with intention to invest. In order to avoid multicollinearity, three regression models were considered, each with a separate entrepreneurial alertness measure (model 1–model 3), while other predictors and the dependent variable remained unchanged. Correlations between variables and descriptive statistics are summarized in Table 3.

Table 3: Correlation matrix and descriptive statistics

Dimension	M	SD	P	SS	A	EJ	RP	Pre	Pro	EE	US	INT
P	5.10	1.34	1									
SS	5.61	1.32	0.49**	1								

AC	5.55	1.4	0.39**	0.79**	1							
EJ	5.03	1.26	0.49**	0.72**	0.70**	1						
RP	3.96	1.30	-0.77**	-0.28*	-0.22	-0.34*	1					
Pre	3.13	0.78	-0.26	-0.58**	-0.53**	-0.45**	0.18	1				
Pro	3.86	0.8	0.58**	0.71**	0.65**	0.72**	-0.45**	-0.50**	1			
EE	0.01	0.75	-0.34*	-0.05	0.01	-0.08	0.31*	0.14	-0.14	1		
C	0.47	0.5	-0.29*	0.12	0.01	-0.08	0.20	0.01	0.13	0.31*	1	
INT	3.93	1.29	0.25	0.62**	0.56**	0.57**	-0.15	-0.56**	0.60**	0	0.17	1

Note: P = planning; SS = scanning and search; AC = association and connection; EJ = evaluation and judgment; RP = risk propensity; Pre = prevention; Pro = promotion; EE = entrepreneurial experience; C = country (US = 1; EU = 0); INT = intention to invest; M = mean; SD = standard deviation; $n = 55$

Source: Own work

The dimension of scanning and search in entrepreneurial alertness was included in the first model, association and connection dimension in the second model, and evaluation and judgment dimension in the third model. The hypotheses (1a; 1b; 1c) suggested positive associations between the three dimensions of entrepreneurial alertness and intention to invest. Of the three dimensions of entrepreneurial alertness, only the scanning and search dimension had a statistically significant, positive relationship ($p = 0.048$) with intention to invest, when controlling for promotion focus, prevention focus, planning cognitive style, and risk propensity. The relationships between association and connection, or evaluation and judgment and intention to invest were not statistically significant. Therefore, the empirical evidence provided support for Hypothesis 1a.

Hypothesis 2 suggested a positive association between promotion regulatory focus and intention to invest. Promotion focus showed a positive effect on intention to invest in all three regression models, in which a specific dimension of entrepreneurial alertness was included as independent variable. Standardized regression coefficients were similar in all three models, ranging from 0.36 to 0.42. Promotion focus showed a significant association with intention to invest, which provides support to Hypothesis 2. Hypothesis 3 suggested a positive association between prevention regulatory focus and intention to invest. Prevention focus had a marginally statistically significant, negative relationship ($p = 0.067$) with intention to invest in the first model (scanning and search dimension of alertness included), while the association in models 2 and 3 was statistically significant and negative. Based on the results, we cannot support Hypothesis 3.

Hypothesis 4 suggested a positive association between planning cognitive style and intention to invest. We did not find significant association between the two when controlling for the effects of the other independent variables. Hypothesis 4 was not supported. Hypothesis 5 suggested a positive association between risk propensity and intention to invest. We found no statistically significant relationship between risk propensity and intention to invest when controlling for the effects of the other independent variables. Hypothesis 5 was not

supported. In all three regression models, about 50% of the variance in business angels' intention to invest was explained by the independent variables included in the model. The results of the hypothesis testing are presented in Table 4.

Table 4: Factors associated with current investment intentions (results of multiple regression analysis)

	Model 1 (EA-scanning & search)	Model 2 (EA- association & connection)	Model 3 (EA- evaluation & judgment)
Dimension	Std. B (p-value)	Std. B (p-value)	Std. B (p-value)
Scanning and search	0.32 (0.048)		
Association and connection		0.19 (0.205)	
Evaluation and judgment			0.26 (0.097)
Promotion focus	0.36 (0.027)	0.42 (0.011)	0.36 (0.036)
Prevention focus	-0.24 (0.067)	-0.28 (0.029)	-0.3 (0.014)
Planning cognitive style	-0.18 (0.323)	-0.11 (0.536)	-0.12 (0.486)
Risk propensity	0 (0.985)	0.04 (0.801)	0.05 (0.737)
R ²	0.50	0.48	0.49

Source: Own work

2.5 Discussion

In this study, we explored variables that contribute to the emergence of business angels' intention to invest to find that business angels' investment intentionality is driven by their regulatory focus orientation and their entrepreneurial alertness. Consistent with the theoretical expectations, business angels who are entrepreneurially alert demonstrate a stronger tendency to form an intention to invest. Furthermore, promotion-focused business angels seem to be more likely to form an intention to invest. Driven by promotion regulatory focus, business angels are more open and oriented toward the generation of new ideas and creativity (Tang et al., 2012). Additionally, promotion focus maintains a high motivation intensity level for alert scanning and search (Higgins & Cornwell, 2016).

Although we hypothesized significant relationships between planning cognitive style and intention to invest, these were not supported empirically. This may be because of the role played by promotion focus in information processing at this early stage of the investment process when business angels are considering investment. Previous research on entrepreneurs (Baron, 1998) has shown that entrepreneurs use available decision heuristics

in information processing (Higgins & King, 1981). Since promotion-focused business angels pay more attention to information that is compatible with their regulatory focus, promotion focus might serve as such a decision heuristic when business angels are forming an intention to invest. By aligning the benefits of perceived profit (i.e., their goal) with their promotion focus, they feel pleasure and associate positive attributes and potential outcomes with the investment (Aaker & Lee, 2001; Burmeister-Lamp et al., 2012). When this occurs, promotion focus prevails over planning cognitive style and decreases the angel's preference for rational analysis, instead reinforcing past experiences that have proven effective. It could be interesting to examine the moment in the investment process when business angels switch from heuristic information processing to a more analytical approach (Westhead, Ucbasaran, & Wright, 2009). We expect that planning cognitive style moderates business angels' regulatory focus, depending on the investment stage, which is in line with Brockner et al.'s (2004) idea about alternation of regulatory foci for certain aspects of entrepreneurial process.

Furthermore, the results did not support our hypothesis that there would be a relationship between risk propensity and intention to invest. It may be that business angels' positive investment experiences in the past increase their propensity to take future risks. Business angels are able to process current information through the schemas identified in previous experiences, which in turn affect their risk perception (reducing perceived risk). In addition, business angels with promotion regulatory focus tend to take higher risks (i.e., have a higher risk propensity). Compared to risk propensity, regulatory focus is a more salient driver of investment behavior, as business angels use a stronger eagerness strategy to secure potential gains (Bryant & Dunford, 2008). Moreover, if investment is framed positively (Kahneman & Tversky, 1979) and success is expected, business angels develop higher risk propensity, since the propensity for risk is a situational characteristic that can develop over time (Bryant & Dunford, 2008).

By emphasizing the role of business angels' promotion focus in forming an intention to invest, these results add to the body of knowledge on regulatory focus. Furthermore, this research contributes to the entrepreneurial alertness literature by highlighting the role of the scanning and search dimension as it relates to investment intentions. Our predictions that were empirically supported emphasize the importance of the cognitive and self-regulatory processes specific to the early stage of the investment process. For example, a study conducted by Cox, Lortie, and Gramm (2017) investigated "the investment paradox" (i.e., why attractive new ventures exhibit relatively poor investment potential). These authors found that the "entrepreneur–angel fit" (i.e., the match between the lead entrepreneur's educational background and the previous industry experience of the business angel) influences angels' evaluation of the firm's potential. Such findings indicate that cognitive and self-regulatory processes are an important element in investment decision-making and should be considered alongside others because they can significantly modify angels' perception of fundamental investment criteria, regardless of the attractiveness of those criteria.

The practical implication of this research is related to establishing a better fit in the angel–entrepreneur dyad. Because both entrepreneurial alertness and regulatory focus are unique individual characteristics, there will be interaction between the business angel’s and the entrepreneur’s characteristics. Entrepreneurs and investors are alert to business opportunities and scan and search for specific kinds of information that fit with their regulatory focus. Accordingly, an investment can be perceived as promotion- or prevention-focused, depending on how it is presented. An investment that is presented as profitable, innovative, or profit-oriented is drawing on promotion-focused information, whereas an investment that is presented as risk- or loss-averse or uncertain in its outcome is communicating prevention-focused information (Halvorson & Higgins, 2013). Such motivational language can be learned. This suggests that both an entrepreneur in search of finance and a business angel in search of an investment opportunity should be ready to accommodate the other’s regulatory focus by providing information that will meet mutual expectations. In the end, as Halvorson and Higgins (2013) stated, the improved entrepreneur–investor dyad fit will increase trust, confidence, engagement, and value. Furthermore, as regulatory focus can be situationally provoked, learning could include simulations aimed at encouraging entrepreneurs to become more entrepreneurially alert and promotion-oriented when pitching to investors, and encouraging business angels to become interested in investing (Amato et al., 2016; Avnet & Higgins, 2003).

This study found that business angels’ intention to invest depends on individual-level characteristics. Since intention formation is an iterative process that emerges and develops, future research could further examine these relationships by investigating how self-efficacy impacts the perceived feasibility (Fitzsimmons & Douglas, 2011) of the investment and thus business angels’ intentionality. For example, when the perceived feasibility of the investment is high, business angels may be more likely to make an investment. Business angels’ willingness to make investments can lead to a greater value for entrepreneurs, the angels themselves, and society.

This study is not without its limitations. First, the analysis is based on self-report data provided by business angels; such data are limited by the extent to which participants have insight into their motivational state and experiences (Summerville & Roese, 2008). Future research can extend these findings by using different research methods (e.g., experimental). In addition, a longitudinal research design could study whether angels’ intention to invest actually leads to investment behavior. Given the importance of the entrepreneurial alertness construct and the questions surrounding its role in entrepreneurial incentives (McCaffrey, 2014), a longitudinal design could provide insight into all three entrepreneurial alertness components. Such a design would shed light on the alertness dimensions as stages in the investment process, rather than as individual traits captured at a given moment in time (Amato et al., 2016). In parallel, regulatory focus could be investigated to confirm whether

it is dispositional or situationally induced (Avnet & Higgins, 2003) depending on the objective of the particular investment stage.

Second, one could critique the small size of both samples used in this study. Because business angels are largely an invisible population, robust random sampling is a challenge (Harrison & Mason, 2007). Indeed, the meager size of the total population of business angels represents a major barrier to the development of information about their behavior. Although improvements to the study, such as gaining larger samples, would have been welcome, nevertheless, reliable and valid measurement scales were used and the simplest correlation analysis was conducted. Therefore, despite these limitations, the results of this mixed methods study provide some initial insights into business angels' cognitive dynamics when making investment decisions. As we noted above, our dataset may also suffer from self-selection bias and survivor bias in relation to the business angels included. Furthermore, in the dataset, we were not able to control for different structure of business angels' investments depending on industries and expertise or markets they cover.

In conclusion, one major gap in the study of entrepreneurial intention has been the failure to connect the individual characteristics of entrepreneurs to actual behaviors (Hmieleski & Corbett, 2006). This research bridges this gap by linking the role of regulatory focus and entrepreneurial alertness to the formation of business angels' investment intentions. The findings shed light on the individual differences among business angels that facilitate their intention to invest.

3 THE ROLE OF REGULATORY FOCUS AND COGNITIVE STYLE IN BUSINESS ANGELS' EVALUATION OF AN INVESTMENT OPPORTUNITY

Abstract

With this research we aim to investigate how two cognitive mechanisms – regulatory focus and cognitive style – contribute in the process of evaluating an investment opportunity. Analyzing data from our qualitative and quantitative research conducted on an international sample of business angels, we find that both promotion and prevention regulatory foci are directly associated with the greater likelihood of a business angel positively evaluating an opportunity, and that planning cognitive style moderates these relationships. This research contributes to the existing literature on the phases of business angels' investment process. Furthermore, these findings are important for understanding the cognitive underpinnings of the relationship between entrepreneurs and equity investors. Prior research has suggested that the nature of this relationship influences success in attaining equity financing, which is of unprecedented

importance for start-up firms due to the liability of newness in the early stages of development.

Key words: business angel, evaluation of an investment opportunity, regulatory focus, cognitive style, moderation

3.1 Introduction

Business angels are “high net worth individuals who invest their own money, time and expertise directly into young ventures in the hope of financial gain” (Mason, 2006b, p. 261). By financing entrepreneurial ventures in the early stages of development (Mason & Kwok, 2010), business angels play an important role in economic development (Avdeitchikova & Nyström, 2016). In 2017 alone, the presence of business angels in early-stage venture financing was reported to be 23.9 billion US dollars, or a 41% share of the early-stage equity market. This investment activity led to the creation of 209,300 new jobs in the United States and thus contributed significantly to the entrepreneurial economy and economic growth (Sohl, 2018). Similarly, European business angels represent the biggest share (63.9%) of the investment market, with 7.3 billion Euros of investment (EBAN, 2017).

The existing literature has widely recognized the salience of easy access to early-stage capital markets for entrepreneurial ventures (Avdeitchikova & Landström, 2018; Landström & Mason, 2018). This literature suggests that external equity investors (business angels and venture capital funds) have a much stronger impact on the growth of high-growth firms than debt financing (Cole, Cumming, & Li, 2016; Hoyos-Iruarrizaga, Fernández-Sainz, & Saiz-Santos, 2017). Moreover, equity financing has certain advantages over debt for start-ups, which suffer from a lack of collateral and great uncertainty due to unproven technologies or unfinished products (Hoyos-Iruarrizaga et al., 2017).

Start-up firms often do not have the cash flow requirements that accompany debt financing, and any cash flow that does exist is needed to fund the growth of the start-up rather than to service debt (Amatucci & Sohl, 2007). In their review, Avdeitchikova and Landström (2018) identified four paths through which business angels contribute to growing firms and, by extension, the national economy. First, they increase the supply of financial capital mostly to small- and medium-sized enterprises by providing small amounts of finance in the early stages. Second, they mainly invest equity capital, thereby strengthening the firm's balance sheet. By reducing information asymmetry and decreasing perceived risk, they consequently send positive signals to other investors. As active collaborators, business angels add value to firms beyond their investment, through advising and coaching. As active or former entrepreneurs themselves, they are well-networked and can connect firms to competencies or intermediaries to the benefit of the entrepreneurial ecosystem itself (Zacharakis, Shepherd, & Coombs, 2003).

Maxwell et al. (2011) proposed a multi-stage model of the business angels' investment process. This model suggests that before the evaluation stage, when business angels and

entrepreneurs first meet, there is a deal origination stage, an initial screening and business plan review stage, and a selection (evaluation) stage. During the deal origination stage, business angels review opportunities in order to identify those with potential good returns, perform initial screening and business plan review, and make initial selection and evaluation of those projects that may enter into subsequent phases. This process continues with the business angels' more structured involvement in screening activities through which angels consider soft and hard data about the opportunity and the entrepreneur behind the potential investment. Maxwell and colleagues (2011) focus on the selection stage and identify four sub-stages based on various reasons for rejecting an opportunity.

Prior research (Politis & Landström, 2002; Sørheim & Landström, 2001) has also suggested that business angels are often former entrepreneurs who seek to fund and add value to investee firms in their area of expertise (Drover et al., 2017). As such, they share several personal characteristics with entrepreneurs (e.g., entrepreneurial orientation in terms of proactiveness, innovativeness and risk-taking) and engage in similar behaviors as entrepreneurs (Lindsay, 2004) under time and resource constraints. By investing their own money, business angels take significant personal financial responsibility with limited time for due diligence (Avdeitchikova, Landström, & Månsson, 2008) and therefore are exposed to agency risk (Fiet, 1995). Existing research suggests that, in doing so, business angels prioritize investment opportunities that are led by entrepreneurs who think in ways similar to themselves (Murnieks, Haynie, Wiltbank, & Harting, 2011). Similarly, Huang and Pearce (2015) found that, in evaluating early-stage venture potential, business angels use both intuition and formal analysis to develop what they call a "gut feel" to identify potential investments.

The focus of this study is on the early stages of the investment process (the deal origination and initial screening stages according to Maxwell and colleagues' 2011 model), exploring how business angels' specific cognitions contribute to the positive evaluation of an identified investment opportunity. We believe that this is a particularly relevant question because of the subjective nature of the business angels' investment process. Prior research has suggested that business angels tend to use heuristics to reduce the overall decision effort required (Harrison et al., 2015; Mason & Rogers, 1997). In fact, evidence from the informal equity markets suggests that business angels often reject opportunities because they do not want to take the time to reduce some of the perceived risks when there are other, less risky opportunities available (Maxwell, 2018). This evidence leads us to think that the underlying cognitive mechanisms direct business angels' behavior even before the initial interaction between business angel and entrepreneur, and during the evaluation stage of the investment process.

We use regulatory focus theory (Higgins, 1998) to explain how a business angel's self-regulatory processes relate to an early investment opportunity evaluation. Self-regulatory processes are those by which individuals seek to align themselves with appropriate goals or standards (Brockner & Higgins, 2001). According to this theory, individuals' sensitivity to

gains and losses, regardless of whether it is driven dispositionally or situationally, is a fundamental driver of their behavior (Rhee & Fiss, 2014). Furthermore, following evidence from prior research that suggests that the interpretation of information within a context involving risk depends on personal cognitive style (Dimov, 2007), we also include cognitive style as a variable associated with business angels' evaluation of an investment opportunity (see Maxwell, 2018 for review). Cognitive style affects the ways in which business angels interpret the information they seek (Baron 2004a; Baron & Shane, 2008). Cognitive style drives both how business angels perceive stimuli and how they use this information to guide their subsequent behavior (Cools & Van den Broeck, 2007, p. 360). Cognitive style is a particularly relevant determinant of intentional behavior under circumstances of information asymmetry, and prior research leads us to think that business angels must find ways to deal with information asymmetry in the early stages of the investment process (Mason & Stark, 2004). Drawing from Maxwell and colleagues' (2011) model, we see the likelihood of positively evaluating an investment opportunity as a relevant variable in the early stages of the investment process. This variable captures the likelihood of the business angel positively evaluating the proposed opportunity and thus subsequently investing in the investment deal (Murnieks et al., 2011).

Our first contribution is to the literature that focuses on the stages of the business angels' investment process. Existing research (Riding et al., 1997) suggests that many opportunities are rejected during the early stages of the business angels' investment process, and less than 5% of fund-seeking entrepreneurs actually receive this type of financing. We show that a business angel's regulatory focus and cognitive style can explain the relationship between an individual's motivation and the ways in which the individual works toward a desired end-state, either a positive or negative evaluation of an investment opportunity. Regulatory focus theory posits two separate, independent orientations that are related to value motivation. This important individual-level process affects the valence and intensity of personal goals, and motivation to achieve these goals (Bryant & Dunford, 2008). We expect that, throughout the stages of the investment process, business angels focus on selective information regarding an investment opportunity at hand, such as gain or losses, and in this they use regulatory focus as a decision heuristic. Regulatory focus as a decision heuristic enables business angels to employ less mental effort in evaluating an investment opportunity (Burmeister-Lamp et al., 2012). By including the idea of a business angel's cognitive style, we acknowledge that, due to differences in personal cognitive style, business angels with similar regulatory focus may interpret investment-opportunity-related information differently, which leads to varied outcomes in angels' evaluation of an investment opportunity.

Second, we contribute to the body of literature on the role of an individual's regulatory focus in decision-making outcomes. First, regulatory focus theory provides a useful lens for understanding why business angels positively evaluate an investment opportunity despite the fact that the probability of success is unknown with such investments (Huang & Pearce, 2015) and despite stark statistics about the negative gains from investments in equity markets (Shane, 2012). The evaluation of an investment opportunity in the preliminary stages of the

investment decision-making process can be explained through a framework of gains and losses, an individual's sensitivity toward them, and the specificities of the style used to process available information. According to this theory, business angels who are high in promotion focus are more likely to see the positive potential of the investment opportunity (e.g., gains) by being sensitive to the presence of positive outcomes. Alternatively, business angels who are high in prevention focus are more likely to see the risk associated with an investment opportunity (e.g., losses) by being sensitive to the presence of negative outcomes.

Third, our research has important practical implications. A recent study by Kanze and colleagues (2018) indicated that the ways in which business angels use their regulatory focus to collect information from entrepreneurs when evaluating an investment opportunity impacts the final amount of funding collected. In particular, female entrepreneurs acquire significantly less funding than male entrepreneurs with similar funding requirements. One explanation for this is that business angels tend to pose prevention-oriented questions to female entrepreneurs who in turn respond with prevention-focused answers. By contrast, questions that business angels address to male entrepreneurs are most often promotion-focused and thus male entrepreneurs respond by pitching entrepreneurs in a promotion-focused way. By emphasizing the role of a business angel's regulatory focus in the early evaluation of an investment opportunity, we contribute to the literature examining the dynamics of entrepreneur–investor dyads (Murnieks et al., 2011).

3.2 Background Literature and Hypotheses

Business angels are driven by heterogeneous knowledge bases and experiences (Collewaert & Manigart, 2016), possess different perceptions about potential investment opportunities, set different investment-related goals (Collewaert, 2018), and come to varying results through a multi-stage opportunity elimination process (Payne, Bettman, & Johnson, 1988). Social psychology literature suggests that individuals usually adjust their behaviors, thoughts, and feelings in line with important goals – a process known as self-regulation (Brockner & Higgins, 2001). The literature on early investment has already suggested the influence of decision heuristics (Tversky & Kahneman, 1974) on evaluations. A more recent study by Zacharakis and Shepherd (2001) on venture capitalists found that investors rely on overconfidence, which negatively affects decision accuracy. Maxwell and colleagues' (2011) study on business angels supports the idea that, due to time constraints, business angels use heuristics to reduce the cognitive effort required. This belief is further supported by Harrison et al. (2015) who showed how field-experienced business angels learn to adopt decision shortcuts over time. The notion of heuristics has helped researchers to explain why the decisions made by business angels frequently diverge from the regular or expected assumptions about opportunities under consideration (Maxwell, 2018). Idson, Liberman, and Higgins (2004) identified regulatory focus as an important heuristic bias during goal attainment.

Regulatory focus theory (Higgins, 1997, 1998) posits two core principles for how individuals self-regulate attainment of goals. These principles stem from “two basic and distinct forms of survival,” namely, promotion focus and prevention focus (Higgins & Cornwell, 2016, p. 57). Both self-regulatory foci differ with respect to several dimensions (Higgins, 1998), namely, the underlying motives that individuals are trying to satisfy, the nature of the goals or standards they try to attain, the type of outcomes that individuals desire (Brockner et al., 2004), and the means to achieve these goals and outcomes (Higgins, 2005). Speaking most broadly, promotion focus motivates individuals’ desire to fulfill growth and advancement needs, while prevention focus motivates individuals to seek security and safety. Existing empirical research has demonstrated that the two regulatory orientations are separate and independent of one another, meaning that an individual can be low in both, high in one but low in the other, or high in both (Higgins & Cornwell, 2016).

Promotion focus is related to fostering, growth, and achievement (Higgins & Cornwell, 2016). Promotion-focused individuals align their behavior with their so-called ideal selves and put weight on ensuring the presence of positive outcomes (gains). In making decisions, they seek to maximize the likelihood of hits and avoid errors of omission (Higgins, 1997). Prevention focus is related to safety, security, and self-preservation (Higgins & Cornwell, 2016). Individuals who adopt prevention focus tend to view their goals as duties or responsibilities that ought to be accomplished and so align their behavior with their so-called ought selves (Higgins, 1998). The absence of negative outcomes means the completion of “oughts,” which drives prevention-focused individuals to put weight on ensuring the absence of negative outcomes (Higgins, 1998, 2000). In making decisions, prevention-focused individuals seek to ensure correct rejections and avoid errors of commission (Higgins, 1997).

When translated to the context in which business angels evaluate investment opportunities, we expect that business angels with different regulatory foci will use different decision-making strategies during the process, as prior research suggests that private investors are particularly sensitive to information that fits with their regulatory focus (Lockwood, Jordan, & Kunda, 2002). Business angels with promotion orientation tend to focus greater attention on positive signals about available options (Pham & Higgins, 2005) in order to ensure hits and avoid errors of omission. This produces an exploratory risk-seeking bias and thus fosters risky behavior (Bryant & Dunford, 2008). Business angels with prevention orientation tend to focus greater attention on negative signals (Pham & Higgins, 2005) in order to ensure correct rejections and avoid errors of commission (Crowe & Higgins, 1997; Higgins, 1998). This produces a risk avoidance bias and thus fosters risk-averse behavior (Bryant & Dunford, 2008).

Investment risk for business angels is the likelihood of a complete loss, rather than a distribution of negative outcomes (Benjamin & Margulis, 2000; Jeffrey, Lévesque, & Maxwell, 2016). When regulatory-focus-driven behavior is put into the context of the pre-investment stage of the investment process (i.e., deal origination, initial screening, and evaluation/selection), promotion-focused angels give more subjective value to decisions

made in the pursuit of gains as positive outcomes than to decisions made in the avoidance of losses (Higgins, 2002). When investing, promotion-focused business angels are open to risk (Idson et al., 2004) and expect gains (Higgins et al., 2001). Prevention-focused business angels give more subjective value to decisions made in the avoidance of losses and less to decisions made in the pursuit of gains. Prevention-focused business angels are inclined to avoid risk, and when they evaluate potential opportunities, they are very cautious in order to avoid potential losses.

The degree to which regulatory focus works is reflected in emotional responses that impact risk perception and risk propensity (Bryant & Dunford, 2008; Higgins, 1999). In promotion-focused business angels, commission of risk provokes more intense risk-seeking behavior, positive risk perception, and happy emotions when seeking gains; meanwhile, the omission of risk provokes counter-effects, making business angels nervous when seeking to avoid non-gains. In prevention-focused business angels, commission of risk provokes more intense risk-avoidance behavior, negative risk perception, and nervousness when seeking to avoid potential losses; meanwhile, omission of risk provokes counter-effects and makes business angels happy when seeking to attain non-losses (Bryant & Dunford, 2008). In both cases, the risks of commission instigate stronger responses.

Furthermore, Jeffrey and colleagues (2016) found that business angels do not integrate the valuation of the two factors of central importance to inform their assessment of return and risk. Therefore, business angels must make additional effort to trade off between fear of loss and calculation of gain, or decide to pursue a course of action that satisfies the minimum requirements to achieve a goal, i.e., using heuristics to reject opportunities. Emotional responses stimulated by regulatory focus interact with decision heuristics and may strengthen or inflate the heuristic that consequently decreases the chances of gains or the chances of losses, dependent on business angels' regulatory focus (Bryant and Dunford 2008). This leads us to propose:

Hypothesis 1: Promotion focus is positively associated with the likelihood of a business angel positively evaluating an investment opportunity.

Hypothesis 2: Prevention focus is negatively associated with the likelihood of a business angel positively evaluating an investment opportunity.

3.2.1 Cognitive Style and the Evaluation of an Investment Opportunity

Cognitive style stands for a process in which an individual perceives, thinks, solves problems, learns, and relates to others (Witkin et al., 1977). Cognitive style has been shown to mediate between objective stimuli, personal interpretations of stimuli, and their transformation into meaningful cognitive patterns (Goldstein & Blackman, 1978). Put simply, cognitive style refers to “characteristic ways in which individuals conceptually organize the environment” (Goldstein & Blackman, 1978, p. 4) and is a process of transforming information.

Recent theories distinguish between cognitions and personality traits – the latter being stable over time. By contrast, cognitions are inconsistent and subject to various external interventions that can be used to modify information processing (Knockaert, Der Foo, Erikson, & Cools, 2015). As such, cognitive style is an aspect of overall personality and cognitive processes. For the purpose of this study, we build on Cools and Van den Broeck's (2007) three-dimensional conceptualization of cognitive style, which involves the dimensions of knowing, planning, and creating. This schema is particularly suited conceptually to business angels' multi-staged investment process (Maxwell et al., 2011). Prior research has also informed us that individuals with a knowing and planning style tend to make decisions in an analytical way, while individuals with a creating style combine both an intuitive and a rational approach (Cools & Van den Broeck, 2008).

According to Maxwell and colleagues' (2011) model, business angels' investment is a planned decision-making process that occurs in stages, wherein different factors and activities contribute to angels' acceptance/rejection of screened opportunities. Research has identified various activities related to business angels during the early stages of the investment process, such as gaining knowledge about and interest in the location, specific sector, and possible value-adding; conducting risk assessment; evaluating the market and the entrepreneur; analyzing financial information; and conducting research to obtain information on the market potential of a product or service (Harrison et al., 2015). A closer look suggests that most of these activities are subject to planning and largely require activation of planning cognitive style to estimate the feasibility of the investment (Kickul, Gundry, Barbosa, & Whitcanack, 2009). Specifically, planning cognitive style will help business angels to productively use their cognitive heuristics instead of engaging in simplified, semi-rational processes to reduce uncertainty (Busenitz & Barney, 1997). Finally, Barbosa et al. (2007) showed that business angels with a high level of planning cognitive style tend to process more information, which makes them less prone to risk. Given the credence given to planning cognitive style in prior research on business angels we propose:

Hypothesis 3: Planning cognitive style is associated with the likelihood of positively evaluating an investment opportunity.

3.2.2 The Moderation Effects of Planning Cognitive Style

Earlier we argued that cognitive style facilitates an individual's ability to filter available information (Dutta & Thornhill, 2008). This suggests that the ways in which business angels perceive and interpret the same stimulus depends on differences in their cognitive schemas with respect to domain-specific knowledge. Cognitive schemas refer to the complex experience-based patterns angel investors use to arrive at investment decisions (Huang & Pearce, 2015). Here, we develop arguments to support the moderation effects of planning cognitive style on the relationship between regulatory focus and the evaluation of an investment opportunity.

Prior research has suggested that cognitive schemas enable business angels to simplify information processing by selecting, evaluating, and combining information (Mitteness, Baucus, & Sudek, 2012) in order to arrive at an investment decision (Huang & Pearce, 2015). Furthermore, research evidence also suggests that there is an interplay between individuals' cognitive schemas and their regulatory focus (Bryant & Dunford, 2008). Specifically, planning cognitive style may also affect behavior by changing patterns of emotional responses provoked by regulatory focus (Bryant & Dunford, 2008); this in turn leverages an individual's risk perception to invoke a more conservative and cautious behavior (Podoyntsina, Van der Bij, & Song, 2012).

In line with research on cognitions (Baron, 2004a, 2004b), we expect that planning cognitive style moderates the relationship between a business angel's regulatory focus and his or her likelihood of positively evaluating an investment opportunity during the early stages of the investment process. The relationship between regulatory focus and the likelihood of positively evaluating an opportunity evaluation may be dependent on the extent of a business angel's planning cognitive style when he/she is reviewing multiple investment opportunities. Business angels who are high on planning cognitive style tend to base their decisions on data and information and prefer a rational approach (Cools & Van den Broeck, 2008). Planning cognitive style thus intervenes in the goal completion process associated with a specific regulatory focus (Higgins & Cornwell, 2016).

We begin with the interaction effect of promotion regulatory focus and planning cognitive style. We argue that promotion-focused individuals align their behavior with the goal of achieving positive outcomes (gains). Business angels who have promotion regulatory focus are less inclined to make quick decisions when they are high in planning cognitive style (Brockner et al., 2004). This is because high planning cognitive style decreases their propensity to take greater risk (Grant & Higgins, 2003), diminishing the perceived chance of gains. In addition, high planning cognitive style weakens biases that increase the chances of positive outcomes (Bryant & Dunford, 2008). On the other hand, during the early stages of the investment process, a low level of planning cognitive style will increase the likelihood that a promotion-focused business angel will positively evaluate an investment opportunity, since lower levels of planning cognitive style will inhibit the identification of negative scenarios. As a result, risk aversion decreases (Knockaert et al., 2015) and the motivational intensity related to the attainment of success increases. This leads us to propose:

Hypothesis 4a: Business angels' planning cognitive style moderates the relationship between promotion focus and the likelihood of positively evaluating an investment opportunity such that business angels with low planning cognitive style are more likely to positively evaluate an investment opportunity.

Hypothesis 4b: Business angels' planning cognitive style moderates the relationship between promotion focus and the likelihood of positively evaluating an investment opportunity such that business angels with high planning cognitive style are less

likely to positively evaluate an investment opportunity.

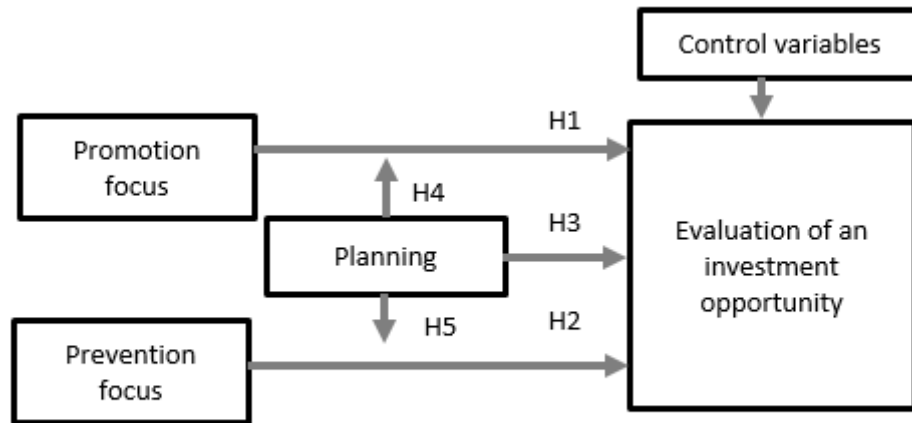
By contrast, when prevention-focused business angels have higher levels of planning cognitive style, this increases the odds of positively evaluating an investment opportunity because higher levels of planning cognitive style will encourage them to identify positive scenarios and support motivational energy to deal with the challenging nature of investments and their outcomes (Knockaert et al., 2015). High planning cognitive style in prevention-focused business angels decreases their tendency to avoid risks (Grant & Higgins, 2003). As a result, with prevention-focused business angels, the more pronounced their planning cognitive style, the greater the chance to decrease their negative risk avoidance and negative risk perception. This consequently increases the likelihood of business angels positively evaluating the feasibility of an outcome. The motivational intensity related to the prevention of losses decreases because planning cognitive style balances the business angel's level of rationality, such that rationality no longer represents an obstacle but becomes an advantage in the evaluation of an opportunity. This leads us to propose:

Hypothesis 5a: Business angels' cognitive planning style moderates the relationship between prevention focus and the likelihood of positively evaluating an investment opportunity such that business angels with high cognitive planning style are more likely to positively evaluate an investment opportunity.

Hypothesis 5b: Business angels' cognitive planning style moderates the relationship between prevention focus and the likelihood of positively evaluating an investment opportunity such that business angels with low cognitive planning style and prevention regulatory focus are less likely to positively evaluate an investment opportunity.

Figure 2 summarizes our conceptual model. In this model, we suggest that promotion focus, prevention focus, and planning cognitive style are directly associated with a business angel's evaluation of an investment opportunity. These relationships are moderated by planning cognitive style, which leverages the effectiveness of business angels' regulatory focus in the process of evaluating an investment opportunity.

Figure 2: Proposed theoretical model of the likelihood of positively evaluating an investment opportunity



Source: Own work

3.3 Methodology

3.3.1 Data Sources and Participants

Given that little empirical evidence exists on business angels' cognitive characteristics, we used an exploratory mixed methods approach (Bryman, 2006; Greene, 2008). We used such an approach because the qualitative and quantitative perspectives of mixed methods research can be employed at all stages of the research, involve many carefully arranged details, and afford greater credence to conclusions (Johnson et al., 2007). In the first phase, we conducted semi-structured interviews with the goal of verifying the correct identification and operationalization of the hypotheses. In the second phase, we conducted quantitative analyses to test our hypotheses.

3.3.1.1 Interview sample

We collected data from two independent sources: semi-structured, open-ended interviews and an online survey. During the first quarter of 2015, we conducted semi-structured interviews with 20 business angels based in Europe and the United States, face-to-face and via Skype. Because the study's focus was on understanding how business angels evaluate an investment opportunity in the early stage of the decision-making process (Maxwell et al., 2011), we checked, among other things, whether selected business angels had experience in executing early-stage funding deals. We performed 16 Skype interviews with participants from Austria, Denmark, England, Estonia, Finland, France, Germany, Switzerland, and the United States, and four face-to-face interviews with participants from Austria, Slovenia, Switzerland, and the United States. All interviews were conducted in English in order to minimize the potential shortcomings related to the real-time translation of qualitative information (Brislin, 1970).

Because of business angels' preference for anonymity (Wetzel, 1983), it was quite a challenge to attract volunteers for the interview survey. The process of recruitment was very similar to the one described in Mason et al.'s (2017) study. We used the EBAN network to facilitate access to group members through e-mails and telephone calls to encourage participation in the research.

To ensure the strength of the information provided by participants, we used baseline factors identified in Wiltbank et al.'s (2009) study as being important in the context of angel investing. We balanced the sample with variables associated with investors' investment context to avoid potential self-selection bias or the possibility that these investors do not represent angel investors in the broader community. The interviewed business angels were mostly male (90%) and middle-aged (average of 52 years), and most of them worked as self-employed consultants (80%). They possessed plentiful entrepreneurial experience (80% had founded one or more businesses; the other 20% had participated in managers' buy-out/buy-in). The average number of start-ups founded was 3.34. By the type of resources invested, most of them (90%) invested financial resources and the majority (85%) claimed conventional angel investments. A number of them (40%) invested in technology-based firms, and the rest (60%) invested in both technology- and non-technology-based firms. Business angels were also asked in which types of companies they were interested in investing; among them, only one business angel expressed an interest in investing in non-technology-based companies. Cumulatively, these 20 investors invested in a median of 10 completed deals. This figure is similar to that of the sample described in Mason et al.'s (2017) study. The representativeness of the sample in this study can be demonstrated by comparing it to recent studies of business angels by Mason et al. (2017) and Mason and Botelho (2014).

3.3.1.2 Survey sample

Empirical data were collected via an online survey conducted among business angels from Europe and the United States. The European sample was retrieved from the EBAN directory, whereas the American business angels were randomly retrieved from the ACA directory. EBAN announced this survey in the newsletter that is sent to its members.

The survey among EBAN and ACA members was available to be completed online between April and July 2015. The survey link was sent to 343 angel groups in Europe and 273 in the United States. Eighty-seven business angels completed the survey. After eliminating any incomplete questionnaires, the dataset was drawn from 55 respondents. Although a higher response rate would have been preferable, Monte Carlo simulations indicated that a sample size of 50 respondents was required to achieve minimal bias, adequate statistical power, and overall propriety (in the case of single-factor CFA models with eight indicators with loadings of 0.65), as suggested by Wolf et al. (2013). This study tested for potential non-response bias following the approach of Armstrong and Overton (1977). Respondents were divided into groups of early and late respondents, and differences in the means of the main constructs

between groups were tested using a t-test. The analysis showed no statistically significant differences between groups in promotion ($p = 0.254$), prevention ($p = 0.335$), planning ($p = 0.318$), and likelihood of positively evaluating an investment opportunity ($p = 0.645$). Since no significant differences were found, we can presume that non-response bias was not a concern in this study.

Another methodological concern of our approach includes survivor bias and self-selection bias. The latter is related to the fact that identifying business angels through business angel networks potentially excludes data from angels who have failed and left the groups, or from non-registered angels (Harrison & Mason, 2007). Comparing the demographic characteristics of the respondents in our sample to those of the largest sample of business angels in the United Kingdom (Mason & Botelho, 2014) shows strong similarities. In our sample, 75% of investors had at least a university degree, which is in line with Mason and Botelho's (2014) sample (76%; $p = 0.812$), and 48.6% had a postgraduate (Master's or MBA) degree, which is not statistically significantly higher than in Mason and Botelho's (2014) sample (34%; $p = 0.069$). The mean age of 54 years in our sample fits into the range of 45 and over identified in Mason and Botelho's (2014) sample. However, women made up 6% of the investors in our sample, a percentage that is statistically significantly lower than in Mason and Botelho's (2014) sample (12%; $p = 0.252$). These differences are not sufficiently significant to query the reliability of the sample, particularly since the lack of gender diversity should not be considered a problem (Harrison & Mason, 2007). When we compared the investment experience of the respondents in our sample to the sample of Mason and Botelho (2014), our sample of respondents invested in deals with a median of five completed deals, whereas the median for Mason and Botelho's (2014) sample was between four and six investments.

3.3.2 Measures

3.3.2.1 Semi-structured, open-ended interviews

The objective of conducting semi-structured, open-ended interviews was to obtain background information on the participants and to lay the foundation for additional data collection on the cognitive characteristics of business angels. We tried to gain a greater understanding of the investment process through business angels' descriptions and interpretations of their experience throughout their investment career. In addition to the baseline information mentioned above, we asked participants broad, open-ended questions about their future goals, risk propensity, planning, financial and non-financial motivations to become a business angel, and several aspects related to cognitive processes (notions of self-efficacy, regulatory modes, cognitive style, and entrepreneurial alertness). Each interview lasted one to two hours on average. Instead of recording the interviews, we took manual notes, avoiding the visual and emotional impact of recording on participants, as suggested by Bryman (2006). We drew on participants' responses to questions on investment experience, the number of hours they usually spend planning prior to making an investment, and the relationship between their motivation and how they go about achieving their goals.

3.3.2.2 Quantitative survey

Dependent variable. The likelihood of a business angel positively evaluating an investment opportunity was the dependent variable in our model. To measure the variable, we applied Murnieks and colleagues' (2011) three-item measure on a 7-point Likert scale (from 1=low probability to 7=high probability). Composite reliability (CR) was above the recommended threshold of 0.60 (CR = 0.75).

Independent variables. Regulatory focus was measured on a 5-point Likert-type scale (1=never or seldom; 5=very often) using the 11-item Regulatory Focus Scale developed by Higgins and colleagues (2001). The scale assesses the history of individuals' success at promotion and prevention tasks in their lives. The fit indices in the measurement model of the Regulatory Focus Scale demonstrated good reliability, and convergent and discriminant validity. The composite reliabilities for promotion focus and prevention focus were 0.87 and 0.88, respectively.

Planning cognitive style was measured using the planning cognitive style dimension of the Cognitive Style Indicator (CSI) scale (Cools & Van den Broeck, 2007) and was assessed using a 7-point Likert-type scale (1=totally disagree to 7=totally agree). Confirmatory factor analysis on planning cognitive style resulted in good overall fit. The composite reliability of planning cognitive style was 0.93, indicating good measurement reliability.

Control variables. First, we controlled for the demographic variable, country of origin (assessed at the end of the questionnaire), in order to control for differences between the European and American angels in the sample in terms of their evaluation of an investment opportunity. Second, we included the investor's experience as a control variable, because the investor's prior knowledge and experience is likely to impact his/her likelihood of positively evaluating an investment opportunity (e.g., Tumasjan & Braun, 2012). Investor's experience was measured by the total number of angel investments participants had made in their career as a business angel. To also control for up-to-date business angel experience, a variable measuring the total number of angel investments in the last two years was included as a control variable. As evaluation of an investment opportunity can be influenced by the number of ventures a business angel is currently considering, a variable describing the number of ventures currently being considered by business angels was also included as a control variable in the regression model.

3.4 Analysis and Results

3.4.1 Qualitative Analysis

The research on individual cognitions has called for the incorporation of more qualitative data from the field (e.g., Hindle, 2004). Therefore, for this study, we started by conducting semi-structured interviews with business angels from all over the world in order to better understand their cognitive processes. We conducted interviews with 20 business angels lasting around 60–80 minutes each. We used an inductive perspective to analyze the

interviews in order to identify different approaches to evaluating an investment opportunity; explore past investment experience and currently considered investments; obtain data about planning activities in our sample; and investigate the self-regulatory orientation of participants and the motivation of business angels.

Transcripts of the interviews were coded to develop the coding scheme. After reading the interview transcripts from the sample, the coder sorted the business angels based on the likelihood that they would positively evaluate an investment opportunity. We offered two possibilities: low and high probability of positively evaluating an investment opportunity. In the second analysis, transcripts were coded based on the business angels' level of investment experience, which included past investment experience and currently considered investments. After reading all of the interview transcripts, we found that all interviewed business angels had past investment experience and currently considered investments.

Planning style and self-regulatory orientation were open-coded (Strauss & Corbin, 1998), including all content relevant to sort business angels into two groups of high planning and low planning. Self-regulatory orientation was coded according to the business angels' focus when looking at the investment: the presence or absence of positive outcomes (promotion focus), or the presence or absence of negative outcomes (prevention focus).

Among the 20 interviewed business angels, 8 of them showed low likelihood of positively evaluating an investment opportunity, while 12 had high likelihood of positively evaluating an investment opportunity. In the group with a low likelihood of positively evaluating an investment opportunity, there was a higher share of business angels with low planning and low promotion focus and no business angels with low prevention focus (i.e., all business angels had high promotion focus), compared to the group with a high likelihood of positively evaluating an investment opportunity. Although business angels have a dominant or preferred cognitive style, demands of the situation can influence their actual behavior (Armstrong, 2000; Cools & Van den Broeck, 2007). Table 5 shows the number of interviews that were coded for planning style and regulatory focus by their likelihood of positively evaluating an investment opportunity.

Table 5: Number of interviewees ($N = 20$) according to their planning style and regulatory focus code by likelihood of positively evaluating an investment opportunity

	Likelihood of positively evaluating an investment opportunity	
	Low (8 BA)	High (12 BA)
Planning low	7 (87.5%)	9 (75%)
Promotion low	7 (87.5%)	3 (25%)

Prevention low	0 (0%)	5 (41.7%)
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Note: BA = business angel

Source: Own work

3.4.2 Quantitative Analysis

Drawing from the qualitative findings on which cognitive constructs were salient to the cognitive processes of the business angels, we developed a survey instrument and organized an online survey. The results presented below are based on the data retrieved from the online survey. Descriptive statistics and correlations are presented in Table 6.

Table 6: Descriptive statistics and correlation matrix of studied variables

	Mean	SD	Pre	Pro	P	EIO	All	N2y	Nic	C
Prevention (Pre)	3.13	0.78	1							
Promotion (Pro)	3.86	0.80	-0.50**	1						
Planning (P)	5.10	1.34	-0.26	0.58**	1					
Likelihood of pos. eval. of an investment opportunity (EIO)	3.82	1.29	-0.41**	0.47**	0.19	1				
N of all BA investments (All)	9.53	9.59	0.02	0.06	-0.24	0.12	1			
N of BA investments in last 2 years (N2y)	3.71	3.42	0.16	-0.18	-0.42**	0.09	0.57**	1		
N of investments considered (Nic)	2.62	1.27	-0.13	0.22	-0.16	0.28*	0.43**	0.22	1	
Country (C; US = 1; EU = 0)	0.47	0.50	0.01	0.13	-0.29*	0.10	0.40**	0.16	0.14	1

Note: BA = business angel

Source: Own work

All hypotheses were tested at a significance level of $\alpha = 0.05$ (two-tailed). The results showed a moderate and statistically significant correlation between prevention focus and promotion focus and between promotion focus and planning cognitive style. To avoid multicollinearity, separate multiple regression models were built for each of the following independent variables: planning cognitive style, prevention focus, and promotion focus. The three models included all control variables, while the likelihood of positively evaluating an investment opportunity was the dependent variable. The results are presented in Table 7.

Table 7: Effect of promotion focus, prevention focus, and planning cognitive style on likelihood of positively evaluating an investment opportunity (results of multiple regression analysis)

	Independent effects		
	IV: Prevention	IV: Promotion	IV: Planning
	Std. Beta (p-value)		
IV	-0.40 (0.003)	0.47 (0.001)	0.34 (0.026)
N of all BA investments	-0.07 (0.701)	-0.10 (0.582)	-0.11 (0.558)
N of BA investments in last 2 years	0.13 (0.414)	0.19 (0.232)	0.20 (0.259)
N of investments considered	0.22 (0.119)	0.18 (0.199)	0.32 (0.032)
Country (C; US = 1; EU = 0)	0.08 (0.570)	0.02 (0.885)	0.16 (0.273)
R ²	0.23	0.28	0.17

Note: Std. Beta = standardized regression coefficient; BA = business angel

Source: Own work

When controlling for country, business angels' experience and the number of investments currently considered, each independent variable was significantly associated with the likelihood of positively evaluating an investment opportunity (Table 7). Hypothesis 1 proposed that there would be a positive association between promotion focus and the likelihood of positively evaluating an investment opportunity; as such, this hypothesis was supported (Std. B = 0.47; $p = 0.001$). Hypothesis 2 proposed that there would be a negative association between prevention focus and the likelihood of positively evaluating an investment opportunity, and so this hypothesis was also supported (Std. B = -0.40; $p = 0.003$). Planning cognitive style was positively associated with the likelihood of positively evaluating an investment opportunity (Std. B = 0.34; $p = 0.026$), supporting Hypothesis 3. When planning cognitive style was included in the regression model, the likelihood of positively evaluating an investment opportunity was associated positively with the number of investments a business angel was considering (Std. B = 0.32; $p = 0.032$). No other control variables had a statistically significant association with the dependent variable when the independent variables were included in the regression model.

Due to sample size limitations and to avoid multicollinearity, we tested the moderation effect of planning cognitive style on the relationship between regulatory focus and the likelihood of a business angel positively evaluating an investment opportunity by assembling two planning cognitive style groups:

- Low planning: planning score equal to or below sample average ($n = 21$).

- High planning: planning score above sample average ($n = 34$).

We conducted a multiple regression analysis on each cognitive style group separately. To test Hypotheses 4a and 4b, promotion focus and the control variables were included as independent variables and the likelihood of a business angel positively evaluating an investment opportunity was included as the dependent variable in the regression model. Results showed that promotion regulatory focus had a positive association with the dependent variable (Std. B = 0.81; $p = 0.001$) in the group of business angels with low planning cognitive style (Table 8), thus supporting Hypothesis 4a. The association was not statistically significant in the group of business angels with high planning cognitive style (Std. B = 0.13; $p = 0.479$). This finding did not provide support for Hypothesis 4b. Furthermore, we found that the number of investments business angels were considering was a significant predictor of the likelihood of positively evaluating an investment opportunity in the group of business angels with high planning style ($B = 0.40$; $p = 0.046$). The moderation effect is graphically illustrated in Figure 3. Results showed that promotion focus enhanced the likelihood of positively evaluating an investment opportunity for business angels with low planning cognitive style.

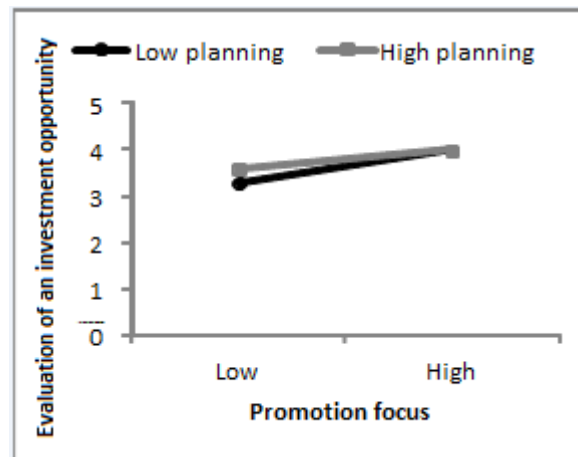
Table 8: Relationship between promotion regulatory focus and the likelihood of positively evaluating an investment opportunity in low and high planning cognitive style groups of business angels

	Std. Beta (p-value)	
	Low planning cognitive style	High planning cognitive style
Promotion (Pro)	0.81 (0.001)	0.13 (0.479)
N of all BA investments	0.20 (0.441)	-0.36 (0.243)
N of BA investments in last 2 years	-0.06 (0.791)	0.49 (0.165)
N of investments considered	-0.34 (0.117)	0.40 (0.046)
Country (C; US = 1; EU = 0)	-0.22 (0.264)	0.14 (0.483)
R ²	0.43	0.19

Note: Std. Beta = standardized regression coefficient; BA = business angel

Source: Own work

Figure 3: Moderation of promotion focus on the likelihood of positively evaluating an investment opportunity



Source: Own work

To test Hypothesis 5, prevention focus and the control variables were included as independent variables and the likelihood of a business angel positively evaluating an investment opportunity was included as the dependent variable in the regression model. The association was not statistically significant in the group of business angels with high planning cognitive style (Std. B = -0.16; $p = 0.335$); thus, Hypothesis 5a was not supported. We found that prevention regulatory focus had a negative association with the dependent variable (Std. B = -0.82; $p < 0.001$) in the group of business angels with low planning cognitive style (Table 9), providing support for Hypothesis 5b. However, the number of investments angels were considering was a significant predictor of the likelihood of positively evaluating an investment opportunity in the group of investors with high planning cognitive style (Std. B = 0.44; $p = 0.018$). The relationships between prevention focus, cognitive style, the number of currently considered investments, and the likelihood of a business angel positively evaluating an investment opportunity are presented in Table 9. The moderation effect is illustrated in Figure 4. The findings suggest that prevention focus decreases the likelihood of a business angel positively evaluating an investment opportunity when he or she is low in planning cognitive style.

Table 9: Relationship between prevention regulatory focus and the likelihood of positively evaluating an investment opportunity in low and high planning cognitive style groups of business angels

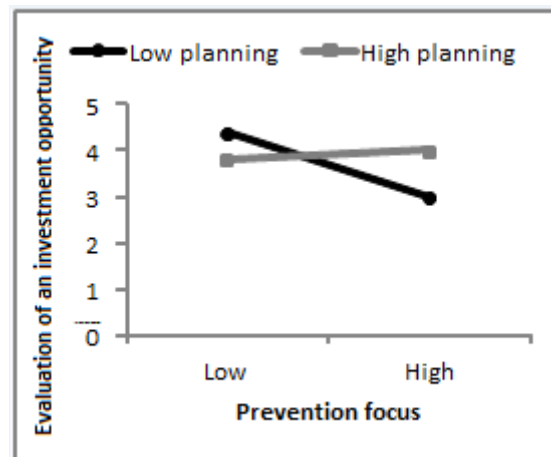
	Std. Beta (p-value)
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	Low planning cognitive style	High planning cognitive style
Prevention (Pre)	-0.82 (<0.001)	-0.16 (0.335)
N of all BA investments	0.24 (0.291)	-0.37 (0.224)
N of BA investments in last 2 years	-0.07 (0.708)	0.40 (0.149)
N of investments considered	-0.37 (0.069)	0.44 (0.018)
Country (C; US = 1; EU = 0)	-0.09 (0.610)	0.17 (0.362)
R ²	0.52	0.20

Note: Std. Beta = standardized regression coefficient; BA = business angel

Source: Own work

Figure 4: Moderation of prevention focus on the likelihood of positively evaluating an investment opportunity



Source: Own work

3.5 Discussion

Although angel investments supply new entrepreneurial ventures with more than 70% of the capital (Morrisette, 2007), and business angels' importance in financing early ventures cannot be exaggerated (Cardon, Mitteness, & Sudek, 2017), the question of which underlying psychological mechanisms are involved in an early evaluation of an investment opportunity has been overlooked. With this research, we focus on the early stages of the investment process to understand how regulatory focus and cognitive style contribute to the likelihood of a business angel positively evaluating an investment opportunity. Specifically, consistent with our hypotheses, we show that business angels' promotion focus positively influences the likelihood of positively evaluating an investment opportunity. Although we believe that, throughout the stages of the investment process, a combination of promotion and prevention regulatory foci is required, promotion regulatory focus is specifically supportive to the early stages of the investment process. In fact, we show that in the early

stages of the investment process, when business angels must quickly and efficiently select those investment opportunities that are worth further analysis and evaluation, business angels' prevention focus has a significant negative impact on the likelihood of positively evaluating an investment opportunity in the early stages of the process. This is because, for prevention-focused business angels, feasibility assessment of an investment opportunity requires them to consider the ways in which the investment might fail (Brockner et al., 2004). The two regulatory foci are both fundamentally related to value motivation (e.g., achieving desired end-states), and these results indicate that a process of bringing business angels' self into alignment with their standards and goals occurs at some point in the early stages of the investment process. As investment is a goal-directed behavior, promotion-focused business angels strive toward attaining gains, which supports the likelihood of positively evaluating an investment opportunity. Conversely, prevention-focused business angels are driven to maintain non-losses and thus their regulatory processes thwart them in making a positive evaluation of an investment opportunity (Kanze et al., 2018). Taken together, our findings further support an important role of promotion focus in complex situations, such as investing in highly risky ventures (Mitteness, Sudek, & Cardon, 2012; Tumasjan & Braun, 2012).

In line with our theorizing, we find that planning cognitive style is positively associated with the likelihood of a business angel positively evaluating an investment opportunity. We find that in the early stages of the investment process, business angels tend to use planning cognitive style along with analytical and experiential thinking (Cools & Van den Broeck, 2007). Planning cognitive style guides business angels to more carefully consider possible risks and make an accurate assessment of the feasibility of their goals (Baron, Mueller, & Wolfe, 2016).

We also find support for the interaction effects of business angels' regulatory foci and planning cognitive style. In proposing our moderation hypotheses, we were specifically interested in how low/high planning cognitive style interacts with business angels' regulatory focus orientation (promotion/prevention). When planning cognitive style is low, prevention and promotion foci remain significantly associated with the likelihood of a business angel positively evaluating an investment opportunity. By contrast, business angels in the low planning cognitive style group were less likely to positively evaluate an investment opportunity when their promotion regulatory focus was low. When their promotion regulatory focus was high, they were more likely to positively evaluate an investment opportunity. This suggests that when planning cognitive style is low, the main driver of a business angel's positive investment evaluation is regulatory focus. When planning cognitive style is high, promotion focus is no longer associated with the likelihood of positively evaluating an investment opportunity. Moreover, business angels with high planning cognitive style are more focused on making decisions based on information and details. Although the number of currently considered investments was positively associated with the likelihood of positively evaluating an investment opportunity, this finding does not imply that in all cases the more investments under consideration, the more likely it is that

the business angel will positively evaluate an investment opportunity. For example, business angels may have a portfolio with several investments in the early stages and so may not want to expand it with additional early-stage investments. Yet, as an alert investor, they will still scrutinize potentially profitable opportunities.

Taken together, our findings contribute to the literature examining regulatory focus and cognitive style in recognizing the value-creation potential of an investment (Kickul et al., 2009). Our findings explicate how the presence of contextual factors can influence the role of planning cognitive style in the relationship between regulatory focus and the likelihood of a business angel positively evaluating an opportunity. In doing so, these findings support the role of “cognitive perspective” (Baron, 2004a, 2004b), which highlights the benefits of integrating cognitive variables and contextual factors (Grégoire, Corbett, & McMullen, 2011) when exploring decision-making under conditions of risk, such as when business angels evaluate investment opportunities.

3.5.1 Practical Implications

Our findings have important implications for both entrepreneurs and business angels in the process of securing/providing funds, as well as for educators and trainers. These results could potentially improve both the percentage of deals that are consummated and the probability of an entrepreneur securing an investment. Our findings suggest that entrepreneurs looking for private equity investments should consider specific factors that influence the business angel’s likelihood of positively evaluating an opportunity’s investment potential, specifically the business angel’s regulatory focus and cognitive style. Entrepreneurs who are aware of regulatory focus style can prepare their business plan presentations and other investment-related communication accordingly (Knockaert et al., 2015). Specifically, when reviewing business plans, Cesario, Grant, and Higgins (2004) found that when investment-related information is in sync with the strategic style of the investor, the investor is more likely to support the venture. Moreover, a recent study by Kanze and colleagues (2018) emphasized the important role of regulatory focus during investment pitches, suggesting that the differences between the regulatory focus of investor questions and entrepreneur responses result in divergent funding outcomes for entrepreneurs. Entrepreneurs who were asked promotion-focused questions by investors raised significantly higher amounts of funding compared to those who were asked prevention-focused questions. Differences in regulatory focus orientation can also be found in educational settings (Bittner, Bruena, & Rietzchel, 2016). As Brockner et al. (2004, p. 10) stated in their study on the role of regulatory focus in the entrepreneurial process, “those seeking support for an entrepreneurial venture are well-advised to learn as much as they can about the regulatory focus orientation of the parties from whom they are seeking support, and to tailor the request for support accordingly.”

In addition, research has shown the impact of promotion and prevention foci on different modes of decision-making. Whereas promotion focus fits with decision-making based on feelings, prevention focus fits with decision-making based on reason (Avnet & Higgins,

2006). Consequently, for both entrepreneurs and business angels, it may be relevant to understand how their regulatory focus impacts how entrepreneurs pitch their investments, and what sorts of questions investors pose in the early screening of investment opportunities.

Hence, it is of importance to business angels to be cognizant of regulatory focus when initially becoming aware of a potential investment opportunity. Business angels may reject a potential investment even before the actual pitch, having expectations of a low potential value in the opportunity based on their prevention regulatory focus. Because one's promotion or prevention focus can moderate decision-making (Shah & Higgins, 1997), promotion focus could be strengthened by increasing business angels' motivation through incentives that they perceive as accomplishments. Examples of such incentives may include authorities' rhetoric focused on financial goals, positive feedback from other angel investments, and positive reflections from start-up founders, delivered through business angels' networks, newsletters, conferences, or start-up events.

3.5.2 Limitations and Future Research

Our study serves as a starting point to shed light on the role of business angels' cognitive processes in their evaluation of an investment opportunity. Below, we discuss potential research limitations. First, this pilot study asked business angels about the likelihood of positively evaluating an investment opportunity. As such, their answers relied on their post-decision recollections of their experiences (Maxwell, 2018). Therefore, this approach raises validity concerns that may limit insights into the nature of the investment process (Riding et al., 2007) and may exhibit hindsight or confirmation bias. Business angels' responses to hypothetical questions may differ from their actual decisions made in real investment situations, which may cause concerns over the generalizability of the results. Furthermore, using insights into the investment process based on past behavior to predict future behavior reduces our ability to perceive details related to the different stages of the process (Maxwell, 2018).

Our sample represents a relatively small group of business angels that is not sufficient to capture the diversity of the angel population and specific sub-groups in the business angel population (Sørheim & Botelho, 2018). Therefore, our sample could be biased toward certain types of investors. We tried to minimize this type of bias by drawing responses from different European and American networks of business angels.

Although there are similarities between the demographic make-up of our sample and that of the sample in Mason's research, self-selection bias could be present. We can assume that business angels who participated in our survey were less time-burdened than those who did not participate. Our study did not allow us to follow how the effects of regulatory focus and cognitive style could influence completion of the investment deal. Furthermore, self-report measures are limited by the degree to which participants possess insight into their own motivational states and experiences (Summerville & Roese, 2008).

In order to control for potential multicollinearity among promotion regulatory focus and prevention regulatory focus dimensions, we examined their effects in two separate regression models. The correlation between the two is not equal minus one (not a perfect negative relationship), and prevention and promotion foci clearly interact to some extent. Future research should therefore validate these results using alternative research methods.

Second, since business angels are largely an invisible population, robust random sampling is a challenge (Harrison & Mason, 2007). The overall limited population number and the invisibility of business angels (and thus their investment behavior) represent major difficulties in deepening our understanding of business angels' activities, as well as their underlying motives and processes. Difficulty in identifying business angels has consequences for sample sizes, the sample's representativeness, the possible types of analysis, comparability between studies and replication (Mason, 2018). Because we are among many competing for the interest and attention of angel investors, low response rate includes the inherent potential for significant presence of non-response bias (Amatucci & Sohl, 2007).

Despite these possible limitations, we believe that this study makes an important contribution to understanding the role of cognitive processes in the likelihood of a business angel positively evaluating an investment opportunity.

4 EXPLORING COGNITIVE ANTECEDENTS OF BUSINESS ANGELS' ALERTNESS

Abstract

In recent years, the alertness literature has progressed significantly in explaining the dynamics of opportunity emergence. Yet, little is known about the antecedents motivating the alertness of other important stakeholders in entrepreneurship, such as business angels – providers of informal early-stage finance. In this research, we explore how business angels' regulatory focus and goal orientation are associated with the three dimensions of alertness to an investment opportunity (scanning and search, association and connection, and evaluation and judgment). We find that promotion regulatory focus and goal orientation have a direct, positive relationship with alertness. We also find that regulatory focus has a moderation effect on the relationships between goal orientation and the alertness dimensions. We discuss implications for research and practice.

Key words: entrepreneurial alertness, regulatory focus, goal orientation, business angels

4.1 Introduction

Business angels are “high net worth individuals who invest their own money, along with their time and expertise, directly in unquoted companies in which they have no family connection, in the hope of financial gain” (Mason, 2006a, p. 138). By offering entrepreneurs money, experience, and emotional support (Ibrahim, 2008), business angels are a cornerstone of any entrepreneurial ecosystem. In 2016 in the United States alone, they accounted for 41% of the total investments in the seed and start-up stage and contributed to the creation of 263,950 new jobs (Sohl, 2018). By contributing to job growth, business angels also make a significant regional social and economic impact. While the extant empirical research on business angels has emphasized the vital role these financial actors play in the entrepreneurial process, we still know little about the individual characteristics that guide business angels’ decision-making and ultimately direct their investment course of action (Croce, Tenca, & Ughetto, 2016).

Business angels are similar to entrepreneurs, in that, many business angels have previous entrepreneurial experience as owners or directors of small businesses (Sørheim & Landström, 2001). They share several personal characteristics and motivations (need for achievement, internal locus of control, independence, intrinsic motivation) and engage in similar behaviors during the opportunity exploration process (Lindsay, 2004). Both groups make profits by actively searching to identify and invest in business opportunities. Furthermore, business angels and entrepreneurs utilize innovative solutions to secure market advantage, and they both bear a degree of risk when they enter markets (Lindsay, 2004).

In investing their personal money and focusing on early-stage investment, business angels differ from venture capital investors, who invest institutional money and focus on the growth stages of venture development (Van Osnabrugge, 2000). Business angel investing happens as a multistage decision-making process of interaction between investors and entrepreneurs under conditions of incomplete information and risk (Harrison & Mason, 2017). Therefore, business angels make investment-related decisions under different circumstances than venture capitalists, but the attainment of capital gains remains the dominant motivation for both (Mason & Stark, 2004). Recent research on business angels’ investment-related decision-making has focused on examining the stages of the decision-making process (Carpentier & Suret, 2015), on strategies that business angels use when assessing investment opportunities (Maxwell et al., 2011), on the evaluation stage when business angels assess managerial risk (Murnieks, Sudek, & Wiltbank, 2015), and on business angels’ use of decision heuristics to reduce cognitive effort when faced with many investment opportunities (Jeffrey et al., 2016).

Anecdotal evidence suggests that business angels are alert individuals with “entrepreneurial antennae” to catch signals of information asymmetry (Minniti, 2004) in the market. Yet, structured knowledge about what psychological characteristics guide the emergence of

business angels' alertness to new investment opportunities is lacking. With this study, we aim to deepen the understanding of how business angels harness self-regulatory processes to nurture their investment alertness. In so doing, we draw from the literature on regulatory focus (Higgins, 1997, 1998) and goal orientation (Haynie & Shepherd, 2009), as well as Tang et al.'s (2012) conceptual framework of entrepreneurial alertness. We make three important contributions.

Our first contribution is in integrating the body of knowledge on entrepreneurial alertness with social psychology and organizational research on regulatory focus. Previous research has highlighted the role of a wide array of determinants in the emergence of an individual's alertness, such as prior knowledge, personality traits, and social networks (Ardichvili et al., 2003), the impact of information distribution across agents (Minniti, 2004), environmental munificence (Tang, 2008), and strategic orientation and knowledge acquisition (Ma & Huang, 2016). However, the question of how an individual's self-regulatory motivation facilitates alertness to investment opportunities has remained relatively unexplored. Deeper understanding of these processes is important, primarily because of the large social and economic impacts of angel-related financing (Valliere, 2013). Furthermore, statistics indicate that the number of ventures benefiting from this type of investment may grow significantly in the near future as angel networks become more formalized and organized into angel groups (Mason et al., 2016). From 2015 to 2016 alone, the European angel investment market increased by 10%, at current prices, and by 9% from 2016 to 2017, reaching a new record of 7.3 billion Euros worth of investment (EBAN, 2017). Given the variations that may occur in business angels' regulatory focus, we argue that business angels' regulatory orientation may positively predict their alertness to investments.

Second, we extend the current knowledge on the role of individual self-regulation in the investment decision-making process. Previous research has explored the influence of regulatory focus at different stages of the entrepreneurial process, such as at the late stage of new venture performance (Hmieleski & Baron, 2008) or at the stage when the venture idea has already been identified (Tumasjan & Braun, 2012). Following Maxwell and colleagues' (2011) stages of the business angel investment process, we are interested in what happens before the first stage. Given that regulatory focus affects individuals' attention to specific issues and their preferred strategies for achieving goals (Wallace, Johnson, & Frazier, 2009), it is also likely to affect business angels' attention to specific information related to investment opportunities. By gaining deeper insights into the individual-level cognitive processes that precede investment-related decision-making, both business angels and entrepreneurs may be able to improve their performance during investment screening.

Finally, we contribute to the literature on goal orientation in entrepreneurship. By using the idea that an entrepreneurial mindset is metacognitive in nature (Haynie et al., 2010), we can explore the dynamics of cognitive processes that are associated with how entrepreneurial alertness evolves. We establish a relationship between goal-related cognitions and alertness that precedes the deal origination phase in the business angels' multi-stage investment

process (Maxwell et al., 2011). Existing research has emphasized that how individuals deal with the situation or problem depends on their level of metacognition (Schraw & Dennison, 1994). We propose that goal orientation influences entrepreneurial alertness through the tendency of a goal-motivated individual to search for a certain type of information. Metacognition frames how individuals think about specific tasks (Haynie & Shepherd, 2009), which is also affected by one's regulatory focus. Thus, the more business angels are aware of their metacognition, the richer the set of available alternatives to maximize the probability of achieving their goal (Haynie & Shepherd, 2009). Because goal orientation makes individuals highly sensitive and receptive to feedback from the environment, business angels are more likely to adapt to their "evolving and unfolding context" (Haynie et al., 2010, p. 218) and be more alert to information related to an investment opportunity. Prior literature on social cognition has suggested that individuals apply information-seeking and processing methods that help them to achieve their goals (Fiske, 1993; Gaglio & Katz, 2001).

4.2 Theory and Hypotheses

4.2.1 Business Angels and the Investment Recognition Process

Business angels invest in entrepreneurial ventures and undertake similar activities and risks as entrepreneurs in evaluating entrepreneurial opportunity with the promise of future lucrative returns. In doing so, business angels behave akin to entrepreneurs (Venkataraman & Sarasvathy, 2001). Furthermore, as McMullen, Plummer, and Acs (2007) observed, if the agent (i.e., business angel) who exploits an investment opportunity is not the same as the agent (i.e., entrepreneur) responsible for its creation, then the opportunity must be recognized – first by the entrepreneur (i.e., agent) and then by the business angel. An investment opportunity represents a context for a business angel to set goals and progress toward that goal – attaining a desired return on investment. Akin to entrepreneurs, business angels engage in an opportunity recognition process in which they evaluate investment opportunities to make an investment decision. This process is governed by personal orientations and motivations, such as regulatory focus (Johnson, Shull, & Wallace, 2011). Regulatory focus theory (Crowe & Higgins, 1997; Higgins, 1997) posits two separate and independent self-regulatory orientations, both fundamentally related to value motivation (e.g., achieving desired end-states). These processes foster the alert attention of business angels, make business angels susceptible to new information, and facilitate belief formation (Pryor, Webb, Ireland, & Ketchen, 2016).

4.2.2 Alertness in Entrepreneurship

One of the early notions of alertness in entrepreneurship goes back to Kirzner (1979, p. 48), who referred to it as the "ability to notice, without search, opportunities that have hitherto been overlooked by others." Recently, Tang et al. (2012) defined entrepreneurial alertness as a multidimensional construct with three complementary dimensions: scanning and searching for new information, connecting and associating previously disparate information, and evaluating whether the new information represents an opportunity.

Prior scholarly research has aimed to better understand this important ability that is manifested through a behavior by examining its three dimensions. The alert scanning and search dimension characterizes alertness as a combination of purposeful information search and non-deliberate discovery that helps an individual to collect domain-specific information (Tang et al., 2012). Prior evidence has suggested (Fiet, 2007) that this process is shaped by an individual's cognitive framework, since this framework is imperative for processing and making the most of stored information and knowledge (Tang et al., 2012). The alert association and connection dimension concentrates on how an individual receives and processes new information; it also engages the individual's creativity and ability to draw logical conclusions. The evaluation and judgment dimension concerns the formation of stable beliefs associated with a specific opportunity (Locke, Golden-Biddle, & Feldman, 2008). In effect, the evaluation and judgment dimension involves the subjective reconsideration of whether new information generates opportunity (Tang et al., 2012). In all, prior literature has agreed that entrepreneurial alertness thus encompasses an entrepreneur's cognitive capability to process prior knowledge and experiences, recognize patterns and cues in the environment, identify information, and establish social exchange regarding possible opportunities for profit earlier than others (Ardichvili et al., 2003; Gaglio & Katz, 2001).

Despite the fact that entrepreneurial alertness and its consequences has been investigated in the context of entrepreneurship (see for example: Amato et al., 2016; Baron, 2006; Gaglio & Katz, 2001; Kaish & Gilad, 1991; Tang, 2009; Tang et al., 2012), little is known about individual-level determinants of entrepreneurial alertness. Because entrepreneurial alertness results in certain behaviors and important outcomes, such as performance (Adomako et al., 2018), understanding the motivational processes that lead to the emergence of alertness among business angels should deepen our knowledge on the role of this important concept in entrepreneurship and the critical contribution of business angels to start-up financing.

4.2.3 Regulatory Focus in Entrepreneurship

Regulatory focus has gained prominence as a theory of self-regulatory motivational processes that guide individuals to enact behaviors in order to approach pleasure and avoid pain in the process of attaining goals (Johnson, Smith, Wallace, Hill, & Baron, 2015). In its essence, regulatory focus explains self-regulation as a motivation to reduce the discrepancy between a current state and some desired end-state using two independent self-regulatory orientations: promotion and prevention (Higgins, 1997, 1998). Self-regulation is part of metacognition, which refers to "high order, cognitive process that serves to organize what individuals know and recognize about themselves, tasks, situations, and their environments in order to promote effective and adaptable cognitive functioning in the face of feedback from complex and dynamic environments" (Haynie & Shepherd, 2009, p. 696). Individuals who use promotion orientation perceive possible outcomes as gains or non-gains, and they aim to maximize the number of (positive) gains by trying to ensure that they do not commit errors of omission (Johnson & Yang, 2010). Individuals who use prevention orientation perceive possible outcomes as non-losses or losses, and they aim to minimize the number of

losses by ensuring that they do not commit errors of commission. While promotion-focused individuals actively pursue goals by trying out numerous behaviors to see what works, prevention-focused individuals regulate their behaviors to prevent mistakes (Johnson et al., 2015). Hence, promotion focus results in pleasure when one is rewarded for accomplishments and pain when one is not rewarded (Brockner & Higgins, 2001). Prevention focus orientation results in positive emotions (e.g., pleasure) when there is an absence of negative consequences and negative emotions (e.g., agitation) when negative outcomes are present (Brockner & Higgins, 2001). Consequently, regulatory focus can be seen as orthogonal to approach/avoidance motivation, in that, each facet includes the dynamic of approaching desired end-states and avoiding undesired end-states (Johnson et al., 2015). Regulatory focus is usually seen as a stable personal disposition, although it can be primed through situational cues and is thus malleable.

Regulatory focus has proven useful in explaining variations in individuals' entrepreneurial performance. Hmieleski and Baron (2008) found promotion focus to be the most effective self-regulatory mode for entrepreneurs in influencing venture performance. To date, it has been the most widely used measure for assessing individual self-regulation in entrepreneurial activities, emphasizing self-regulation as a motivation to decrease the discrepancy between a current state and some desired future end-state (Haynie & Shepherd, 2009). Furthermore, Brockner et al. (2004) suggested that both promotion and prevention foci are necessary for effective decision-making in entrepreneurship. When creating potentially successful ideas, a dominant promotion focus is desired. For other aspects of the entrepreneurial process, e.g., when evaluating ideas or performing due diligence, greater prevention focus is needed. In particular, Baron (2002) emphasized that entrepreneurs have higher promotion focus when identifying opportunities, while their promotion focus positively impacts opportunity recognition in the pre-firm stage (Hmieleski & Baron, 2008). This is because promotion focus helps entrepreneurs to become alert to opportunities (Burmeister-Lamp et al., 2012) and encourages them to be persistent even in the face of difficulties (Tumasjan & Braun, 2012).

Drawing from existing evidence, we argue that regulatory focus plays a role in the emergence of business angels' alertness to investment opportunities. We also expect business angels who are high in promotion focus to have a "risky" response bias to the information about an investment opportunity (Crowe & Higgins, 1997). The process of alert scanning and search for potential investments results in an abundance of domain-relevant information that is observed through business angels' regulatory focus (Tang et al., 2012). In line with this discussion, we propose the following hypotheses:

Hypothesis 1a: There is a positive relationship between business angels' promotion regulatory focus and the alertness scanning and search dimension.

Hypothesis 1b: There is a positive relationship between business angels' promotion regulatory focus and the alertness association and connection dimension.

Hypothesis 1c: There is a positive relationship between business angels' promotion regulatory focus and the alertness evaluation and judgment dimension.

Prior literature (Crowe & Higgins, 1997) has suggested that individuals with a high degree of prevention focus are motivated primarily by security and safety needs; they attempt to conform to the expectations of their milieu (i.e., family, friends, society) by behaving as is expected of them and according to their sense of duty and responsibility. Prevention-focused individuals place primary importance on behaviors that avoid potential losses (Brockner et al., 2004). Given business angels' strong propensity to invest in young entrepreneurial ventures (Söderblom, Samuelsson, & Mårtensson, 2016), prevention regulatory focus is not characteristic of business angels. Furthermore, existing research has suggested that prevention focus is unrelated to entrepreneurial opportunity recognition (Tumasjan & Braun, 2012) and the pursuit of entrepreneurial actions (McMullen & Shepherd, 2002). Instead, prevention focus is to be expected when business angels are conducting due-diligence on selected venture ideas (Brockner et al., 2004; Harrison & Mason, 2017) or engaging in exploitation activities related to an existing investment (Kammerlander, Burger, Fust, & Fueglistaller, 2015). Thus, we propose the following:

Hypothesis 2a: There is a negative relationship between business angels' prevention regulatory focus and the alertness scanning and search dimension.

Hypothesis 2b: There is a negative relationship between business angels' prevention regulatory focus and the alertness association and connection dimension.

Hypothesis 2c: There is a negative relationship between business angels' prevention focus and the alertness evaluation and judgment dimension.

4.2.4 Goal Orientation

Prior research in psychology has suggested that individuals' goal orientation affects their subjective perception of the situation and, in turn, their adaptability and capacity to utilize personal capacities to their full potential (DeShon & Gillespie, 2005). In entrepreneurship, Haynie and Shepherd (2009) applied the concept of metacognition to explain how an entrepreneur can learn effectively from environmental cues. Goal orientation is one of the five dimensions of metacognition and represents the extent to which the individual interprets situational cues in light of personal, social, and business goals. Business angels' goal orientation describes how they perceive investment-related specificities and what behavioral activities they will use in response. For example, business angels might ask themselves questions regarding future requirements associated with an investment opportunity they are considering and questions regarding missing information that may hinder the completion of the task, among others.

Finally, if individuals have a goal they are pursuing, it increases their selective sensibility to goal-relevant information (Shah, Higgins, & Friedman, 1998). This leads us to argue that

business angels actively search for investment-related information, which is key for developing alertness to profit options. Furthermore, goal orientation frames how business angels assess the context within which they must decide about a potential investment. Building on this notion, we expect that goal orientation is positively associated with each of the three alertness dimensions:

Hypothesis 3a: There is a positive relationship between business angels' goal orientation and the alertness scanning and search dimension.

Hypothesis 3b: There is a positive relationship between business angels' goal orientation and the alertness association and connection dimension.

Hypothesis 3c: There is a positive relationship between business angels' goal orientation and the alertness evaluation and judgment dimension.

4.2.5 Moderation Effects of Regulatory Focus

Regulatory focus theory assumes that promotion-focused individuals will adjust their behaviors toward positive outcomes, while prevention-focused individuals will adjust their behaviors away from negative outcomes. Neuroscience research has posited that individual differences in self-regulatory focus and specificities of the context influence the ways in which individuals process evaluative information (Cunningham, Raye, & Johnson, 2005). For example, under a high information load, promotion-focused individuals rely on positive, gains-related information. By contrast, prevention-focused individuals rely on positive information under a low information load (Yoon, Sarial-Abi, & Gürhan-Canli, 2012). Promotion focus thus supports business angels in collecting domain-specific information based on small, unrelated pieces of information. Consequently, promotion-focused business angels are inclined to approach matches to their goals (Yoon et al., 2012) by employing risky information processing (Bittner et al., 2016). On the contrary, prevention-focused business angels focus only on negative, loss-related information. Consequently, prevention-focused business angels give greater attention to reviewing, noticing, and recalling information, and rely on prevention features available in the information to steer them away from negative outcomes. This leads us to propose:

Hypothesis 4a: The relationship between a business angel's goal orientation and the alertness scanning and search is moderated by promotion regulatory focus, such that individuals with lower promotion focus will use their goal orientation better, which will positively impact alertness scanning and search.

Hypothesis 5a: The relationship between a business angel's goal orientation and the alertness scanning and search is moderated by prevention regulatory focus, such that individuals with higher prevention focus will use their goal orientation better, which will positively impact alertness scanning and search.

Systematic, goal-oriented cognitive effort in combination with flexible thinking (Baas, De Dreu, & Nijstad, 2008) allows business angels to “connect the dots,” i.e., to recognize patterns in new information (Amato et al., 2016; Baron, 2004a). This suggests that business angels may take advantage of asymmetrically distributed information. Flexible thinking leads to creativity, which is a function of the activation of different cognitive processes such as flexible processing, continuous attention, and cognitive persistence. Activation is connected to the increased involvement of the two self-regulatory orientations (i.e., promotion and prevention focus), which supports attention toward goal-related stimuli (Baas et al., 2008). This leads us to hypothesize:

Hypothesis 4b: The relationship between a business angel’s goal orientation and the alertness association and connection is moderated by promotion regulatory focus, such that individuals with lower promotion focus will use their goal orientation better, which will positively impact alertness association and connection.

Hypothesis 5b: The relationship between a business angel’s goal orientation and the alertness association and connection is moderated by prevention regulatory focus, such that individuals with higher prevention focus will use their goal orientation better, which will positively impact alertness association and connection.

Friedman and Förster (2001) found that individuals higher in promotion focus generate more original ideas and better evaluate the originality of their ideas. Guided by a projected goal, business angels strive toward a desired end-state, namely the profit to be gained, and focus on goal-related information that fits with their regulatory focus orientation. Promotion focus supports business angels to engage in eager and active search for new, original alternatives. By contrast, prevention-focused business angels employ a strategy of vigilance that guides them toward less novel and less risky alternatives. This leads us to propose:

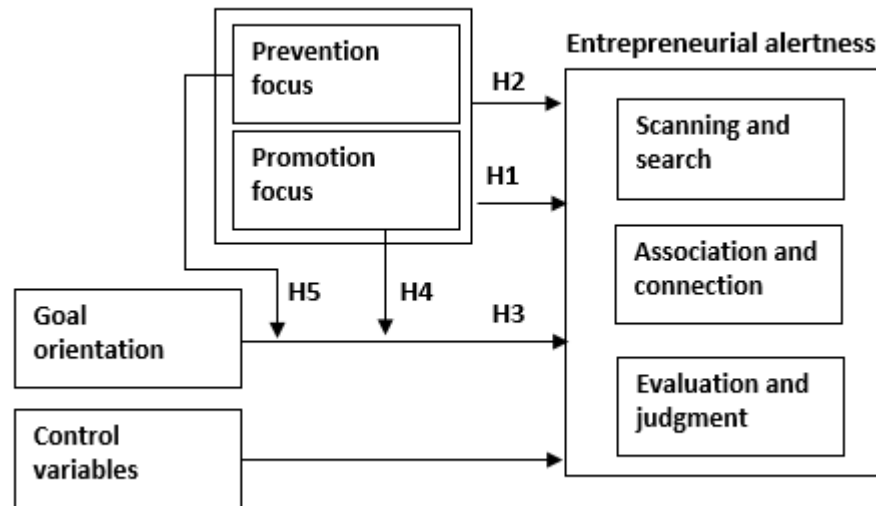
Hypothesis 4c: The relationship between a business angel’s goal orientation and the alertness evaluation and judgment is moderated by promotion regulatory focus, such that individuals with lower promotion focus will use their goal orientation better, which will positively impact alertness evaluation and judgment.

Hypothesis 5c: The relationship between a business angel’s goal orientation and the alertness evaluation and judgment is moderated by prevention regulatory focus, such that individuals with higher prevention focus will use their goal orientation better, which will positively impact alertness evaluation and judgment.

Figure 5 shows our conceptual model that builds on regulatory focus theory (Higgins, 1997, 1998), goal orientation (Haynie & Shepherd, 2009), and existing evidence on alertness in entrepreneurship (Tang et al., 2012). In the proposed model, we suggest that alertness is activated primarily through a business angel’s regulatory focus and goal orientation mechanisms. Each of the three alertness dimensions is triggered when promotion focus and goal orientation harmonize as the business angel responds to asymmetric market

information. The model also suggests that promotion and prevention orientation moderate the relationships between goal orientation and the alertness dimensions.

Figure 5: Theoretical model for entrepreneurial alertness



Source: Own work

4.3 Methods

4.3.1 Research Design

We used an exploratory mixed methods approach (Bryman, 2006; Greene, 2008) to investigate the cognitive processes that precede entrepreneurial alertness. This approach allowed us to combine qualitative data collected about participants' thoughts and empirical findings from quantitative data collected through a survey (Molina-Azorín, 2012). We collected data during the first quarter of 2015 by using two independent sources: semi-structured, open-ended interviews and an online survey. We conducted semi-structured interviews with 20 business angels in Europe and the United States, face-to-face and via Skype. Between April and July 2015, we collected quantitative data via an online survey carried out among business angels from Europe and the United States.

The sampling for the personal interviews was conducted through e-mails and telephone calls. As a result of the sampling, 20 selected business angels met the inclusion criterion of having prior investment experience. Experience constitutes a framework through which information can be processed and transformed into patterns identified from previous encounters or knowledge, thereby enabling business angels to identify investment opportunities (Kaish & Gilad, 1991). The reliability of the information received from participants was ensured following Wiltbank et al.'s (2009) list of baseline factors that business angels consider during the investment process, for example, the number of total venture investments, entrepreneurial experience, and the number of investments made in the seed stage.

Sixteen interviews were performed via Skype with participants located in Austria, Denmark, England, Estonia, Finland, France, Germany, Switzerland, and the United States. We conducted four face-to-face interviews with participants from Austria, Slovenia, Switzerland, and the United States. English was used as the language of communication in order to minimize potential bias (Brislin, 1970).

The empirical data for the quantitative study were collected through an online survey sent to 343 angel groups in Europe and 273 in the United States. We received 87 surveys (15% response rate) and, after eliminating 32 incomplete surveys, we assembled the dataset based on 55 valid responses. Alertness measures had the highest response rate, as they were at the beginning of the questionnaire ($n = 87$). The goal orientation scale was answered by 59 business angels, and the prevention and promotion focus scale by 55 business angels. The lowest number of business angels answered questions on their experience ($n = 49$). Taking into account the $n = 55$ business angels that answered on the regulatory focus scale, the missing values represented less than 5% overall. For entrepreneurial experience, missing data for six cases were imputed by mean substitution.

Our sample meets Wolf et al.'s (2013) conditions regarding the sample size required to achieve minimal bias, adequate statistical power, and overall propriety (in the case of single-factor CFA models with eight indicators with loadings of 0.65). Regression models followed the suggestion of a minimum of five cases per independent variable (Green, 1991), which was recently shown to be a more rigorous rule than the proposed two cases per variable (Austin & Steyeberg, 2015). We noted similarities between the demographic characteristics of the respondents in our sample and those of the largest sample of business angels (Mason & Botelho, 2014), thus authenticating the representativeness of our sample. A comparison between the demographic characteristics of the samples of business angels is shown in Table 10, exhibiting that the survey sample is not statistically significantly different from the sample from Mason and Botelho (2014) with respect to gender ($p = 0.252$), university degree education ($p = 0.812$), and postgraduate education ($p = 0.069$), but differs with respect to the age of business angels ($p < 0.001$).

We used Armstrong and Overton's (1977) approach to test for potential non-response bias. Using a t-test, we tested the differences in the means of the main constructs between the group of early respondents and the group of late respondents. We found no statistically significant differences between the groups in terms of alert scanning and search ($p = 0.743$), alert association and connection ($p = 0.878$), alert evaluation and judgment ($p = 0.831$), promotion focus ($p = 0.254$), prevention focus ($p = 0.335$), and entrepreneurial experience ($p = 0.749$). Non-response bias might be present in the goal orientation variable, with our study including business angels with a lower goal orientation. Late respondents had statistically significantly higher goal orientation than early respondents ($p = 0.036$).

Table 10: Comparison between the sample in our qualitative and quantitative survey and that in Mason and Botelho's (2014) survey

Demographic characteristic	Interview sample	Survey sample	Mason and Botelho's sample (2014)
Average age	52	54	45
Male	90%	94%	88%
Female	10%	6%	12%
Univ. degree	70%	75%	76%
Postgraduate	40%	48%	34%

Source: Own work

In our survey design, we also aimed to minimize the risks of common method bias. By assuring strict confidentiality for our respondents, we tried to minimize respondents' motivation to fill in the survey in a socially desirable way (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). As an ex-post assessment of common method variance, we performed an exploratory factor analysis (EFA) among all included variables. If common bias exists, either (a) a single factor emerges from the analysis; or (b) one general factor accounts for the majority of covariance among variables (Podsakoff & Organ, 1986, p. 536).

4.3.2 Measures

4.3.2.1 Qualitative study

We conducted semi-structured interviews, asking participants questions related to their typical behavior during the investment process. Each interview lasted at least one hour. We did not inform participants about the particular research topic, but we did tell them that we were exploring business angels' decision-making behavior in order to avoid potential non-response bias. The list of interview questions is given in Appendix B.

4.3.2.2 Quantitative survey

Entrepreneurial alertness. To measure entrepreneurial alertness, we used the scale developed by Tang et al. (2012). The entrepreneurial alertness scale consisted of three dimensions: scanning and search, association and connection, and evaluation and judgment. Business angels rated the extent to which they participated in activities, captured in self-descriptive statements reflecting entrepreneurial alertness. Ratings were made on a 7-point Likert scale ranging from 1=never to 7=always.

EFA resulted in a three-factor solution, in line with the theoretical assumptions. The three factors explained 81% of the total variance, and the reliability of the scale was high (Cronbach's α s for all factors were above 0.90). The item "I have a gut feeling for potential opportunities" had high loadings on the association and connection and evaluation and

judgment dimensions, suggesting cross-loading; therefore, this item was excluded from further analysis. Once this item was excluded and two error covariances were added between items measuring the same latent variable, confirmatory factor analysis indicated good model fit (RMSEA = 0.05; NFI = 0.98; NNFI = 0.99; CFI = 1; IFI = 1, SRMR = 0.03; SB χ^2 = 59.4; df = 49; p = 0.146). The indices of fit for the entrepreneurial alertness measurement model demonstrated good reliability, convergent and discriminant validity. The AVEs for scanning and search, association and connection, and evaluation and judgment were 0.72, 0.88, and 0.87, respectively. In all cases, the AVEs for each latent variable exceeded the values of r^2 between latent variables (for scanning and search dimension \leftrightarrow association and connection dimension r^2 = 0.64; for scanning and search dimension \leftrightarrow evaluation and judgment dimension r^2 = 0.58; and for evaluation and judgment dimension \leftrightarrow association and connection dimension r^2 = 0.55), providing further support for the model's discriminant validity.

Regulatory focus. We used the 11-item regulatory focus scale developed by Higgins and colleagues (2001) to assess the history of individuals' success at promotion and prevention tasks in their lives. Regulatory focus was scored on a 5-point Likert-type scale (1=never or seldom; 5=very often). The fit indices in the measurement model for the regulatory focus scale demonstrated good overall fit (RMSEA = 0.08; NFI = 0.93; NNFI = 0.97; CFI = 0.99; IFI = 0.99, SRMR = 0.05; SB χ^2 = 25.6; df = 19; p = 0.141). The AVEs for the promotion and prevention dimensions were 0.63 and 0.64, respectively. All item loadings on the latent variables were above the 0.5 threshold. Consequently, there was sufficient support for the convergent validity. The composite reliabilities for promotion focus and prevention focus were 0.87 and 0.88, respectively.

Goal orientation. We measured goal orientation using the 5-item goal orientation scale developed by Haynie and Shepherd (2009). Goal orientation was scored on a 7-point Likert-type scale (1=totally disagree; 7=totally agree). EFA resulted in all items loading considerably on a single factor that explained 82% of variance in observed variables. A Cronbach's α of 0.96 indicated the high reliability of the measurement. The fit indices in the measurement model for goal orientation demonstrated good overall fit (RMSEA = 0.08; NFI = 0.99; NNFI = 1; CFI = 1; IFI = 1, SRMR = 0.01; SB χ^2 = 2.57; df = 3; p = 0.462). The AVE was 0.79. All item loadings on the latent variables were above the 0.5 threshold, providing sufficient support for the convergent and discriminant validity. Composite reliability was 0.95. The list of survey instrument items is given in Appendix D.

Control variables. We included two control variables relevant to business angels' behavior (Tumasjan & Braun, 2012; Wiltbank et al., 2009): country of origin and investor's experience. The baseline model included total venture investments, investment experience, entrepreneurial experience, due diligence, deals through personal relationships, prior investors, and post-investment participation. With one factor, 46.4% of the variance in observed variables was explained. The overall fit of the final model was good (RMSEA = 0.04; NFI = 0.94; NNFI = 1; CFI = 1; IFI = 1, SRMR = 0.07; SB χ^2 = 36; df = 34; p = 0.373).

The AVE was 0.58. Consequently, there was sufficient support for the convergent validity. Composite reliability was 0.93.

4.3.3 Results from Qualitative Analysis

An inductive approach was employed to analyze the interviews. Our aim was to identify business angels' patterns related to alertness to new information, and to discover angels' goals and self-regulatory strategies used to reach those goals. We open-coded the interview data for topics related to various facets of the decision-making process, taking into account the context of investment decisions. Moreover, we applied open codes (Strauss & Corbin, 1998) to all data that could possibly capture business angels' decision-making values and future outcome predictions. We applied the label entrepreneurial alertness to all interviewed business angels because of the frequent use of the word information in relation to the investment context. Table 1 (see section 2.4.1 in Chapter 2) summarizes the leading keywords in coding for entrepreneurial alertness, regulatory focus, and goal orientation.

4.3.4 Results from Quantitative Analysis

We used SPSS 23.0 for EFA for hypotheses testing. Hypotheses were tested at $\alpha = 0.05$ level of significance (two-tailed). We used composite measures (calculated as averages of items measuring the same construct) in further statistical analyses. To assess the antecedents of entrepreneurial alertness, we built three multiple regression models, each with a different dimension of entrepreneurial alertness (i.e., scanning and search, association and connection, and evaluation and judgment) as the dependent variable. Goal orientation and regulatory focus were included as predictors in the regression models, with entrepreneurial experience and country of origin considered as control variables. The correlations between the variables and descriptive statistics are summarized in Table 11.

Table 11: Descriptive statistics and correlations among variables included in the model ($n = 55$)

	M	SD	SS	AC	EJ	GO	Pre	Pro	EE	C
SS	5.61	1.32	1							
AC	5.55	1.40	0.79**	1						
EJ	5.03	1.26	0.72**	0.70**	1					
GO	5.29	1.43	0.71**	0.52**	0.64**	1				
Pre	3.13	0.78	-0.58**	-0.53**	-0.45**	-0.44**	1			
Pro	3.86	0.80	0.71**	0.65**	0.72**	0.73**	-0.50**	1		

EE	0.79	0.70	-0.38	-0.36	-0.14	-0.23	0.22	-0.31	1	
C	0.47	0.50	0.12	0.01	-0.08	0.02	0.01	0.13	-0.01	1

SS = scanning and search; AC = association and connection; EJ = evaluation and judgment; GO = goal orientation; Pre = prevention; Pro = promotion; EE = entrepreneurial experience; C = country (US = 1; EU = 0); M = mean; SD = standard deviation; * $p < 0.05$; ** $p < 0.01$

Source: Own work

Hypotheses 1a to 1c proposed a positive relationship between business angels' promotion regulatory focus and each of the three alertness dimensions. Hypotheses 2a to 2c proposed a negative relationship between business angels' prevention regulatory focus and each of the three alertness dimensions. Hypotheses 3a to 3c proposed a positive relationship between business angels' goal orientation and each of the three alertness dimensions.

When all three independent variables (prevention regulatory focus, promotion regulatory focus, and goal orientation) are included in the regression model simultaneously, they have an important role in predicting scanning and search alertness of business angels. According to the value of the regression coefficients, goal orientation has the greatest effect (std. $B_{\text{goal orientation}} = 0.39$), while prevention and promotion focus have weaker and approximately equal effects (std. $B_{\text{prevention RF}} = -0.27$, std. $B_{\text{promotion RF}} = 0.28$, respectively) on scanning and search alertness (Table 12). Results from the empirical analysis thus support Hypotheses 1a, 2a, and 3a.

Although each independent variable is in itself statistically significantly associated with association and connection alertness, the effect of goal orientation becomes statistically non-significant when included together with prevention and promotion focus as an independent variable in the regression model. From the value of the regression coefficients, it is evident that the effect of promotion focus on the association and connection measure is the strongest (std. $B_{\text{promotion RF}} = 0.54$), while prevention focus has a weaker, but still statistically significant effect (std. $B_{\text{prevention RF}} = -0.28$). Results from the empirical analysis thus support Hypotheses 2a and 2b, whereas Hypothesis 2c is not supported.

Finally, when the evaluation and judgment alertness dimension is regressed on the three independent variables in the model, promotion regulatory focus remains a significant predictor. Although goal orientation and prevention focus correlates significantly with evaluation and judgment on their own, their effect is diminished when included simultaneously with promotion focus as independent variables in the regression model. The results shown in Table 12 offer empirical support for Hypothesis 3a, but not for Hypotheses 3b or 3c (std. $B_{\text{promotion RF}} = 0.58$ and std. $B_{\text{prevention RF}} = -0.08$).

Table 12: Results of the regression analysis – direct effects

	DV: SS	DV: AC	DV: EJ
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Variable	Std. B (p-value)	Std. B (p-value)	Std. B (p-value)
Goal orientation	0.39 (0.004)	0.02 (0.919)	0.19 (0.182)
Prevention RF	-0.27 (0.009)	-0.28 (0.022)	-0.08 (0.444)
Promotion RF	0.28 (0.043)	0.54 (0.001)	0.58 (< 0.001)
Entrepreneurial experience	0.03 (0.749)	0.16 (0.150)	0.09 (0.385)
Country (0 = EU; 1 = US)	0.07 (0.480)	-0.11 (0.335)	-0.19 (0.063)

Note: SS = scanning and search; AC = association ad connection; EJ = evaluation and judgment; Std.B = standardized regression coefficient; DV = dependent variable

Source: *Own work*

Table 13 summarizes the moderation effect of promotion focus on the relationships between goal orientation and each alertness measure. Promotion focus moderates the relationships between goal orientation and scanning and search, and goal orientation and association and connection, which provides support for Hypotheses 4a and 4b. The positive relationship between goal orientation and scanning and search is stronger when business angels score lower on promotion focus. This relationship is much weaker when business angels score higher on promotion focus. The moderation effects are illustrated in Figure 6.

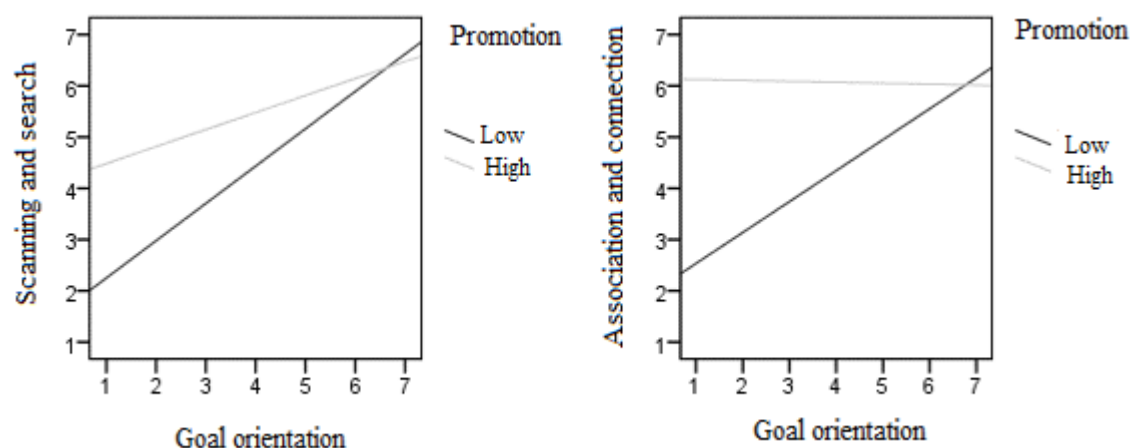
Table 13: Moderation effect of promotion focus on the relationships between goal orientation and alertness

	DV: SS	DV: AC	DV: EJ
Variable	Std. B (p-value)	Std. B (p-value)	Std. B (p-value)
Goal orientation cent.	0.33 (0.01)	-0.04 (0.81)	0.17 (0.227)
Prevention RF cent.	-0.25 (0.012)	-0.26 (0.03)	-0.08 (0.485)
Promotion RF cent.	0.09 (0.546)	0.36 (0.049)	0.53 (0.003)
Entrepreneurial experience	0 (0.965)	0.13 (0.209)	0.08 (0.429)
Country (0 = EU; 1 = US)	0.08 (0.341)	-0.09 (0.407)	-0.18 (0.072)
Goal orientation x Promotion RF	-0.33 (0.011)	-0.3 (0.046)	-0.08 (0.549)

Note: SS = scanning and search; AC = association ad connection; EJ = evaluation and judgment; Std.B = standardized regression coefficient; DV = dependent variable; cent. = centered around mean

Source: *Own work*

Figure 6: Moderation effect of promotion focus on the relationships between goal orientation and scanning and search (left), and goal orientation and association and connection (right)



Source: Own work

We also tested the moderation effect of prevention focus on the relationships between goal orientation and each alertness dimension (Table 14) using a hierarchical linear regression analysis. Regulatory focus and goal orientation were included as independent variables, country and entrepreneurial experience as control variables, and alertness as a dependent variable in the regression model. Before including the interaction between regulatory focus and goal orientation in the regression model, variables were centered around their mean to ensure model interpretability and avoid multicollinearity. All hypotheses were tested at a 0.05 significance level. Results showed that prevention focus moderates the relationship between goal orientation and scanning and search (Std. B = 0.34; $p = 0.001$). The interaction effect is illustrated in Figure 7. The positive relationship between goal orientation and scanning and search is stronger when business angels score higher on prevention focus than when the prevention focus score is lower. Business angels who score low on prevention focus tend to search for information to a similar extent, regardless of their goal orientation. Hypothesis 5a is thus supported, while Hypotheses 5b and 5c are not supported.

Table 14: Moderation effect of prevention focus on the relationship between goal orientation and alertness

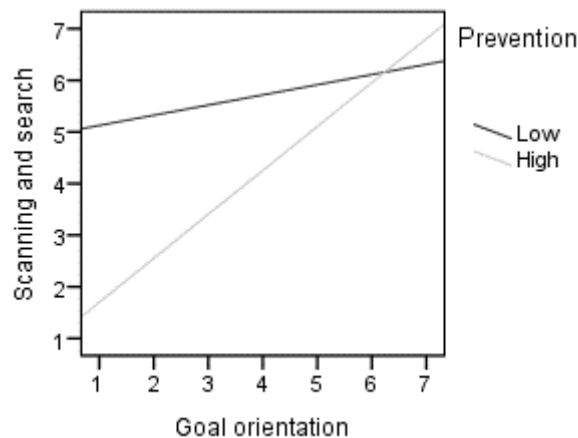
	DV: SS	DV: AC	DV: EJ
Variable	Std. B (p-value)	Std. B (p-value)	Std. B (p-value)
Goal orientation cent.	0.35 (0.004)	-0.01 (0.936)	0.18 (0.211)
Prevention RF cent.	-0.28 (0.003)	-0.29 (0.015)	-0.09 (0.43)

Promotion RF cent.	0.1 (0.481)	0.4 (0.022)	0.53 (0.002)
Entrepreneurial experience	0.01 (0.952)	0.14 (0.19)	0.08 (0.426)
Country (0 = EU; 1 = US)	0.07 (0.377)	-0.1 (0.352)	-0.19 (0.067)
Goal orientation x Prevention RF	0.34 (0.001)	0.25 (0.052)	0.09 (0.432)

Note: SS = scanning and search; AC = association and connection; EJ = evaluation and judgment; Std.B = standardized regression coefficient; DV = dependent variable; cent. = centered around mean

Source: Own work

Figure 7: Moderation effect of prevention focus on the relationship between goal orientation and scanning and search



Source: Own work

4.4 Discussion

The aim of this study was to explore the individual-level cognitive determinants that contribute to the emergence of business angels' alertness to investment opportunities. We demonstrate that regulatory focus and goal orientation are associated with the emergence of entrepreneurial alertness. Moreover, we find that regulatory focus moderates the relationships between goal orientation and the alertness dimensions.

Consistent with our predictions, promotion regulatory focus helps business angels' association and connection in organizing seemingly unrelated information (Tang et al., 2012). Promotion regulatory focus enables business angels to achieve a "hit" or correctly identify whether a stimulus exists (Tang et al., 2012). This literature has suggested that

promotion-focused business angels are open to the new possibilities ushered in by the information received (Brockner et al., 2004). This is because such a motivational state produces an exploratory risk-seeking bias related to potential gains, particularly if business angels have prior positive investment experience (Bryant & Dunford, 2008). Also consistent with our predictions, prevention-focused business angels are not motivated to scan and search for novel information, which consequently decreases their chances of identifying signals of a profitable investment (Tumasjan & Braun, 2012).

In addition, our results revealed a strong, positive relationship between goal orientation and the scanning and search alertness dimension. This is because situational cues directly guide the individual's goal-directed behaviors. Based on our qualitative and quantitative evidence, we suggest that business angels' goal orientation facilitates their perception of the situation and enables scanning and search for profit opportunities.

Viewing alertness as a flow through the scanning and search phase, association and connection phase, and evaluation and judgment phase, it seems that goal orientation is a motivational driver during all three phases of this flow. This is because goal orientation, as a dimension of a business angel's metacognition, affects the degree of a business angel's adaptability to changing investment opportunities. Metacognitive abilities play a role in every aspect of human life in general (Ling, Kyrö, & Venesaar, 2013), since they impact personal productivity by supporting individuals to adjust their behaviors (Schmidt & Ford, 2003). Such abilities are of specific importance in the context of business angels, as angels work in dynamic environments and need to make decisions under circumstances of asymmetric information.

Goal orientation as a facet of goal choice initiates goal direction (Johnson et al., 2011), as it narrows down the wide spectrum of information to signals that are (a) related to potential investments, and (b) compatible with the angel's personal underlying needs and the values he or she associates with goal orientation. Such information is processed more effectively but is more affectively charged (Gollwitzer & Moskowitz, 1996), thus exposing business angels to uncertainty. Moreover, by seeking out challenges, goal orientation provokes exploratory strategies that involve more distinct information searches, which enables business angels to make sense of different and dissimilar information (Uy, Sun, & Foo, 2017).

We also tested the moderation role of regulatory foci on the relationships between goal orientation and the three alertness dimensions. While both promotion and prevention focus play specific roles at the different stages of the entrepreneurial process (Brockner et al., 2004), different self-regulatory orientations influence the way business angels assimilate new goal-related information, or connect seemingly dissimilar information to identify meaningful patterns (Baron & Ensley, 2006; Uy et al., 2017). Our finding that promotion focus moderates the relationships between goal orientation and the two alertness dimensions supports the idea that regulatory focus motivates an individual's goal-directed behaviors.

Furthermore, regulatory focus alters the influence of goal orientation on alert investment behavior. For instance, promotion regulatory focus is generally motivated by incentives geared toward accomplishments (Shah et al., 1998). Our results reveal that high promotion focus weakens the relationship between goal orientation and alert scanning and search and association and connection, whereas lower promotion focus together with high goal orientation is beneficial to this relationship. On the contrary, while prevention focus is motivated by incentives seen as safety and responsibility (Shah et al., 1998), in our study, high prevention focus together with higher goal orientation leads to higher alert scanning and search behavior; by contrast, with low prevention focus, business angels search for information without any influence of goal orientation. In the domain of losses, business angels shift from the conservative tactics characteristic of prevention-focused individuals to a riskier option in order to restore the status quo (Scholer, Zou, Fujita, Stroessner, & Higgins, 2010) by using goal orientation to scan and search for information more successfully. In the domain of gains, high promotion-focused business angels move to atypical conservative tactics when they believe the tactic will maximize their ability to surpass the status quo (Zou, Scholer, & Higgins, 2014), decreasing the full potential of the relationship between goal orientation and alert scanning and search and association and connection (Higgins & Cornwell, 2016).

4.4.1 Theoretical Implications

Our first contribution is to the body of theoretical and empirical work exploring the cognitive determinants of business angels' behaviors before the initial stage of the investment process. Our finding that promotion focus is positively associated with the emergence of alertness provides empirical confirmation of a theorized relationship (Tang, 2009) that has not been empirically tested extensively. We further add to the empirical evidence on the role of regulatory focus in the early phase of investment recognition (Tumasjan & Braun, 2012). Our specific focus on investment recognition differs from previous studies that have explored the various roles played by regulatory focus in later stages of opportunity assessment (Bryant, 2007; Hmieleski & Baron, 2008). Our study further supports earlier evidence suggesting that cognitive "traps" (Baron, 2004b) can influence individuals' decision-making in the kinds of uncertain and information-asymmetric environments where business angels work.

In response to particular situational cues, business angels engage in certain goal-directed behaviors that are activated by their mental representation of specific situational attributes and provoke alertness. In finding a statistically significant relationship between goal orientation and the scanning and search alertness dimension, our results contribute not only to the goal-setting literature, but also to the theoretical and empirical work exploring the cognitive processes of business angels. The results of our study are important not only in uncovering the antecedents of alertness, but also in further investigating individual-level variables as basic tools for understanding entrepreneurial cognitions (Baron, 2004b).

Finally, our study has important implications in the domain of entrepreneurship learning. A purposeful engagement in metacognitive activities, such as goal orientation, has significant implications for performance (Schmidt & Ford, 2003). Prior research has demonstrated that mostly those factors that are within an individual influence goal orientation as part of metacognitive activity (Haynie & Shepherd, 2009). Despite the richness of findings in entrepreneurship learning, this stream of literature has so far remained silent about the learning processes of business angels. Future research in this area could examine how the learning strategies of business angels impact their investment portfolios. Drawing from such findings, business schools could introduce more reflective practices into the curricula in order to make entrepreneurs and business angels more aware of their profiles and specific needs. Such education would likely result in a reduction of the transaction costs in the exchange between business angels and entrepreneurs.

4.4.2 Practical Implications

Based on our evidence, we can offer some practical implications for business angels, entrepreneurs, and entrepreneurship counselors. We argue in this study that, for both entrepreneurs and business angels, entrepreneurial alertness is an important mechanism for making opportunity-related decisions. However, at the opportunity screening point, both groups may pay attention to different angles of the opportunity at hand. This is an important insight since public policy programs heavily support early-stage financing, although a lack of follow-up financing is frequently cited as one of the key reasons for start-up failure (CB Insights, 2018). Public funds for early-stage startup financing could benefit from a shift of focus from market readiness to investment readiness of an opportunity. Accordingly, offering start-up entrepreneurs training in the area of making their venture investment-ready (from the business angels' perspective) could lead to higher survivability of high-potential ideas.

Furthermore, entrepreneurs should receive more training on how to reduce business angels' scanning and search costs and how to better understand business angels' regulatory foci, especially since regulatory focus can be manipulated by intent and situational priming (Higgins et al., 2001). Development of the cognitive skills necessary to monitor oneself and other's behaviors can be included in graduate entrepreneurship programs. For example, through experientially created case studies, MBA students could be trained to establish relationships between a promotion-focused orientation and alertness to opportunities. Furthermore, entrepreneurially oriented students could be trained to improve their alertness by increasing their levels of metacognitive awareness (Ling et al., 2013). When business angels understand their regulatory focus, they can systematically work toward improving their end results (Zacharakis & Meyer, 2000). For example, in order to improve the effectiveness of their investment portfolio, business angels who are very high in promotion regulatory focus need to understand that they are particularly susceptible to "errors of commission."

4.4.3 Limitations and Future Research

As with prior research (Maxwell et al., 2011; Wiltbank et al., 2009), our study is limited by business angels' ability to reflect on their own decision-making processes *a posteriori*. Self-report measures are limited by the degree to which participants possess insight into their own motivational state and experiences (Summerville & Roese, 2008). Indeed, research has identified difficulties in individuals' reflection on their cognitive processes (Maxwell et al., 2011; Nisbett & Wilson, 1977).

Second, it is difficult to locate business angels, as they usually make a substantial effort to protect their privacy (Mason & Harrison, 2000). In turn, it is difficult to identify their activities and motivations (Mason & Harrison, 2002b), which presents an obstacle in assembling a sample of convenience (White & Dumay, 2017). Given this difficulty in accessing business angels, some might criticize the sample size of the study and the generalization of the findings.

The above-mentioned limitations also open avenues for future research. First, the proposed model and hypotheses need to be empirically tested on other samples of individuals engaged in entrepreneurial activities, across different industries and contexts. Second, growing knowledge in the entrepreneurship literature will suggest other important cognitive variables as antecedents in a similar integrative framework. Our findings contribute to the long-standing attempt to define alertness to opportunities. This task is certainly not simple, and while we are unable to provide a complete picture, we contribute a small piece to the puzzle.

5 GENERAL DISCUSSION AND CONCLUSION

This chapter of the dissertation summarizes the key findings with reference to the main research goals and discusses the main limitations of the study, implications, and future research opportunities.

5.1 Summary of Main Findings, Theoretical and Practical Implications

In this dissertation, we (1) analyzed the impact of individual investor-related factors, such as alertness to investment opportunities, cognitive style, regulatory focus, and risk propensity in the process of evaluating an investment opportunity; (2) explored how direct and indirect effects between business angels' cognitive style and regulatory focus are associated with the likelihood of a positive evaluation of an investment opportunity; and (3) proposed, tested, and analyzed the antecedents that contribute to the emergence of business angels' entrepreneurial alertness to investment opportunities. Taken together, the findings of this dissertation enhance our understanding of how cognitive processes/antecedents contribute to both the emergence of business angels' alertness to investment opportunities and their evaluation of an investment opportunity.

In the next paragraphs, I discuss the main findings and theoretical and practical implications of the dissertation with reference to each specific research goal.

- *Research goal 1: To test and analyze the impact of investors' individual cognitive factors, such as alertness to investment opportunities, cognitive style, regulatory focus, and risk propensity, in the process of evaluating an investment opportunity.*

In Chapter 1, we investigated whether business angels' cognitive resources, such as entrepreneurial alertness, regulatory focus, and cognitive style, drive the development of their intention to invest. Understanding what promotes or inhibits the business angels' investment process requires an understanding of what factors support their perception of an investment as a good opportunity (Krueger, 2000). According to our systematic literature review, the investment process can be characterized as intentional behavior that precedes decision-making and action (Shirokova et al., 2016). Drawing on this literature, we identified cognitive variables linked to the idea of profit maximization. Revisiting Ajzen's (1991) theory of planned behavior, we proposed a theoretical model, arguing that business angels' intentional behavior may be motivated by the investments' favorable (i.e., profit maximization) and unfavorable (i.e., risk exposure) outcomes. We began our analysis by collecting qualitative data via semi-structured interviews with business angels, and continued by collecting survey data from an international sample of business angels. We tested the direct effects of entrepreneurial alertness, regulatory focus, cognitive style, and risk propensity, and their relation to business angels' intention to invest in an entrepreneurial venture. We showed that the scanning and search dimension of entrepreneurial alertness plays an important role in intentionality by increasing the amount of investment-related information the business angel sources and thus increasing the possibility that he/she will select opportunities with the best profit potential (Tang et al., 2012). Moreover, we found promotion focus to be an important driver of business angels' intentionality in terms of making an investment, as it directs, motivates, and manages business angels' goal-directed behavior (Tang, 2009).

The findings presented in Chapter 1 of this dissertation offer insights into the importance of individual cognitive and self-regulatory processes in shaping business angels' perception of an investment even before the investment process starts. These processes form a kind of intangible infrastructure that supports angels' intentionality. Our findings advance the current understanding of how alertness informs business angels' intention to invest. The extent to which business angels scan and search for information about investment opportunities strongly influences the likelihood of them positively evaluating an investment opportunity. Our findings about the main role of promotion focus as a motivational inhibitor in recognizing the value-creation potential of an investment (Kickul et al., 2009) adds to the growing body of literature demonstrating the role of regulatory focus in achieving desired end-states in the entrepreneurial process.

- *Research goal 2: To test and analyze moderation effects between business angels' cognitive style and regulatory focus, and the likelihood of them positively evaluating an investment opportunity.*

This research question was addressed in Chapter 2 of this dissertation, which focused on the early stages of the investment process (the deal origination and initial screening stages according to Maxwell and colleagues' 2011 model). The study explored how business angels' specific cognitions contribute to the positive evaluation of an identified investment opportunity. More specifically, we examined how regulatory focus and cognitive style – both separately and in interplay – contribute to the likelihood of business angels' positive evaluation of an investment opportunity. Prior research has suggested that business angels tend to use heuristics to reduce the overall decision effort required (Harrison et al., 2015; Mason & Rogers, 1997). In fact, evidence from the informal equity markets has suggested that business angels often reject opportunities because they do not want to take the time to reduce some of the perceived risks when there are other, less risky opportunities available (Maxwell, 2018). This evidence led us to think that the underlying cognitive mechanisms direct business angels' behavior even before the initial interaction between business angel and entrepreneur, and during the evaluation stage of the investment process. We proposed a conceptual model and tested the direct and moderation effects of regulatory focus and cognitive style on the likelihood of business angels positively evaluating an investment opportunity.

Given the paucity of empirical evidence on business angels' cognitive processes, we used an exploratory mixed methods approach (Bryman, 2006; Greene, 2008), conducting semi-structured interviews with business angels in the first phase and quantitative analyses in the second phase. In line with our theorizing, we found that planning cognitive style was positively associated with the likelihood of business angels positively evaluating an opportunity. In effect, the way business angels process the sensory input they receive from the environment (Barbosa et al., 2007) influences how they perceive the feasibility and desirability of an investment (Fitzsimmons & Douglas, 2011). As a side effect, during information processing, business angels become aware of their self-efficacy, which affects how capable they are to engage in the investment process and the likelihood that they will positively evaluate an investment opportunity. We also found support for the interaction effects of business angels' regulatory foci and planning cognitive style. Both promotion and prevention foci were significantly associated with the likelihood of positively or negatively evaluating an investment opportunity when business angels' planning style was low. This finding supports the role of regulatory focus as the main driver in the evaluation stage of the investment process. On the contrary, when planning cognitive style was high, regulatory focus appeared to lose its role; instead, the way business angels processed information determined the likelihood of them positively evaluating an investment opportunity. Along with these findings related to the roles played by cognitive style and regulatory focus in the investment evaluation process, we found that the number of currently considered

investments increased the likelihood of business angels positively evaluating an investment opportunity. This finding may not be generalized to all situations in which business angels evaluate investment opportunities. There may be instances when business angels already have a portfolio of several investments in the early stages, but they maintain alertness to new profitable opportunities. Finally, this finding supports the role of business angels' experience in making investment evaluations because relevant knowledge of the industry and market enables them to feel more confident in evaluating venture potential (Maxwell, 2018).

The main theoretical implication derived from this study concerns new insights about the role of business angels' regulatory focus in the evaluation stage of the investment process. We demonstrated that promotion focus consistently drives business angels and increases the probability of them investing in an opportunity. It is also notable that high planning cognitive style interacts with the role of promotion focus, such that when planning cognitive style is high, promotion focus is no longer associated with the likelihood of a business angel positively evaluating an investment opportunity. Consequently, shedding light on the role of business angels' regulatory focus in the early stages of the investment process can contribute to the development of practical interventions, as discussed in the next section. Finally, by unveiling the mechanisms that underlie business angels' self-regulatory and cognitive processes, we contribute to the knowledge of how individual-level variables and their interactions can be used as basic tools to understand entrepreneurial cognition (Baron, 2004b).

- *Research goal 3: To test and analyze how alertness to investment opportunities emerges by proposing and investigating its antecedents.*

Despite the fact that entrepreneurial alertness has been investigated in several studies in entrepreneurship (see for example: Amato et al., 2016; Baron, 2006; Gaglio & Katz, 2001; Kaish & Gilad, 1991; Tang, 2009; Tang et al., 2012), little is known about individual-level determinants of entrepreneurial alertness. Because entrepreneurial alertness results in certain behaviors and important outcomes, such as performance (Adomako et al., 2018), understanding the motivational processes that lead to the emergence of alertness among business angels is important and may contribute critical insights regarding the process of business angels' start-up financing.

In the proposed theoretical model in Chapter 3, we suggest that business angels utilize their self-regulatory and metacognitive processes. In our research, we used regulatory focus and goal orientation as determinants of entrepreneurial alertness.

The main findings were consistent with our predictions. We demonstrated that regulatory focus and goal orientation were associated with the emergence of entrepreneurial alertness. Moreover, we found that regulatory focus moderated the relationships between goal orientation and the alertness dimensions. Our finding that promotion focus was positively associated with the emergence of alertness provides empirical confirmation of a theorized

relationship (Tang, 2009) that has not yet been empirically tested extensively. In arguing that the cognitive determinants of business angels play a role even before the initial stage of the investment process, we contribute to the limited scholarship on the antecedents of entrepreneurial alertness.

- *Research goal 4: To propose practical implications to help business angels and entrepreneurs learn what factors can have an impact on the investment decision and thus improve the percentage of investments being made.*

The main practical implication of this research derives from the fact that the variables we investigated in this dissertation are individual variables, which has consequences for both business angels and entrepreneurs. Maxwell (2011) indicated that most entrepreneurs do not understand how business angels make investment decisions and what motivates them. As a consequence, during the investment interaction with business angels, entrepreneurs may not maximize the opportunity. A better understanding of “cognitive fit” and of business angels' motivations and goals may help entrepreneurs to better prepare their pitches to secure financing (Baron, 2004a, 2004b). Entrepreneurs can also tailor their responses to promotion-focused business angels' questions by providing promotion-focused answers (Kanze et al., 2018). For business angels, these findings can help them to reflect on their own investment decision-making processes and make them aware of their cognitive and self-regulatory processes. In turn, they can learn how to manage those processes in order to improve the quality of their decisions. Accordingly, this greater insight should result in more investments being made with better outcomes. The findings of this dissertation can also help governments, policymakers, and educators to develop policies and training approaches to assist both entrepreneurs and business angels in achieving their intended outcomes (Maxwell, 2018). This will require a holistic approach to all conditions that affect venture access to finance, considering not only multiple factors in different economic spheres, such as administrative, financial, regulatory, or tax frameworks, but also the psychological aspects of business angels' decision-making processes.

5.2 Methodological Contributions

The studies presented in the three chapters of this dissertation combined a variety of qualitative and quantitative research methods, including in-depth literature reviews, semi-structured interviews, descriptive statistics, univariate statistics, bivariate statistics, and multivariate analysis.

The contribution of this dissertation to methodology is in combining qualitative and quantitative approaches in two phases of the research. The sequential and flexible nature of the mixed methods approach was beneficial to this research (Bryman, 2006; Greene, 2008) because it allowed for the discovery and interpretation of all collected data, and ensured a balance between theory and openness to additional interpretation. The use of this methodology was particularly pragmatic for this dissertation topic given the subjective

nature of business angels' cognitions and self-regulation, and the evaluation of investment opportunities.

By including samples from two different continents, this study may inform the cross-cultural testing of conceptual models in entrepreneurship research. Cross-cultural research is needed to more fully assess the effect of different cultures and values on the likelihood of positively evaluating an investment opportunity (Liñán & Chen, 2009). In our research, we did not find any significant differences between European and American business angels.

5.3 Summary of Limitations and Future Research Opportunities

The first group of limitations of this dissertation is related to the survey sample. Given that business angels constitute a largely hidden and very private group of people (Farrell, Howorth, & Wright, 2008), it is difficult to identify them, their activities, and motivations (Mason & Harrison, 2002b). Consequently, it is challenging to achieve a convenience sample size for the possible types of analysis. As a result, different biases could be present, such as the sample's representativeness. Although future improvements to the study, such as gaining larger sample sizes, would be welcome, nevertheless, reliable and valid measurement scales were used in this research and the simplest correlation analysis was conducted.

The second group of limitations is related to the subjectivity of the empirical data, which was acquired through the questionnaire survey for the empirical part of our research. The use of questionnaire surveys represents a less objective method when compared to, for example, participation in the investment process when fund-seeking entrepreneurs present their pitches to business angels. Although this method allows the researcher to collect better insights into the causes and effects of a particular behavior, questionnaire surveys rely on self-reporting and suffer from not being able to include a longer time horizon in the analysis (Campbell et al., 2002). These considerations should be addressed in future empirical studies on business angels and the investment process. Most of the literature on individual cognitive variables and their role in the entrepreneurial process has been drawn from entrepreneurs and their behaviors, and several studies have emphasized business angels' background as entrepreneurs (Freear et al., 1995; Van Osnabrugge, 1998). Therefore, it would be interesting for future research to investigate whether entrepreneurs and business angels share the same group of cognitions that support their processes, or whether business angels switch on different cognitive and self-regulatory processes when they become investors.

The third group of limitations is linked to the analytical approach used. In order to control for potential multicollinearity among the promotion regulatory focus and prevention regulatory focus dimensions, we examined their effects in two separate regression models. The correlation between the two is not equal minus one (not a perfect negative relationship), and prevention and promotion foci clearly interact to some extent. The split means approach was chosen due to the small sample size and multicollinearity issues that arise if the interaction effect is also included in the statistical model. Following the simple slope

approach, we added and subtracted 1 SD from the centered mediator and calculated the interaction between the centered independent variable and each of the new (high and low) values of the mediator. When the sample size is so small, obtaining even marginal interaction is sufficient evidence of a moderation effect. Further research on larger samples will be needed to claim the moderation effect with higher confidence.

The fourth group of limitations is related to the measurement models. As far as the measurement model fit is concerned, we needed to allow some residuals to correlate in our measurement model. Given that the items measuring the same construct were very similar, several of their residuals were allowed to correlate. This is because when we measure the same construct with several items that have very specific and similar content, it is expected that respondents' answers may be biased on several items. Correlation among errors is justified in cases when it is expected that residuals have a common cause (Brown, 2015).

Future research could also investigate materials that entrepreneurs use to present their ventures, such as presentations to business angels or business plans. It could be interesting to compare the regulatory foci of entrepreneurs and business angels participating in a presentation, as well as the regulatory focus aspects of the presentation/business plan in terms of the content and types of questions asked. By monitoring this whole process, it may be possible to determine the extent to which regulatory focus impacts the dynamic of the presentation and the final outcome of the proposal.

For future research on this topic, we recommend that researchers design an experimental study to address some of the limitations of our quantitative research and test one of the models presented in the chapters.

5.4 Concluding Remarks

At the outset of this dissertation, we noted that new venture growth and survival depends on the possibility of the venture getting funds; however, less than 5% of entrepreneurs who seek funds from business angels are able to secure that financing (Maxwell, 2018). This high rejection rate is the main motivation for exploring the early stages of the investment process. Because business angels are human beings first and foremost, this dissertation highlights the extent to which a cognitive, intangible infrastructure helps business angels become alert to the existence of an investment opportunity and influences the process of positively or negatively evaluating an investment opportunity. Based on these findings, collaborators in the process can learn how to improve the investor–entrepreneur interaction process and increase the number of investments.

We hope that the main findings about the role of regulatory focus in these processes will contribute to entrepreneurship theory by extending models of the investment decision-making process (as a part of the venture creation process) to include the cognitive and self-regulatory factors that participate in the process. For entrepreneurship practice, these findings provide an opportunity for interested parties to harness specific knowledge that

might lead to an increase in the number of positive evaluations of investment opportunities and an increase in alertness among investors. The first step will be to disseminate the main findings of the research to all of the business angels who participated in this research, as well as to EBAN and ACA members, together with potential ideas on how to use this knowledge in the investment context.

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APPENDICES

Appendix A: Summary in Slovene language / Daljši povzetek disertacije v slovenskem jeziku

UVOD

Za preživetje in rast podjetja je v zgodnji fazi razvoja ključno zagotavljanje naložbenih sredstev (Alsos, Isaken & Ljunggren, 2006). Čeprav je preživetje novih podjetij v interesu javne politike in ključnih deležnikov podjetniškega ekosistema (Mason, 2006), ima mnogo novih podjetij še vedno težave z iskanjem finančne podpore za doseganje rasti (Van Osnabrugge, 2000). Številna podjetja se financirajo iz notranjih virov, predvsem s finančnimi vložki lastnikov, družine ali prijateljev ter z različnimi načini zmanjševanja stroškov (Freear, Sohl & Wetzel, 2002). Zato se morajo ustanovitelji zanašati na svoj socialni kapital, da vzpostavijo stike z vsemi deležniki, kot so stranke, vlagatelji, upniki in podizvajalci (Bosma, Van Praag, Thurik & De Wit, 2004), da lahko podprejo razvoj podjetja (Semrau & Sigmund, 2012). Ko je v zgodnji fazi podjetja ustanovni kapital izčrpan, potrebuje podjetje zunanje vire financiranja, kot so bančna posojila, skladi tveganega kapitala ter zasebni vlagatelji in poslovni angeli. Banke zahtevajo zavarovanje posojila z osnovnim kapitalom podjetja, ki pa ima v svoji zgodnji fazi razvoja majhno vrednost. Mlada podjetja v tej fazi delovanja pestijo tudi pomanjkljivosti, kot je neizgrajena legitimnost. Druga ovira mladih podjetij pa je njihova majhnost, kar pomeni, da je zanje možna višja stopnja neuspeha kot za zrelejša podjetja. To pri mladih podjetjih ustvarja kontradiktorni položaj: ko iščejo zunanjo podporo, ne dajejo vtisa zanesljivih partnerjev (Sigmund, Semrau & Wegner, 2015). Namesto da bi vlagali v mlado podjetje, bodo lastniki tveganega kapitala, da bi zavarovali svoje interese, vlagali v večja podjetja, saj je izvedba skrbnega pregleda za mlada podjetja predraga. Zato je torej vloga poslovnih angelov pri financiranju novih podjetij neprecenljiva.

Ker je osnovni proces financiranja zelo nepredvidljiv, so mnogi raziskovalci zadnjih 30 let proučevali različne vidike in izide naložb tveganega kapitala (Drover et al., 2017). Raziskave o poslovnih angelih so pritegnile precejšnjo pozornost, še posebej, odkar je Wetzel objavil temeljno študijo o poslovnih angelih (Wetzel, 1981). Wetzel je bil eden prvih, ki je za poimenovanje posameznikov, ki so opravili tvegane naložbe v mlada podjetja, skoval izraz poslovni angel. Poskušal je osvetliti pomen poslovnih angelov in njihovih naložb ter jih izpostaviti kot ključne deležnike podjetniškega ekosistema, še posebej za tvegane naložbe v zgodnji fazi poslovanja podjetja (Mason, 2018). Poslovni angeli v podjetje vlagajo svoja sredstva v upanju na finančne donose. Potem ko izvedejo svojo naložbo, se aktivno vključijo v podjetje – ne da bi podjetnika nadomestili (Bruton, Fried & Hisrich, 2000), ampak da bi delali skupaj z njim (Maxwell, 2018).

Freear, Sohl in Wetzel (1995) so v raziskavi ugotovili, da približno četrтина podjetnikov za svoja podjetja uporablja zunanje vire financiranja, pri čemer imajo raje naložbe poslovnih angelov kot naložbe skladov tveganega kapitala. V ZDA in Evropi naložbe poslovnih

angelov zajemajo največji delež trga tveganih naložb v mlada podjetja (EBAN, 2017). Do leta 2012 je bilo v Evropi za samo približno tri do štiri milijarde evrov naložb poslovnih angelov, kar težko primerjamo s skoraj dvajsetimi milijardami ameriških dolarjev naložb poslovnih angelov v ZDA, čeprav je Evropska unija za približno dvajset milijard ameriških dolarjev bogatejša kot ZDA (na podlagi podatkov, pridobljenih od Angel Capital Association (ACA) in European Business Angel Network (EBAN)). V Evropi največ sredstev prejmejo podjetja v predsemenski in semenski fazi, pri čemer daleč prednjačijo podjetja v semenski fazi. Toda poslovni angeli po navadi pri posamičnih naložbah vlagajo manjše vsote in so osredotočeni na razvoj poslovnega modela, pospeševanje podjetniških dejavnosti in oblikovanje bolj profesionalnega podjetniškega okolja v podjetju (Politis et al., 2012). Kljub velikosti trga in velikega pomena poslovnih angelov je razumevanje naložbenega procesa poslovnih angelov še vedno šibko (Teneca, Croce & Ughetto, 2018).

Proces odločanja poslovnih angelov o naložbi ima več stopenj (Maxwell et al., 2011), v vsaki fazi pa obravnavajo več dejavnikov (Van Osnabrugge, 2000). Različni avtorji so opredelili različne modele za razlago naložbenih procesov poslovnih angelov (za podrobnejši pregled glej Maxwell, 2018). Tyebjee in Bruno (1984) sta na podlagi svojega opazovanja naložbenega odločanja vlagateljev tveganega kapitala razvila začetni večstopenjski model procesa naložbenega odločanja. Duxbury, Haines in Riding (1997) so za potrditev predpostavke, da poslovni angeli sledijo enakemu procesu kot vlagatelji tveganega kapitala, razvili model, ki je razkril razlike med omenjenima naložbenima procesoma. Van Osnabrugge (2000) je omenjena odstopanja pripisal razlikam v zastopniških razmerjih: poslovni angeli morajo svoje naložbe upravičiti le sebi, vlagatelji tveganega kapitala pa odgovarjajo svojim vlagateljem in morajo zaradi tega uporabljati formalnejše naložbene procese kot poslovni angeli (Maxwell, 2018). Riding, Madill in Haines (2007) so razširili model Duxburyja in sodelavcev (1997) in vključili nadaljnje faze naložbenega procesa, saj so opazili, da ponaložbena pričakovanja poslovnih angelov vplivajo na njihove interakcije s podjetniki z vidika dolgotrajnega razmerja in vloge, ki jo bodo imeli v podjetju. Končno pa so Maxwell in sodelavci (2011) dodatno izboljšali večstopenjski naložbeni model, pri čemer je poudarek na fazi izbiranja, ki je v procesu odločanja o naložbi običajno opisana kot najbolj občutljiva. Raziskali so različne dejavnike, povezane s podjetnikom in podjetjem ter njunim pričakovanim medsebojnim razmerjem v vsaki fazi, s čimer so potrdili zgodnejša odkritja Masona in Rogersa (1997) o spreminjajoči se naravi interakcij v celotnem večstopenjskem procesu. Poleg tega so Maxwell in sodelavci odkrili, da izkušeni vlagatelji uporabljajo odločitvene hevrstike, če se v fazi oblikovanja kdaj srečajo z več naložbenimi priložnostmi.

Ko poslovni angeli zaznajo priložnost in proučujejo, ali ustreza njihovim osebnim naložbenim merilom ali ne, nastopi faza začetnega preverjanja. Poslovni angeli raje, kot da bi poglobljeno proučevali podjetnikov poslovni načrt, tedaj hitro proučijo naložbeno priložnost. V tej fazi zavrnejo več kot sedemdeset odstotkov naložbenih priložnosti (Riding et al., 1993) zaradi težav s podjetjem, skrbi zaradi podjetnika, neujemanja poslovnega angela in podjetnika ali ker jim ni omogočeno sodelovanje v ponaložbenih aktivnostih podjetja. V

fazi izbire (evalvacije) se podjetniki in poslovni angeli prvič srečajo in se pogovarjajo, nato pa sledi nakupna ponudba ali zavrnitev priložnosti. Zavrnitve se v tej fazi dogajajo že zaradi ene velike napake v podjetju, nezadostne donosnosti naložbe, prevelikega tveganja ali podjetnikove nezmožnosti, da bi podjetje vodil v najboljšem interesu poslovnega angela (Maxwell et al., 2011).

Da bi razumeli proces odločanja o naložbi poslovnega angela, je treba razumeti neoprijemljive lastnosti, ki podpirajo poslovne angele med evalvacijsko fazo naložbenega procesa. V raziskavi v okviru te disertacije naložbenje opredeljujemo kot proces, ki ga žene namera, kot proces, v katerem se pojavi priložnost (Krueger, Reilly & Carsrud, 2000). To nam omogoča, da bolje razumemo, kako mnenja poslovnih angelov vplivajo na njihovo namero, da vlagajo v neko podjetje. Namera ima velik vpliv na naložbeni proces, saj usmerja pozornost, izkušnjo in dejavnost (Dimov, 2007). Poleg tega je treba razumeti, koliko mišljenje poslovnega angela vpliva na njegovo presojo v tej fazi naložbenega procesa.

Raziskava v okviru te disertacije se torej kot na odvisne spremenljivke osredotoča predvsem na miselne in samoregulacijske procese, ki podpirajo budnost poslovnih angelov v zvezi z naložbenimi priložnostmi, njihovo namero glede naložbe in verjetnostjo, da bodo pozitivno ocenili naložbeno priložnost. Na podlagi literature o poslovnih angelih (Cardon, Sudek & Mitteness, 2009; Mitteness, Sudek & Cardon, 2012; Sudek, 2006) lahko kot neodvisne spremenljivke proučujemo vlogo podjetniške budnosti, regulacijskega fokusa, sloga razmišljanja, nagnjenosti k tveganju in ciljne usmerjenosti. S podjetniško in organizacijsko literaturo o budnosti, regulacijskem fokusu, slogu razmišljanja in nagnjenosti k tveganju smo povezali teoretična izhodišča socialne psihologije (Baron, 2004a, 2004b). Na podlagi tega okvira razvijemo predloge, povezane s kontekstom poslovnih angelov. Različnim deležnikom v naložbenem procesu je razumevanje omenjenih procesov v velikem interesu, saj to povečuje možnosti poslovnih angelov, da uspešno končajo veliko naložbenih ponudb, s tem pa podjetnikom omogočijo, da pridobijo finančne naložbe, ki jih potrebujejo za širitev podjetij. Z oblikovanjem različnih strategij za večanje deleža uspešnih interakcij med poslovnimi angeli in podjetniki, s tem pa tudi števila opravljenih naložb, razumevanje omenjenih procesov pomaga izobraževalcem, ustvarjalcem politik in praktikom.

- SPLOŠNA RAZPRAVA IN SKLEP

V tem poglavju disertacije so povzete ključne ugotovitve v povezavi z glavnimi raziskovalnimi cilji, naštetimi v uvodu, navedeni so tudi najpomembnejše omejitve raziskave, priporočila in priložnosti za prihodnje raziskave.

Povzetek poglobitnih ugotovitev, teoretičnih in praktičnih priporočil

V tej disertaciji (1) analiziramo vpliv dejavnikov na ravni posameznika, kot so budnost v zvezi z naložbenimi priložnostmi, slog razmišljanja, regulacijski fokus in nagnjenost k tveganju pri evalvaciji naložbene priložnosti, (2) raziskujemo, kako so neposredni in posredni vplivi med slogom razmišljanja in regulacijskim fokusom poslovnega angela povezani z možnostjo pozitivne evalvacije naložbene priložnosti, ter (3) predlagamo, preizkusimo in analiziramo predhodne dejavnike, ki prispevajo k temu, da se pojavi podjetniška budnost poslovnega angela v zvezi z naložbenimi priložnostmi. Dognanja te disertacije, če jih obravnavamo skupaj, izboljšajo razumevanje, kako miselni procesi ali predhodni dejavniki prispevajo tako k pojavljanju budnosti poslovnih angelov kot k njihovi evalvaciji naložbene priložnosti.

V nadaljevanju razpravljamo o poglavitnih odkritjih ter teoretičnih priporočilih in priporočilih iz prakse, navedenih v disertaciji, v povezavi s posameznim raziskovalnim ciljem.

- *Raziskovalni cilj 1: Preizkusiti in analizirati učinek posamičnih miselnih dejavnikov, kot so budnost v zvezi z naložbenimi priložnostmi, slog razmišljanja, regulacijski fokus in nagnjenost k tveganju pri evalvaciji naložbene priložnosti.*

V prvem poglavju raziskujemo, ali miselni viri poslovnega angela, kot sta podjetniška budnost in slog razmišljanja, vplivajo na razvoj njegove naložbene namere. Da bi razumeli, kaj spodbuja ali ovira njegov naložbeni proces, moramo razumeti dejavnike, ki podpirajo njegovo dojemanje naložbe kot dobre priložnosti (Krueger, 2000). Glede na sistematični pregled literature lahko naložbeni proces opišemo kot načrtovano vedenje, ki nastopi pred odločanjem in dejanjem (Shirokova et al., 2016). Na podlagi literature opredelimo miselne spremenljivke, povezane z idejo čim večjega dobička. Na podlagi Ajzenove teorije načrtovanega vedenja (1991) predlagamo teoretični model, v okviru katerega trdimo, da namenskoo vedenje poslovnega angela verjetno spodbujajo ugodni (čim večji dobiček) in neugodni (izpostavljenost tveganjem) izidi zadevne naložbe. Analizo smo začeli z zbiranjem kvalitativnih podatkov s polstrukturiranimi intervjuji s poslovnimi angeli in jo nadaljevali z zbiranjem drugih podatkov iz mednarodnega vzorca poslovnih angelov. Preverjali smo neposredne učinke podjetniške budnosti, regulacijskega fokusa, sloga razmišljanja in nagnjenosti k tveganju ter njihovega razmerja z namero poslovnega angela, da vlaga v podjetje. Pokazali smo, da imata preverjanje in iskanje pri podjetniški budnosti pomembno vlogo v načrtovanem vedenju, saj prispevata k povečanju količine informacij, povezanih z naložbo, ki jih poslovni angeli poiščejo, s tem pa se povečajo možnosti, da bodo poslovni angeli izbrali priložnosti, ki imajo največje možnosti za dobičkonosnost (Tang et al., 2012). Poleg tega smo ugotovili, da ima proaktivni fokus pomembno vlogo v načrtovanem vedenju poslovnega angela glede izvedbe naložbe, saj usmerja, spodbuja in usmerja njegovo ciljno vedenje (Tang, 2009).

Izsledki, navedeni v prvem poglavju te disertacije, omogočajo vpogled v pomen individualnih miselnih in samoregulacijskih procesov poslovnega angela med oblikovanjem

dojemanja naložbe, še preden se naložbeni proces sploh začne. Takšni procesi tvorijo neoprijemljivo infrastrukturo, ki podpira načrtno vedenje poslovnega angela. Naše ugotovitve podpirajo razumevanje, kako budnost poslovnih angelov usmerja njihovo naložbeno namero. To, kako obširno poslovni angeli preverjajo in iščejo informacije, povezane z naložbeno priložnostjo, močno vpliva na možnost, da bodo naložbeno priložnost ocenili pozitivno. Naši izsledki o pomenu vloge proaktivnega fokusa kot motivacijske ovire pri prepoznavanju potenciala neke naložbe, da ustvarja vrednost (Kickul et al., 2009), doprinašajo k rastočemu korpusu, ki kaže na vlogo regulacijskega fokusa pri doseganju zelenih končnih stanj podjetniškega procesa.

- *Raziskovalni cilj 2: Preizkusiti in analizirati moderacijske učinke med slogom razmišljanja in regulacijskim fokusom poslovnih angelov ter verjetnostjo, da bodo pozitivno ocenili naložbeno priložnost.*

To raziskovalno vprašanje obravnavamo v drugem poglavju disertacije, ki se osredotoča na naložbenje v zgodnji fazi poslovanja podjetja (faza oblikovanja in faza začetnega preverjanja po modelu Maxwella in sodelavcev iz leta 2011). V raziskavi smo proučevali, kako specifična mišljenja poslovnih angelov prispevajo k pozitivni evalvaciji opredeljene naložbene priložnosti. Tako smo raziskali, kako regulacijski fokus in slog razmišljanja – vsak posebej in v povezavi eden z drugim – prispevata k verjetnosti, da bodo poslovni angeli pozitivno ocenili naložbeno priložnost. Predhodne raziskave so pokazale, da poslovni angeli radi uporabljajo heuristike, da zmanjšajo napor, ki ga zahteva odločanje o naložbi (Harrison et al., 2015; Mason & Rogers, 1997). Pravzaprav dokazi z neformalnih kapitalskih trgov kažejo, da poslovni angeli pogosto zavrnejo priložnosti, ker nočejo tratiti časa, da bi zmanjšali nekatera od zaznanih tveganj, če so na voljo druge, manj tvegane priložnosti (Maxwell, 2018). Takšni dokazi nas napeljujejo k misli, da miselni mehanizmi, ki so v ozadju odločanja, usmerjajo vedenje poslovnih angelov, še pred prvo interakcijo med njimi in podjetniki ter med evalvacijsko fazo naložbenega procesa. Predlagali smo konceptualni model ter preizkusili neposredne in moderacijske učinke regulacijskega fokusa in sloga razmišljanja na verjetnost, da bodo poslovni angeli pozitivno ocenili investicijsko priložnost.

Glede na pomanjkanje empiričnih dokazov o miselnih procesih poslovnih angelov smo uporabili kombinacijo več raziskovalnih metod (Bryman, 2006; Greene, 2008), pri čemer smo v prvi fazi izvedli polstrukturirane intervjuje s poslovnimi angeli, v drugi fazi pa kvantitativne analize. V skladu s teoretičnim proučevanjem smo ugotovili, da je načrtovalni slog razmišljanja pozitivno povezan z verjetnostjo, da bodo poslovni angeli pozitivno ocenili priložnost. Posledično način, kako poslovni angeli razumejo čutne informacije, ki jih prejema iz okolja (Barbosa et al., 2007), vpliva na način, kako dojemajo izvedljivost in zaželenost naložbe (Fitzsimmons & Douglas, 2011). Kot stranski učinek pa se poslovni angeli med procesom seznanjanja z informacijami začnejo zavedati svoje samoučinkovitosti, kar vpliva na njihovo sposobnost, da se vpletejo v naložbeni proces in pozitivno ocenijo naložbeno priložnost. Našli smo tudi dokaze za učinke interakcije med regulacijskimi fokusi in načrtovalnim miselnim vzorcem poslovnih angelov. Tako proaktivni kot preventijski

fokus sta pomembno povezana z verjetnostjo pozitivne ali negativne ocene naložbene priložnosti, kadar je načrtovalni slog poslovnega angela šibak. Ta ugotovitev podpira vlogo regulacijskega fokusa kot glavnega vodila pri evalvaciji naložbenega procesa. Nasprotno pa regulacijski fokus izgubi svojo vlogo, če je načrtovalni slog razmišljanja šibak; namesto tega način, kako poslovni angeli dojemajo informacije, določa verjetnost, da pozitivno ocenijo naložbeno priložnost. Poleg omenjenih ugotovitev, povezanih z vlogami sloga razmišljanja in regulacijskega fokusa pri evalvaciji naložbe, smo ugotovili, da število naložbenih priložnosti, ki jih poslovni angel v danem trenutku obravnava, poveča možnost, da neko naložbeno priložnost oceni pozitivno. Te ugotovitve ne moremo posplošiti na vse primere, v katerih poslovni angeli evalvirajo naložbene priložnosti. Verjetno so primeri, v katerih imajo poslovni angeli že portfelj več naložb v zgodnjih fazah poslovanja podjetja, vendar še vedno so budni v zvezi z novimi dobičkonosnimi priložnostmi. Končno, raziskava je potrdila vlogo izkušenj poslovnih angelov pri odločanju o naložbah, saj jim dobro poznavanje panoge in trga omogoča več samozavesti pri evalvaciji, ali ima podjetje dober potencial (Maxwell, 2018).

Najpomembnejše teoretično priporočilo, ki smo ga izluščili iz raziskave v okviru te disertacije, se nanaša na nove uvide v vlogo regulacijskega fokusa poslovnega angela pri evalvaciji naložbenega procesa. Prikazali smo, da proaktivni fokus dosledno vodi poslovne angele in poveča verjetnost, da bodo vlagali v priložnost. Poudarili smo še, da močan načrtovalni slog razmišljanja deluje vzajemno z vlogo proaktivnega fokusa, kadar je torej načrtovalni fokus močan, proaktivni fokus ni več povezan z verjetnostjo, da bo poslovni angel naložbeno priložnost pozitivno ocenil. Posledično lahko osvetlitev vloge regulacijskega fokusa pri poslovnih angelih pri naložbenju v zgodnji fazi poslovanja podjetja prispeva k razvoju praktičnih ukrepov, kot o njih razpravljamo v nadaljevanju disertacije. Na koncu smo z razkritjem mehanizmov, ki delujejo v ozadju samoregulacijskih in miselnih procesov poslovnih angelov, prispevali k vedenju o tem, kako lahko spremenljivke na individualni ravni in njihove interakcije uporabimo kot osnovna orodja za razumevanje razmišljanja podjetnikov (Baron, 2004b).

- *Raziskovalni cilj 3: Preizkusiti in analizirati, kako se pojavi budnost v zvezi z naložbenimi priložnostmi, z opredelitvijo in raziskovanjem njenih predhodnih dejavnikov.*

Čeprav je bila podjetniška budnost raziskana v mnogih študijah o podjetništvu (na primer: Amato et al., 2012; Baron, 2006; Gaglio & Katz, 2001; Kaish & Gilad, 1991; Tang, 2009; Tang et al., 2012), je še vedno malo znanega o dejavnikih podjetniške budnosti na ravni posameznika. Ker se podjetniška budnost kaže v zadevnih ravnanjih in pomembnih izidih, kot je izvedba (Adomako et al., 2018), je razumevanje motivacijskih procesov, ki pripeljejo do pojava budnosti med poslovnimi angeli, pomembno in lahko prispeva h kritičnim uvidom v proces naložbenja poslovnih angelov v zagonska podjetja.

V predlaganem teoretičnem modelu smo v tretjem poglavju predpostavili, da poslovni angeli uporabljajo svoje samoregulacijske in metakognitivne procese. V raziskavi smo kot dejavnika podjetniške budnosti uporabili regulacijski fokus in usmeritev v zasledovanje ciljev.

Najpomembnejše ugotovitve so v skladu z našimi predvidevanji. Prikazali smo, da sta regulacijski fokus in usmerjenost v zasledovanje ciljev povezana s pojavom podjetniške budnosti. Poleg tega smo ugotovili, da regulacijski fokus vpliva na razmerje med ciljno orientacijo in razsežnostmi budnosti. Naše dognanje, da je proaktivni fokus pozitivno povezan s pojavom budnosti, omogoča empirično potrditev teoretično predpostavljenega razmerja (Tang, 2009), ki še ni bilo obširno empirično preizkušeno. S tem ko trdimo, da imajo miselni dejavniki poslovnih angelov pomembno vlogo še pred začetno fazo naložbenega procesa, prispevamo k omejenim raziskavam predhodnikov podjetniške budnosti.

- *Raziskovalni cilj 4: Navesti priporočila iz prakse, ki bodo poslovnim angelom in podjetnikom pomagala, da ugotovijo, kateri dejavniki vplivajo na naložbeno odločitev, tako povečajo delež izvedenih naložb.*

Najpomembnejše priporočilo iz prakse te raziskave izhaja iz dejstva, da so spremenljivke, ki smo jih raziskali v okviru disertacije, individualne spremenljivke, kar je pomembno tako za poslovne angele kot za podjetnike. Maxwell in sodelavci (2011) so pojasnili, da večina podjetnikov ne razume, kako poslovni angeli sprejemajo naložbene odločitve in kaj jih pri tem motivira. Posledično podjetniki med naložbeno interakcijo s poslovnimi angeli morda ne bodo okrepili svoje priložnosti. Boljše razumevanje miselnega ujemanja med motivacijo in cilji poslovnega angela lahko podjetnikom pomaga, da bolje pripravijo svojo kratko predstavitev in si s tem zagotovijo financiranje (Baron, 2004a, 2004b). Podjetniki lahko tudi prilagodijo svoje odgovore proaktivno osredotočenim vprašanjem poslovnih angelov in jih naredijo bolj proaktivno osredotočene (Kanze et al., 2018). Poslovnim angelom lahko tovrstna dognanja pomagajo, da naredijo refleksijo na svoje procese naložbenega odločanja, ter jim omogočijo, da ozavešijo svoje miselne in samoregulacijske procese. Ob tem se lahko naučijo še, kako upravljati omenjene procese, da izboljšajo kakovost svojih odločitev. Posledično bi moral biti rezultat boljšega uvida več naložb z boljšimi izidi. Ugotovitve iz te disertacije lahko vladam, ustvarjalcem politik in izobraževalcem pomagajo razviti politike in programe usposabljanj, ki bodo tako podjetnikom kot poslovnim angelom pomagali dosegati načrtovane izide (Maxwell, 2018). To bo zahtevalo bolj holistični pristop k vsem zahtevam, ki vplivajo na dostopnost financiranja podjetjem, in bo treba upoštevati ne le različne dejavnike z različnih ekonomskih področij, kot so administrativni, finančni, regulacijski in davčni okviri, ampak tudi psihološke vidike procesov odločanja poslovnih angelov.

Metodološki prispevki

Raziskave, navedene v treh poglavjih te disertacije, kombinirajo različne kvalitativne in kvantitativne raziskovalne metode, vključno s poglobljenim pregledom literature, polstrukturiranimi intervjuji ter univariatnimi, bivariatnimi in multivariatnimi statističnimi analizami.

Prispevek te disertacije k metodologiji je v kombiniranju kvalitativnega in kvantitativnega pristopa v dveh fazah raziskave. Zaporedna in fleksibilna narava pristopa mešanih metod je tej raziskavi v korist (Bryman, 2006; Greene, 2008), ker omogoča razkritje in interpretacijo zbranih podatkov ter zagotavlja ravnovesje med teorijo in odprtostjo dodatnim interpretacijam. Uporaba te metodologije je posebej pragmatična za temo te disertacije, pri čemer upoštevamo subjektivno naravo mišljenja poslovnih angelov, samoregulacije in evalvacije naložbene priložnosti.

Raziskava v okviru te disertacije z vključitvijo vzorcev z dveh celin je doprinesla k medkulturnemu preizkušanju konceptualnih modelov pri raziskavah o podjetništvu. Medkulturne raziskave so potrebne, da v popolnosti ocenimo učinek kultur in vrednot na verjetnost pozitivne evalvacije naložbene priložnosti (Liñán & Chen, 2009). Pri tej raziskavi nismo zasledili pomembnejših razlik med evropskimi in ameriškimi poslovnimi angeli.

Povzetek omejitev in priložnosti za prihodnje raziskave

Prva skupina omejitev v tej disertaciji je povezana z anketnim vzorcem. Glede na to, da so poslovni angeli skupina ljudi, ki je večinoma skrita in zelo skrbi za svojo zasebnost (Farell et al., 2008), jih je težko prepoznati, težko je ugotoviti tudi njihove aktivnosti in motive (Mason & Harrison, 2002b). Posledično je precej težko doseči pravšnjo velikost vzorca za vse možne tipe analize. Zato bi bile možna pristranskost, na primer reprezentativnost vzorca. Čeprav bi bile dobrodošle prihodnje izboljšave raziskave, na primer pridobitev večjega vzorca, so kljub vsemu v tej raziskavi uporabljene zanesljive in validirane merske lestvice, poleg tega je bila opravljena najpreprostejša korelacijska analiza.

Druga skupina omejitev je povezana s subjektivnostjo empiričnih podatkov, ki so za empirični del naše raziskave pridobljeni z anketiranjem. Uporaba vprašalnikov je manj objektivna metoda v primerjavi z na primer vključenostjo v naložbeni proces, kadar podjetnik, ki išče naložbo, izvaja kratko predstavitev pred poslovnim angelom. Čeprav ta metoda omogoča raziskovalcu, da dobi boljši vpogled v vzroke in posledice nekega vedenja, se anketiranje z vprašalniki zanaša na samoporočanje, zato ima pomanjkljivost, da v analizo ne more vključiti daljšega časovnega okvira (Campbell et al., 2002). Tovrstne pomisleke je treba obravnavati v prihodnjih raziskavah o poslovnih angelih in naložbenem procesu. Večina literature o posameznih miselnih spremenljivkah in o njihovi vlogi v podjetniškem procesu se nanaša na podjetnike in njihovo obnašanje, mnogo raziskav pa poudarja podjetniško ozadje poslovnih angelov (Freear et al., 1995; Van Osnabrugge, 1998). V prihodnjih raziskavah bi bilo torej zanimivo proučiti, ali podjetniki in poslovni angeli enako

razmišljajo v zvezi s tovrstnimi procesi ali pa se pri poslovnih angelih izvajajo drugačni miselni in samoregulacijski procesi, ko postanejo vlagatelji.

Tretja skupina omejitev je povezana z uporabljenim analitičnim pristopom. Da bi lahko imeli pod nadzorom potencialno multikolinearnost med razsežnostmi proaktivnega regulacijskega fokusa in preventijskega regulacijskega fokusa, smo proučili učinke na dveh regresijskih modelih. Korelacija med obema ni enako minus ena (ni idealno negativno razmerje), očitno je tudi, da sta preventijski in proaktivni fokus deloma v medsebojni interakciji. Prihodnje raziskave bi morale z uporabo regresijskih modelov, ki vključujejo oba fokusa, torej potrditi naše rezultate.

Prihodnje raziskave bi tudi lahko proučile gradivo, ki ga podjetniki uporabijo pri predstavitvi svojih podjetij, na primer predstavitve za poslovne angele ali poslovni načrt. Zanimivo bi bilo primerjati regulacijske fokuse podjetnikov in poslovnih angelov, ki so vključeni v predstavitev, ter vidike regulacijskega fokusa predstavitve ali poslovnega načrta v smislu vsebine in tipov postavljenih vprašanj. Z opazovanjem celotnega procesa bi bilo mogoče določiti obseg, v katerem regulacijski fokus vpliva na dinamiko predstavitve in na končni izid ponudbe.

Sklepne opombe

Na začetku te disertacije smo izpostavili, da sta rast in preživetje novega podjetja odvisna od možnosti, da si podjetje zagotovi finančno podporo, toda manj kot pet odstotkov podjetnikov je sposobnih od poslovnih angelov pridobiti finančna sredstva, ki si jih želijo (Maxwell, 2018). Omenjena visoka stopnja zavrnitve je najpomembnejši vzgib za raziskovanje naložbenja v zgodnji fazi poslovanja podjetja. Ker so poslovni angeli predvsem ljudje, je v tej disertaciji poudarjen obseg, v katerem miselna in neotipljiva infrastruktura poslovnemu angelu pomagata, da postane buden v zvezi z naložbenimi priložnostmi, ter vplivata na evalvacijo naložbene priložnosti z negativnim ali pozitivnim izidom. Na podlagi teh dognanj se lahko sodelujoči v procesu naučijo, kako izboljšati interakcij med podjetnikom in poslovnim angelom ter povečati število naložb.

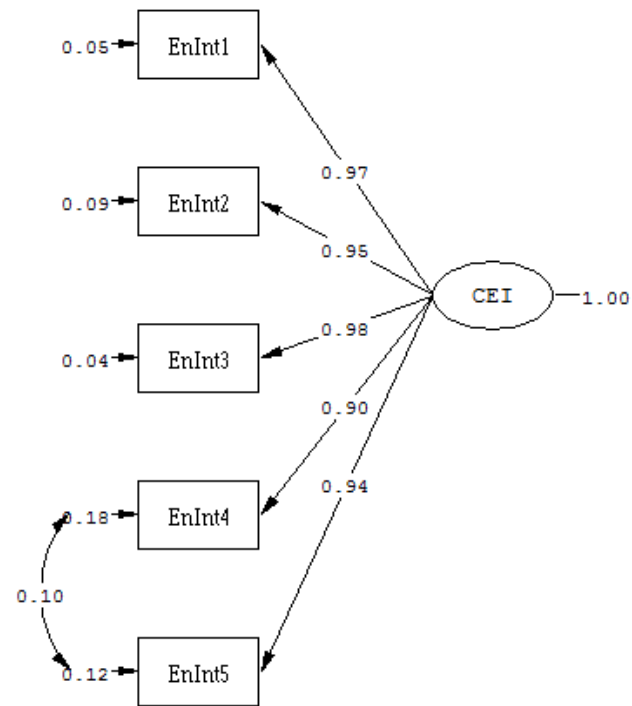
Upamo, da bodo poglavitna dognanja o vlogi regulacijskega fokusa v teh procesih prispevala k teoriji o podjetništvu z razširjanjem modelov naložbenega odločanja (kot dela procesa ustvarjanja podjetja) z vključitvijo miselnih in samoregulacijskih dejavnikov, ki sodelujejo pri procesu. Pri podjetniški praksi pa ta dognanja za zainteresirane stranke ponujajo priložnost, da uporabijo specifično znanje, ki lahko pripeljejo do povečanja števila evalvacij naložbenih priložnosti s pozitivnim izidom in povečane budnosti med vlagatelji.

Appendix B: Semi-structured interview questions

1. What was your motivation to become a business angel?
2. Where do you usually acquire information about potential opportunities to invest in?
3. What is your own attitude toward risky and uncertain outcomes when making decision to invest?
4. What is your own attitude toward decision to invest when you dispose with limited information and limited time to decide?
5. What is your own attitude toward decision to invest when you have a gut feeling for potential opportunity?
6. How do you usually behave when you making decision to invest: do you rely on your instincts, your past investment/entrepreneurial experience, or do you make detailed analysis before making decision to invest?
7. How important to you is your entrepreneurial experience when you making decision to invest?
8. When facing multiple opportunities to invest, how do you making decision in selecting the good one?
9. What is your own attitude toward pursuing future gains, versus preventing future loses when making decision to invest?
10. How do you define goals for yourself when you making decision to invest?
11. What added value you usually bring to investment when making decision to invest?
12. Is there anything else you would like to add as you thing it is important for investment decision-making?

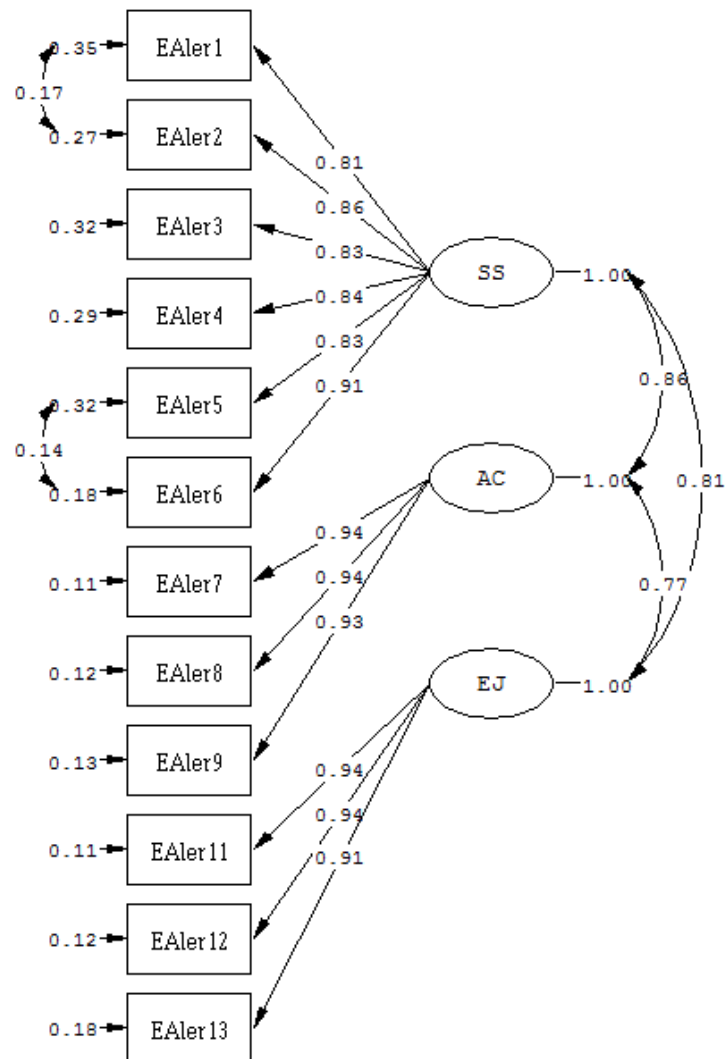
Appendix C: Measurement models

Appendix C1: Measurement model for intention to invest (CEI)



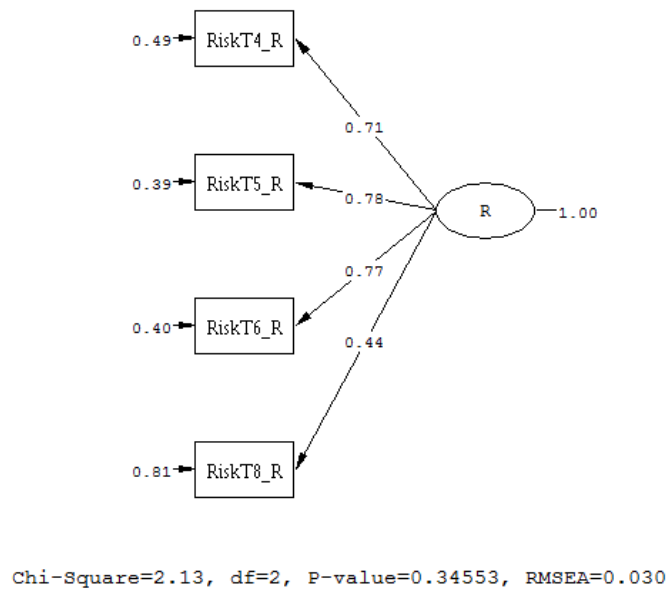
Chi-Square=5.15, df=4, P-value=0.27197, RMSEA=0.073

Appendix C2: Measurement model for entrepreneurial alertness

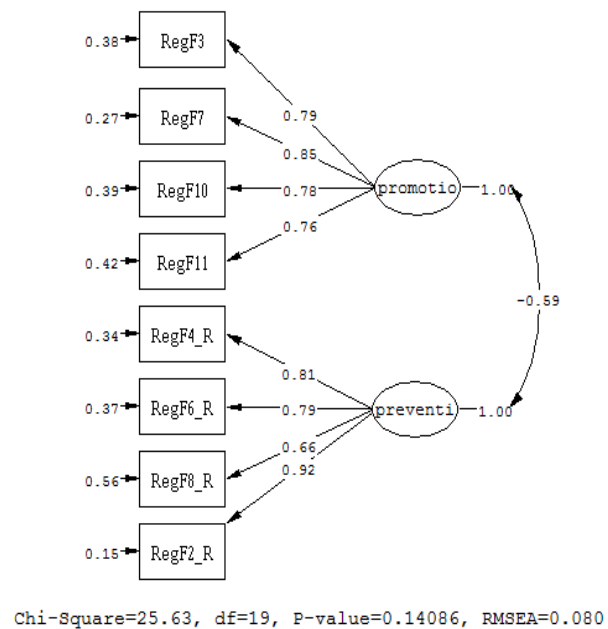


Chi-Square=59.45, df=49, P-value=0.14570, RMSEA=0.050

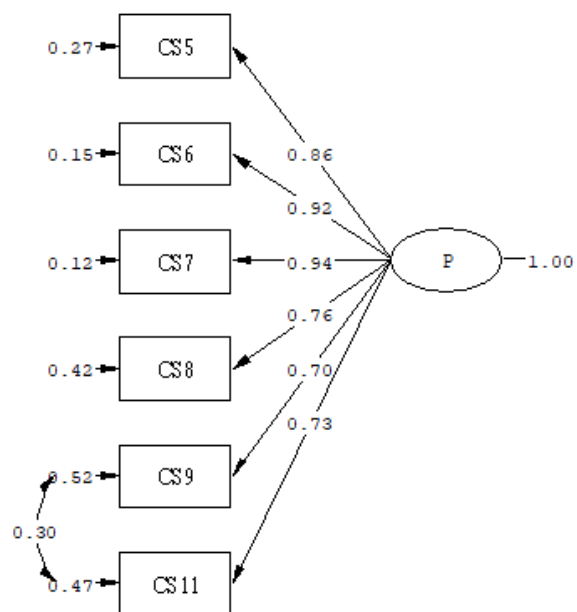
Appendix C3: Measurement model for risk propensity



Appendix C4: Measurement model for promotion and prevention foci

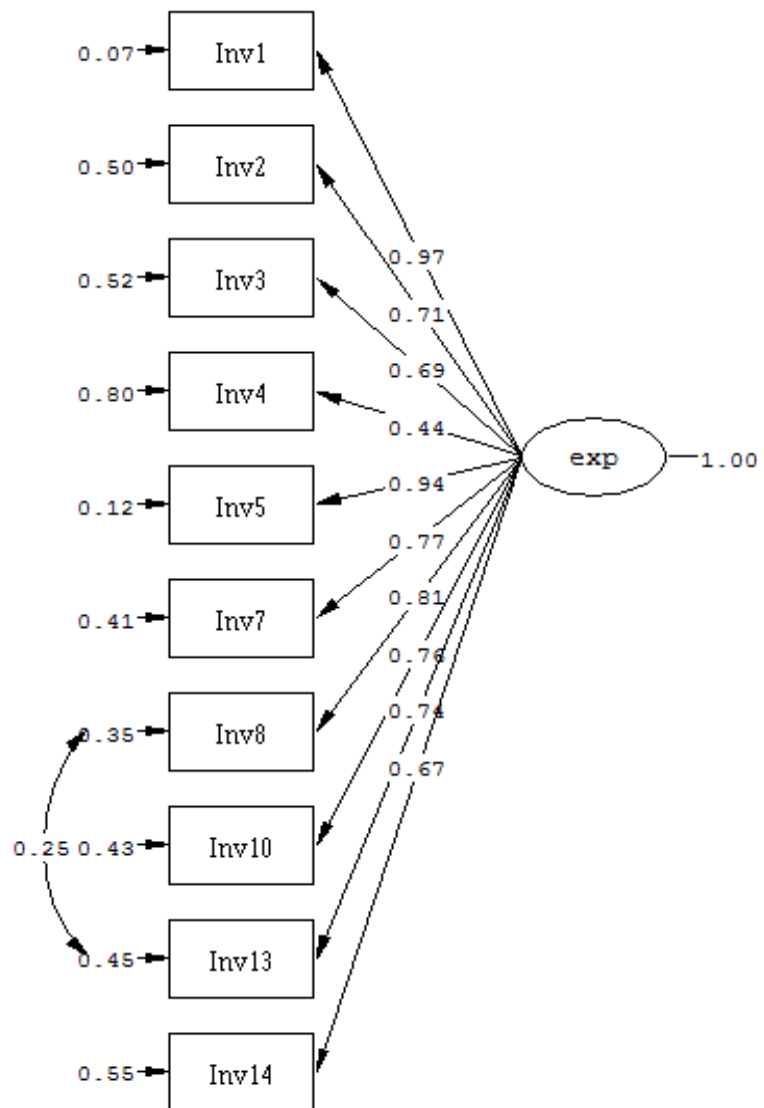


Appendix C5: Measurement model for planning cognitive style



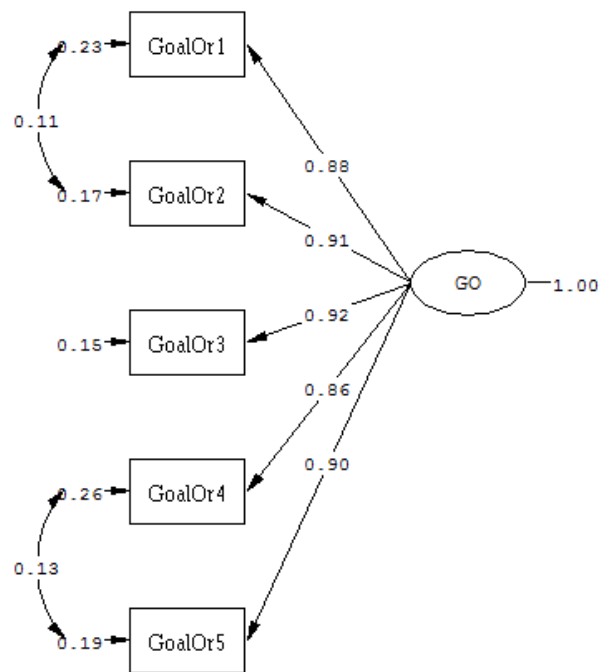
Chi-Square=6.77, df=8, P-value=0.56140, RMSEA=0.000

Appendix C6: Measurement model for entrepreneurial experience



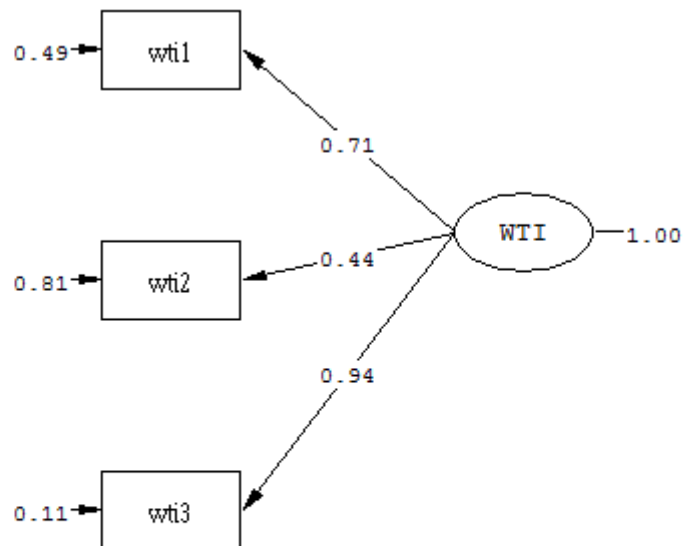
Chi-Square=36.04, df=34, P-value=0.37308, RMSEA=0.038

Appendix C7: Measurement model for goal orientation



Chi-Square=1.74, df=3, P-value=0.62905, RMSEA=0.000

Appendix C8: Measurement model for likelihood of positively evaluating an investment opportunity (WTI)



Chi-Square=0.00, df=0, P-value=1.00000, RMSEA=0.000

Appendix D: Questionnaire

RESEARCH ON UNDERSTANDING THE COGNITIVE PROCESSES OF BUSINESS ANGELS



TOMORROW STARTS HERE

Thank you for your participation in this research.
It will take approximately 20 minutes for you to complete the questionnaire.
Your answers are strictly confidential.
Please answer all questions.

Sanda Franić
Ph.D. student

Prof. Dr. Robert D. Hisrich

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Glendale, Arizona 85306-6000

Thank you for participating in this research. It takes approximately 20 minutes to complete the questionnaire.
Your answers are confidential. Please **answer all questions**.

START HERE

- 1.** For each of the listed activities regarding **entrepreneurial alertness**, please circle the number on a scale of 1 to 7 **that best represents the level of your engagement in the activity**, where 1 means that you never engage in the activity and 7 means that you always engage in the activity.

	Never	Very rarely	Rarely	Some-times	Often	Very often	Always
1-1 I have frequent interactions with others to acquire new information.	1	2	3	4	5	6	7
1-2 I always keep an eye out for new business ideas when looking for information.	1	2	3	4	5	6	7
1-3 I read news, magazines, or trade publications regularly to acquire new information.	1	2	3	4	5	6	7
1-4 I browse the Internet every day.	1	2	3	4	5	6	7
1-5 I am an avid information seeker.	1	2	3	4	5	6	7
1-6 I am always actively looking for new information.	1	2	3	4	5	6	7
1-7 I see links between seemingly unrelated pieces of information.	1	2	3	4	5	6	7
1-8 I am good at "connecting dots".	1	2	3	4	5	6	7
1-9 I often see connections between previously unconnected domains of information.	1	2	3	4	5	6	7
1-10 I have a gut feeling for potential opportunities.	1	2	3	4	5	6	7
1-11 I can distinguish between profitable opportunities and not-so-profitable opportunities.	1	2	3	4	5	6	7
1-12 I have a knack for telling high-value opportunities apart from low-value opportunities.	1	2	3	4	5	6	7
1-13 When facing multiple opportunities, I am able to select the good ones.	1	2	3	4	5	6	7

- 2.** We would like you to re-think about venture that you have been recently evaluating for a potential investment, and then respond to the statements below. For each of the statements **regarding willingness to invest**, please circle the number on a scale of 1 to 7, where 1 means low engage in the activity and 7 means high engage in the activity.

2-1 What is the probability that you would invest in the venture within the next 1 year?

Low probability 1 2 3 4 5 6 7 High probability

2-2 If you plan to invest in the venture, what is the likely amount you would invest?

Lowest possible amount 1 2 3 4 5 6 7 Highest possible amount

2-3 Whether you invest or not, how successful do you think that venture will be?

Low success 1 2 3 4 5 6 7 High success

3.

For each of the listed statements concerning risk-taking, please circle the number on a scale of 1 to 7, where 1 indicates that you strongly disagree, while number 7 indicates that you strongly agree with the statement.

	Strongly disagree	Mode- rately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mode- rately agree	Strongly agree
3-1 I have a strong proclivity for low-risk projects.	1	2	3	4	5	6	7
3-2 I believe that, owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives.	1	2	3	4	5	6	7
3-3 I typically adopt a cautious, " wait-and-see " posture in order to minimize the probability of making costly decisions.	1	2	3	4	5	6	7
3-4 We seem to adopt a rather conservative view when making major decisions.	1	2	3	4	5	6	7
3-5 We have tendency to support projects for which the expected returns are certain .	1	2	3	4	5	6	7
3-6 Operations have generally followed the " tried and true " paths.							
3-7 Our operations can be generally characterized as high-risk .	1	2	3	4	5	6	7
3-8 New projects are approved on a "stage-by-stage" basis rather than with "blanket" approval.	1	2	3	4	5	6	7
3-9 The term " risk taker " is considered a positive attribute for people in our business.	1	2	3	4	5	6	7
3-10 People in our business are encouraged to take calculated risks with new ideas.	1	2	3	4	5	6	7

4.

For each of the statements regarding entrepreneurial self-efficacy, please circle the number on a scale of 1 to 7 degree of certainty in your ability to perform the role/task described, where 1 means that you are completely unsure and 7 means that you are completely sure of your ability.

	Com- pletely unsure	Mo- derately unsure	Slightly unsure	Neither sure nor unsure	Slightly sure	Mo- derately sure	Com- pletely sure
4-1 I will be able to achieve most of the goals that I have set for myself.	1	2	3	4	5	6	7
4-2 When facing difficult tasks, I am certain that I will accomplish them.	1	2	3	4	5	6	7
4-3 In general, I think I can obtain outcomes that are important to me.	1	2	3	4	5	6	7
4-4 I believe I can succeed at most any endeavor to which I set my mind.	1	2	3	4	5	6	7
4-5 I will be able to successfully overcome many challenges.	1	2	3	4	5	6	7
4-6 I am confident that I can perform effectively on many different tasks.	1	2	3	4	5	6	7
4-7 Compared to other people, I can do most tasks very well.	1	2	3	4	5	6	7
4-8 Even when things are tough, I can perform quite well.	1	2	3	4	5	6	7
4-9 I am confident that I can effectively evaluate the investment value of the venture.	1	2	3	4	5	6	7
4-10 I am confident that I can deal with stress during closing the investment deal.	1	2	3	4	5	6	7

- 5.** For each of the statements regarding cognitive style, please circle the number on a scale of 1 to 7 to what extent you agree or disagree with the statement, where 1 means that you strongly disagree and 7 means that you strongly agree with the statement.

	Totally disagree	Mo- derately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mo- derately agree	Totally agree
5-1 I want to have a full understanding of all problems.	1	2	3	4	5	6	7
5-2 I like to analyze problems.	1	2	3	4	5	6	7
5-3 I make detailed analyses.	1	2	3	4	5	6	7
5-4 I study each problem until I understand the underlying logic.	1	2	3	4	5	6	7
5-5 Developing a clear plan is very important to me.	1	2	3	4	5	6	7
5-6 I always want to know what should be done when.	1	2	3	4	5	6	7
5-7 I like detailed action plans.	1	2	3	4	5	6	7
5-8 I prefer clear structures to do my job.	1	2	3	4	5	6	7
5-9 I prefer well-prepared meetings with a clear agenda and strict time management.	1	2	3	4	5	6	7
5-10 I make definite engagements, and I follow up meticulously.	1	2	3	4	5	6	7
5-11 A good task is a well-prepared task.	1	2	3	4	5	6	7
5-12 I like to contribute to innovative solutions.	1	2	3	4	5	6	7
5-13 I prefer to look for creative solutions.	1	2	3	4	5	6	7
5-14 I am motivated by ongoing innovation.	1	2	3	4	5	6	7
5-15 I like much variety in my life.	1	2	3	4	5	6	7
5-16 New ideas attract me more than existing solutions.	1	2	3	4	5	6	7
5-17 I like to extend boundaries.	1	2	3	4	5	6	7
5-18 I try to avoid routine.	1	2	3	4	5	6	7

- 6.** For each statement about goal orientation, please circle the number on a scale of 1 to 7 to what extent you agree or disagree with the statement, where 1 means that you strongly disagree and 7 means that you strongly agree.

	Totally disagree	Mo- derately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mo- derately agree	Totally agree
6-1 I often define goals for myself.	1	2	3	4	5	6	7
6-2 I understand how accomplishment of a task relates to my goals.	1	2	3	4	5	6	7
6-3 I set specific goals before I begin a task.	1	2	3	4	5	6	7
6-4 I ask myself how well I've accomplished my goals once I've finished.	1	2	3	4	5	6	7
6-5 When performing a task, I frequently assess my progress against my objectives.	1	2	3	4	5	6	7

7. This set of questions about regulatory focus asks you about specific events in your life. Please circle the number on a scale from 1 to 5 your answer to each question.

	<u>Never or seldom</u>		Sometimes		<u>Very often</u>
7-1 Compared to most people, are you typically unable to get what you want out of life?	1	2	3	4	5
7-2 Growing up, would you ever “cross the line” by doing things that your parents would not tolerate?	1	2	3	4	5
7-3 How often have you accomplished things that got you “psyched” to work even harder?	1	2	3	4	5
7-4 Did you get on your parents’ nerves often when you were growing up?	1	2	3	4	5
7-5 How often did you obey rules and regulations that were established by your parents?	1	2	3	4	5
7-6 Growing up, did you ever act in ways that your parents thought were objectionable?	1	2	3	4	5
7-7 Do you often do well at different things that you try?	1	2	3	4	5
7-8 Not being careful enough has gotten me into trouble at times.	1	2	3	4	5
7-9 When it comes to achieving things that are important to me, I find that I don’t perform as well as I ideally would like to do.	1	2	3	4	5
7-10 I feel like I have made progress toward being successful in my life.	1	2	3	4	5
7-11 I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.	1	2	3	4	5

8. For each of the statements regarding entrepreneurial intentions, please circle the number on a scale of 1 to 5 what is the likelihood that you intend to engage in the listed activities within the next 1 year? 1 means that it is very unlikely that you intend to engage in the activity and 5 means that it is very likely that you intend to engage in the activity.

	<u>Very unlikely</u>	Unlikely	Indifferent	Likely	<u>Very likely</u>
8-1 Setting up your own investment.	1	2	3	4	5
8-2 To what extent you considered setting up your own investment.	1	2	3	4	5
8-3 To what extent you prepared to set up your own investment.	1	2	3	4	5
8-4 How likely you are going to try hard to set up your own investment.	1	2	3	4	5
8-5 How likely you are going to set up your own investment soon.	1	2	3	4	5

9. For each of the statements regarding motivation for being a business angel, please circle the number on a scale of 1 to 5 what you find important for your motivation. 1 means that it is not important and 5 means that it is very important for your motivation.

	<u>Totally not important</u>		Quite important		<u>Very important</u>
9-1 To support the new generation of entrepreneurs.	1	2	3	4	5
9-2 Personal satisfaction from being involved with entrepreneurial business.	1	2	3	4	5
9-3 Potential for high capital appreciation.	1	2	3	4	5
9-4 To help friend(s) set up in business.	1	2	3	4	5

	<u>Totally not important</u>		Quite important		<u>Very important</u>
9-5 For current or future income (e.g., dividends, fees).	1	2	3	4	5
9-6 Support socially beneficial products or services.	1	2	3	4	5
9-7 A way of having some fun with my money.	1	2	3	4	5
9-8 For positive recognition in the community.	1	2	3	4	5
9-9 For nonfinancial perks, privileges, etc.	1	2	3	4	5
9-10 To make use of tax breaks.	1	2	3	4	5

10. Questions about venture investments.

10-1 Please rate the total number of angel investments you have made.	_____ investments
10-2 Please rate the total number of angel investments you have made in the last 2 years.	_____ investments
10-3 Please rate the total number of years over which you have been operating as angel investor.	_____ years
10-4 Please rate the number of years that you worked as an entrepreneur outside your investing experience.	_____ years
10-5 Please rate the number of deals done in ventures at the seed stages of development.	_____ deals
10-6 Please rate the number of hours you spend conducting due diligence prior to making an investment.	_____ hours
10-7 Please rate the number of your deals that were found from personal relationships.	_____ deals
10-8 Please rate the number of investments in which there were investors prior to your involvement as angel's investor.	_____ investments
10-9 Please rate the number of hours per week spent with ventures in which you have already invested.	_____ hours per week
10-10 Please rate the number of your investments that exited at less than 0% IRR.	_____ investments
10-11 Please rate the number of your investments that exited a return of > 100% IRR.	_____ investments
10-12 Please rate the mean € amount of your investments in new ventures.	_____ €
10-13 Please rate the number of syndicated investments you have made as business angel.	_____ syndicated investments
10-14 Please rate the total amount you have invested to date.	_____ €
10-15 Please rate your specific industry interest:	_____ industry
10-16 Please select the type of resources invested: <input type="checkbox"/> Financial <input type="checkbox"/> Non-financial (knowledge, human capital...) <input type="checkbox"/> Both	
10-17 Please select the type of motivation for investing: <input type="checkbox"/> Financial <input type="checkbox"/> Non-financial (satisfaction from the creation of new business...)	
10-18 Please select your focus on reducing risk: <input type="checkbox"/> Pre-investment activities <input type="checkbox"/> Post-investment governance	
10-19 Please select the frequency of co-investment activity:	

<input type="checkbox"/> Always invest on my own <input type="checkbox"/> Sometimes invest on my own <input type="checkbox"/> Always invest with others	
10-20 Please rate the number of investment performance: Total loss _____ Partial loss _____ Breakeven _____ 1-2 times multiple _____ 3-5 times multiple _____ 6-10 times multiple _____ Over 10 times multiple _____	
10-21 Please select your geographical investment activity dispersion: <input type="checkbox"/> Inside your country <input type="checkbox"/> Inside Europe <input type="checkbox"/> Other parts of the world	
10-22 Please indicate your type of investments: <input type="checkbox"/> Speculative <input type="checkbox"/> Conventional angel investments <input type="checkbox"/> Due diligence-driven investments <input type="checkbox"/> Professionally safeguarded investments	
10-23 Please select the type of added value to investment: <input type="checkbox"/> by contributing commercial skills <input type="checkbox"/> by entrepreneurial experience <input type="checkbox"/> by business know-how <input type="checkbox"/> by contacts	
10-24 Please select the type of firms you are interested to invest: <input type="checkbox"/> Technology-based firms <input type="checkbox"/> Market-driven firms	

11.

Questions about the business and demographic questions

11-1 Indicate your gender	<input type="checkbox"/> Female <input type="checkbox"/> Male
11-2 Indicate your nationality	_____
11-3 When were you born?	In the year 19_____
11-4 Are you the founder or co-founder of the firm where the survey was sent?	<input type="checkbox"/> No <input type="checkbox"/> Yes
11-5 Are you the owner or co-owner of the firm where the survey was sent?	<input type="checkbox"/> No <input type="checkbox"/> Yes
11-6 Please indicate your total years of employment (from your first employment until now).	_____ years
11-7 Indicate your highest degree of education: <input type="checkbox"/> Primary education <input type="checkbox"/> Middle School education <input type="checkbox"/> High School education <input type="checkbox"/> Associate's degree <input type="checkbox"/> Bachelor's degree <input type="checkbox"/> Master's degree <input type="checkbox"/> Professional degree <input type="checkbox"/> Doctorate degree <input type="checkbox"/> Other: _____	
11-8 Please indicate your functional areas of expertise: <input type="checkbox"/> General management <input type="checkbox"/> Financial management <input type="checkbox"/> Sales <input type="checkbox"/> Marketing <input type="checkbox"/> Human relations <input type="checkbox"/> Other	
11-9 Please indicate your current economic status: <input type="checkbox"/> Retired <input type="checkbox"/> Salaried employee <input type="checkbox"/> Working in own/family business <input type="checkbox"/> Self-employed consultant <input type="checkbox"/> Partner in professional firm <input type="checkbox"/> Other	
11-10 Please indicate your entrepreneurial experience: <input type="checkbox"/> Founded a business <input type="checkbox"/> Participation in management buy-out/management by-in Indicate average number of start-ups _____	
11-11 Please indicate the source of investments funds: <input type="checkbox"/> Inherited <input type="checkbox"/> Employment (incl. bonuses, options) <input type="checkbox"/> Investment income <input type="checkbox"/> Own business <input type="checkbox"/> Family business <input type="checkbox"/> Lump sum (incl. business disposal) <input type="checkbox"/> Life partner	

Thank you for completing the questionnaire. Your assistance in providing information is greatly appreciated.

If there is anything you would like to add or ask about this research, please do so in the space provided below or send me an E-mail at sanda.franic@mst-intersped.hr. If you would like to receive the results of the study, please write an E-mail address (in the box below) to which the results could be mailed.

Appendix E: Cover letter sent to EBAN members to request their participation in research on understanding the cognitive processes of business angels

EBAN plays a significant role in the European economy by connecting early-stage investment stakeholders and supporting their funding of SMEs. Early-stage investors foster economic growth, participating in the creation of new jobs. As such, understanding the behavior of business angels is an important task for researchers. We have found that the best way to learn about these issues is to ask business angels directly to share their thoughts and experiences.

Sanda's Ph.D. research is dedicated to understanding the cognitive factors that influence the early stage decision-making processes of business angels. The practical implications of the research will be beneficial to entrepreneurs, who can use the findings to improve their financial resource acquisition strategies, and business angels, who can better understand their own decision-making processes.

The survey should only take about 15 minutes to complete. **Please answer all of the questions.** Your responses will be kept confidential, and the results will be presented as summaries with all individual identifiers removed.

In order to participate in the survey, click on the link below (or copy and paste the survey link into your Internet browser).

Survey link:

If you have any further questions about this research, please send a message to Sanda at sanda.franic@mst-interped.hr. We appreciate your time and consideration in completing this survey. Your responses will contribute to research development in this field.

Appendix F: Cover letter sent to Thunderbird angels (ACA members) to request their participation in research on understanding the cognitive processes of business angels

SUBJECT: Request for participation in research

Dear Thunderbird Angel,

Business angels play a significant role in the U.S. economy by connecting early-stage investment stakeholders and supporting their funding of SMEs. Early-stage investors foster economic growth, participating in the creation of new jobs. As such, understanding the behavior of business angels is an important task for researchers. We have found that the best way to learn about these issues is to ask business angels directly to share their thoughts and experiences.

Sanda's Ph.D. research is dedicated to understanding the cognitive factors that influence the early stage decision-making processes of business angels. The practical implications of the research will be beneficial to entrepreneurs, who can use the findings to improve their financial resource acquisition strategies, and business angels, who can better understand their own decision-making processes.

The survey should only take about 15 minutes to complete. **Please answer all of the questions.** Your responses will be kept confidential, and the results will be presented as summaries with all individual identifiers removed.

In order to participate in the survey, click on the link below (or copy and paste the survey link into your Internet browser).

Survey link:

If you have any further questions about this research, please send a message to Sanda at sanda.franic@mst-intersped.hr. We appreciate your time and consideration in completing this survey. Your responses will contribute to research development in this field.

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Appendix G: Sample description and descriptive statistics

Table A1: Respondents by gender

	f	f%
Female	2	5.7
Male	33	94.3
Total	35	100.0

* f = frequency; f% = percentage

Of the $n = 35$ respondents who answered the demographic questions, 94.3% were men.

Table A2: Respondents by nationality

	f	f%
Bosnia and Herzegovina	1	2.9
Croatia	3	8.6
Finland	1	2.9
Germany	1	2.9
Slovenia	1	2.9
Switzerland	7	20.0
United Kingdom	1	2.9
United States	19	54.3
Venezuela	1	2.9
Total	35	100.0

* f = frequency; f% = percentage

The most represented countries for which respondents held nationality were the United States (54.3%) and Switzerland (20.0%).

Table A3: Respondents by age

	n	Min	Max	M	SD	Skewness	Kurtosis
Age	35	34	73	54.71	10.79	0.15	-0.83

* Min = minimum; max = maximum; M = mean; SD = standard deviation

Respondents were between 34 and 73 years old. The mean age of respondents was 54.71 ($SD = 10.79$) years.

Table A4: Respondents by marital status

	f	f%
Married	26	74.3
Divorced	7	20.0
Domestic partnership Live-in relationship	2	5.7
Total	35	100.0

* f = frequency; f% = percentage

Mostly married respondents (74.3%) were included in the survey sample.

Table A5: Respondents by education

	f	f%
High school education	2	5.7
Associate's degree	1	2.9
Bachelor's degree	6	17.1
Master's degree	17	48.6
Professional degree	1	2.9
Doctoral degree	7	20.0
Other	1	2.9
Total	35	100.0

* f = frequency; f% = percentage

The majority of respondents had either a Master's degree (48.6%), Doctoral degree (20%), or Bachelor's degree (17.2%).

Table A6: Respondents by working status

	f	f%
Retired	2	5.7
Salaried employee	5	14.3
Working in own family business	9	25.7
Self-employed consultant	12	34.3
Partner in professional firm	5	14.3
Other	2	5.7
Total	35	100.0

* f = frequency; f% = percentage

Most respondents were either self-employed consultants (34.3%) or working in their own family business (25.7%). There were slightly fewer salaried employees and partners in professional firms (14.3% each), while retired respondents and respondents with other current economic statuses were in the minority (5.7% each).

Table A7: Respondents by entrepreneurial experience

	f	f%
Founded a business	16	45.7
Founded multiple businesses	13	37.1
Participation in management buy-out/management buy-in	6	17.1
Total	35	100.0

* f = frequency; f% = percentage

In the context of entrepreneurial experiences, most respondents had founded a business (45.7%) or founded multiple businesses (37.1%). Respondents with experience of participation in management buy-out/management buy-in were represented by a smaller share (17.1%).

Table A8: Respondents by the number of start-ups founded

	n	Min	Max	M	SD	Skewness	Kurtosis
Average number of start-ups founded	35	1	20	3.34	3.76	2.93	10.94

* Min = minimum; max = maximum; M = mean; SD = standard deviation

Respondents had founded from 1 to 20 start-ups. The average number of start-ups founded was 3.34 ($SD = 3.765$)

Table A9: Respondents by the source of investment ($n = 35$)

	f	f%
Employment (incl. bonuses, options)	22	62.9
Investment income	22	62.9
Own business	17	48.6
Inherited	10	28.6
Family business	6	17.1
Lump sum (incl. business disposal)	5	14.3
Life partner	0	0.0

* f = frequency; f% = percentage

For the majority of respondents (62.9%), the source of investment was their employment or investment income (62.9%); for less than half (48.6%), it was their own business.

Table A10: Respondents by the type of resources invested ($n = 42$)

	f	f%
Financial	39	92.9
Own knowledge	36	85.7
Own networks	29	69.0
Own experience	34	81.0
Emotional support	23	54.8

* f = frequency; f% = percentage

$N = 42$ respondents answered the question about types of resources invested. The majority (92.9%) of respondents claimed that financial resources were invested, but also that their own knowledge (85.7%) and own experience (81%) were commonly invested. Emotional support seemed to be the resource that was invested least commonly (54.8%).

Table A11: Respondents by usual type of investment ($n = 41$)

	f	f%
Speculative	14	34.15
Conventional angel investments	29	70.73
Due-diligence-driven investments	19	46.34
Professionally safeguarded investments	9	21.95

* f = frequency; f% = percentage

$N = 41$ respondents answered the question about their usual type of investments. The majority (70.7%) of respondents claimed conventional angel investments to be their usual type of investment. Almost half of the respondents (46.3%) chose due-diligence-driven investments. Speculative type (34.1%) and professionally safeguarded investments (22%) were least common types of investment.

Table A12: Respondents by type of added value brought to investment ($n = 41$)

	f	f%
By contributing commercial skills	22	53.66
By entrepreneurial experience	30	73.17
By business know-how	32	78.05
By contacts	26	63.41

* f = frequency; f% = percentage

$N = 41$ respondents answered the question about type of added value brought to the investment. The majority (78% and 73.1%) of respondents claimed that added value was brought to the investment by business know-how and by entrepreneurial experience, respectively. More than half of the respondents claimed that added value was brought to the investment by contacts (53.7%) and by contributing commercial skills (63.4%).

Table A13: Type of firms in which interested in investing

	f	f%
Technology-based firms	14	34.1
Non-technology-based firms	1	2.4
Both	26	63.4
Total	41	100.0

Most respondents (63.4%) were interested in investing in both (technology-based and non-technology-based) types of firms.

Entrepreneurial alertness

Table A14: Descriptive statistics on entrepreneurial alertness

	n	Min	Max	M	SD	Skewness	Kurtosis
Scanning and search							
I browse the Internet every day.	87	1	7	5.79	1.61	-1.40	1.49
I have frequent interactions with others to acquire new information.	87	1	7	5.59	1.62	-1.54	1.96
I keep an eye out for new business ideas when looking for information.	87	1	7	5.55	1.64	-1.40	1.45
I actively look for new information.	87	1	7	5.54	1.52	-1.34	1.80
I am an avid information seeker.	87	1	7	5.49	1.67	-1.16	0.68
I read news magazines or trade publications regularly to acquire new information.	87	1	7	5.22	1.58	-0.95	0.82
Association and connection							
I am good at connecting dots.	87	1	7	5.47	1.55	-1.20	1.32
I see links between seemingly unrelated pieces of information.	87	1	7	5.32	1.61	-0.95	0.44
I often see connections between previously unconnected domains of information.	87	1	7	5.09	1.54	-0.85	0.51
Evaluation and judgment							
I have a gut feeling for potential opportunities.	87	1	7	5.01	1.49	-0.88	0.74
I can distinguish between profitable opportunities and not-so-profitable opportunities.	87	1	7	5.00	1.41	-0.87	1.26
I have a knack for telling high-value opportunities apart from low-value opportunities.	87	1	7	4.85	1.41	-0.67	0.89
When facing multiple opportunities, I'm able to select the good ones.	87	1	7	4.85	1.35	-0.76	1.36

* Min = minimum; max = maximum; M = mean; SD = standard deviation

$N = 87$ respondents answered questions about entrepreneurial alertness. The former was measured on a 7-point Likert scale consisting of 13 items describing activities indicating entrepreneurial alertness. Distribution of answers was negatively skewed indicating high agreement on all items. Regarding scanning and search, respondents were most engaged in browsing the Internet every day ($M = 5.79$; $SD = 1.62$) and having frequent interactions with others to acquire new information ($M = 5.59$; $SD = 1.62$). Reading news magazines or trade publications regularly was on average the activity in which entrepreneurs engaged the least ($M = 5.22$; $SD = 1.58$). Answers on items measuring association and connection indicated that entrepreneurs on average agreed most that they were good at connecting dots ($M = 5.47$; $SD = 1.55$) and seeing links between seemingly unrelated pieces of information ($M = 5.32$; $SD = 1.61$). Answers on items measuring evaluation and judgment showed the highest agreement on entrepreneurs believing they have a gut feeling for potential opportunities ($M = 5.01$; $SD = 1.49$) and being able to distinguish between profitable and non-profitable opportunities ($M = 5$; $SD = 1.41$). From the three measured dimensions, entrepreneurs felt most confident in scanning and searching for information, followed by the ability to make association and connection between seemingly unrelated bits of information and least confident in their ability to evaluate and judge.

Willingness to invest

Table A15: Number of ventures currently under assessment

	f	f%
1	20	23.8
2	15	17.9
3	16	19.0
> 3	33	39.3
Total	84	100.0

* f = frequency; f% = percentage

Almost a quarter (23.8%) of respondents were assessing one venture, 17.9% two ventures, 19% three, and 39.3% more than three ventures at the time of the survey.

Table A16: Descriptive statistics on willingness to invest

	n	Min	Max	M	SD	Skewness	Kurtosis
Average probability of investment in the next year	76	1	7	4.29	1.764	-.306	-.782
Average amount likely to be invested	76	1	7	2.51	1.521	1.727	2.500
Average assessment on success of investment	76	1	7	4.51	1.566	-.960	.511

* Min = minimum; max = maximum; M = mean; SD = standard deviation

On 7-point Likert scale, the average probability of investment in all ventures under revision was 4.29 ($SD = 1.76$) and average assessment of success of those ventures was 4.51 ($SD = 1.57$). The average amount invested was measured on a 7-point scale, with higher values meaning higher intended monetary value of investment. On average, lower monetary values were considered ($M = 2.51$; $SD = 1.52$). The distribution of planned amount of investment was positively skewed and leptokurtic, indicating preference toward lower values on the 7-point scale, while distribution of answers on the other two items was positively skewed, showing inclination to choose higher values on the scale.

Risk-taking

Table A17: Descriptive statistics on risk-taking

	n	Min	Max	M	SD	Skewness	Kurtosis
Risk-taking							
I typically adopt a cautious, “wait-and-see” posture in order to minimize the probability of making costly decisions. (R)	69	1	7	4.64	1.70	-0.30	-0.90
I believe that, owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm’s objectives.	69	1	7	4.49	1.84	-0.39	-0.83
I have a strong inclination toward low-risk projects. (R)	69	1	7	4.32	1.77	-0.13	-1.11
Riskiness							
I seem to adopt a rather conservative view when making major decisions. (R)	69	1	7	4.36	1.86	-0.25	-1.30
My approach has generally followed the “tried and true” paths. (R)	69	1	7	4.29	1.73	-0.06	-1.04
I have a tendency to support projects for which the expected returns are certain. (R)	69	1	7	4.19	1.87	-0.07	-1.09
My approach can generally be characterized as high-risk.	69	1	7	4.14	1.87	-0.23	-1.05
New projects are approved on a “stage-by-stage” basis rather than with “blanket” approval. (R)	69	1	7	3.30	1.94	0.46	-0.89
Entrepreneurial orientation							
People in my line of work are encouraged to take calculated risks with new ideas.	69	1	7	5.25	1.79	-1.10	0.33
The term “risk taker” is considered a positive attribute for people in my line of work.	69	1	7	4.96	1.78	-0.92	-0.09

* Min = minimum; max = maximum; M = mean; SD = standard deviation; (R) = reverse coded item

Regarding risk-taking, entrepreneurs agreed the most that they were willing to take chances and make costly decisions ($M = 4.64$; $SD = 1.70$). They were not conservative when making major decisions ($M = 4.36$; $SD = 1.86$) and believed that they were encouraged to take calculated risks with new ideas ($M = 5.25$; $SD = 1.79$). The line of business angel work is such that it involves and presupposes risky behavior and making straightforward decisions.

Self-efficacy

Table A18: Descriptive statistics on self-efficacy

	n	Min	Max	M	SD	Skewness
I am confident that I can perform many different tasks effectively.	62	1	7	5.58	1.56	-1.71
When investing, I am able to apply my entrepreneurial knowledge and experience.	62	1	7	5.56	1.68	-1.52
I can deal with stress when closing the investment deal.	62	1	7	5.56	1.68	-1.65
I will be able to successfully overcome many challenges.	62	1	7	5.55	1.61	-1.60
Even when things are tough, I can perform quite well.	62	1	7	5.55	1.56	-1.75
In general, I think I can obtain outcomes that are important to me.	62	1	7	5.50	1.60	-1.55
I believe I can succeed at most any endeavor to which I set my mind.	62	1	7	5.31	1.73	-1.25
Compared to other people, I can do most tasks very well.	62	1	7	5.26	1.63	-1.11
When facing difficult tasks, I am certain that I will accomplish them.	62	1	7	5.19	1.67	-1.26
I believe I can successfully judge the level of trust between me and the entrepreneur when closing the investment deal.	62	1	7	5.19	1.75	-1.17
I will be able to achieve most of the goals that I have set for myself.	62	1	7	5.16	1.74	-1.05
I can effectively evaluate the investment value of the venture.	62	1	7	5.02	1.73	-1.18

* Min = minimum; max = maximum; M = mean; SD = standard deviation

$N = 62$ respondents answered questions about self-efficacy. The former was measured on a 7-point Likert scale consisting of 12 items (statements) concerning self-efficacy. The distribution of variables was slightly to moderately negatively skewed and leptokurtic, indicating inclination toward higher values of the scale.

The strongest feature of self-efficacy in respondents was confidence in performing many different tasks effectively ($M = 5.58$; $SD = 1.56$), followed by dealing with stress when closing the investment deal ($M = 5.56$; $SD = 1.68$) and the ability to apply entrepreneurial knowledge and experience when investing ($M = 5.56$; $SD = 1.68$). The weakest feature seemed to be effectiveness in evaluating the investment value of the venture ($M = 5.02$; $SD = 1.73$).

Cognitive style

Table A19: Descriptive statistics on cognitive style

	n	Min	Max	M	SD	Skewness	Kurtosis
Knowing style							
I like to analyze problems.	59	1	7	5.34	1.70	-1.26	0.97
I study each problem until I understand the underlying logic.	59	1	7	4.98	1.88	-0.78	-0.42
I want to have a full understanding of all problems.	59	1	7	4.92	1.87	-0.81	-0.44
I make detailed analyses.	59	1	7	4.75	1.69	-0.59	-0.21
Planning style							
Developing a clear plan is very important to me.	59	1	7	5.22	1.71	-1.10	0.52
I prefer well-prepared meetings with clear agendas and strict time management.	59	1	7	5.20	1.86	-1.00	-0.06
A good task is a well-prepared task.	59	1	7	5.05	1.71	-1.01	0.24
I always want to know what should be done when.	59	1	7	4.92	1.76	-0.98	0.08
I make definite engagements and I follow up meticulously.	59	1	7	4.86	1.68	-0.92	0.07
I like detailed action plans.	59	1	7	4.85	1.71	-0.93	0.27
I prefer clear structures to do my job.	59	1	7	4.29	1.82	-0.34	-0.83
Creating style							
I like to contribute to innovative solutions.	59	1	7	5.83	1.65	-1.83	2.93
I am motivated by ongoing innovation.	59	1	7	5.73	1.62	-1.82	2.96
I prefer to look for creative solutions.	59	1	7	5.69	1.59	-1.82	3.10
I like much variety in my life.	59	1	7	5.64	1.80	-1.54	1.55
I like to push the boundaries.	59	1	7	5.39	1.75	-1.28	0.86
I try to avoid routine.	59	1	7	5.27	1.62	-1.32	1.39
New ideas attract me more than existing solutions.	59	1	7	5.12	1.80	-0.90	0.04

* Min = minimum; max = maximum; M = mean; SD = standard deviation

$N = 59$ respondents answered questions about cognitive style. The former was measured on a 7-point Likert scale consisting of 18 items (statements) measuring three dimensions: knowing, planning, and creating style. The distribution of variables was slightly to moderately negatively skewed, showing a preference for right-hand-side answers on the scale.

From items measuring knowing style, the highest agreement was reached on enjoyment in analyzing problems ($M = 5.34$; $SD = 1.70$). Planning style in the business angel subgroup of entrepreneurs was best represented by the item indicating that developing a clear plan was very important to entrepreneurs ($M = 5.22$; $SD = 1.71$), followed by the item measuring preference toward well-prepared meetings with clear agendas ($M = 5.20$; $SD = 1.86$). Business angels liked to contribute to innovative solutions ($M = 5.83$; $SD = 1.65$) and were motivated by ongoing innovation ($M = 5.73$; $SD = 1.62$).

Goal orientation

Table A20: Descriptive statistics on goal orientation

	n	Min	Max	M	SD	Skewness
I understand how accomplishment of a task relates to my goals.	59	1	7	5.49	1.76	-1.37
I often define goals for myself.	59	1	7	5.19	1.71	-1.08
I ask myself how well I've accomplished my goals once I've finished.	59	1	7	5.07	1.74	-1.08
I set specific goals before I begin a task.	59	1	7	4.95	1.67	-0.82
When performing a task, I frequently assess my progress against my objectives.	59	1	7	4.90	1.77	-0.91

* Min = minimum; max = maximum; M = mean; SD = standard deviation

$N = 59$ respondents answered questions about goal orientation. The former was measured on a 7-point Likert scale consisting of 5 items (statements) concerning goal orientation. Respondents agreed the most that they understood how accomplishment of a task related to their goals ($M = 5.49$; $SD = 1.76$) and often defined goals for themselves ($M = 5.19$; $SD = 1.71$). They were least inclined to frequently assess their progress against their objectives ($M = 4.90$; $SD = 1.77$).

Regulatory focus

Table A21: Descriptive statistics on regulatory focus

	n	Min	Max	M	SD	Skewness	Kurtosis
Promotion							
Do you feel like you have made progress toward being successful in your life?	55	1	5	4.00	0.96	-1.42	2.38
Have hobbies or activities in your life captured your interest and motivated you to put effort into them?	55	1	5	3.87	1.09	-0.90	0.23
Do you often do well at different things that you try?	55	1	5	3.87	0.84	-1.70	4.17
How often have you accomplished things that got you "psyched" to work even harder?	55	1	5	3.69	0.86	-1.17	2.25
Compared to most people, are you typically unable to get what you want out of life? (R)	55	1	5	3.64	0.91	-0.73	0.39

	n	Min	Max	M	SD	Skewness	Kurtosis
When it comes to achieving things that are important to you, do you find that you don't perform as well as you would ideally like to? (R)	55	1	5	3.44	0.88	-0.65	0.84
Prevention							
How often did you obey rules and regulations that were established by your parents?	55	1	5	3.36	0.85	-0.98	0.66
Growing up, did you ever act in ways that your parents thought were objectionable? (R)	55	1	5	3.25	0.97	-0.29	0.24
Has not being careful got you into trouble at times? (R)	55	1	5	3.16	0.81	0.12	0.51
Did you get on your parents' nerves often when you were growing up? (R)	55	1	5	3.13	0.94	-0.26	0.01
Growing up, would you ever "cross the line" by doing things that your parents would not tolerate? (R)	55	1	5	2.96	0.92	0.22	-0.11

* Min = minimum; max = maximum; M = mean; SD = standard deviation

Regulatory focus was measured on 5-point Likert scale (1=never; 5=always) by 11 items constituting two dimensions: promotion and prevention. Respondents agreed the most that they made progress toward being successful in life ($M = 4$; $SD = 0.96$). On average, they agreed that hobbies or activities had captured their interest and motivated them to put effort into them ($M = 3.87$; $SD = 1.09$) and that they did well at different things they tried ($M = 3.87$; $SD = 0.84$).

Regarding items measuring prevention success in goal attainment, lower average scores indicated lower agreement on items. Respondents agreed least that they would not cross the line by doing things their parents would not tolerate ($M = 2.96$; $SD = 0.92$) and agree the most that they obeyed rules and regulations established by their parents ($M = 3.36$; $SD = 0.85$).

Current entrepreneurial intentions

Table 22: Descriptive statistics on entrepreneurial intentions

	n	Min	Max	M	SD	Skewness	Kurtosis
I will consider setting up my own investment.	55	1	5	4.13	1.31	-1.33	0.46
I will set up my own investment.	55	1	5	3.93	1.27	-1.08	0.05
I am prepared to set up my own investment.	55	1	5	3.91	1.35	-1.00	-0.27
I will try hard to set up my own investment.	55	1	5	3.89	1.40	-0.98	-0.36
I will set up my own investment soon.	55	1	5	3.82	1.35	-0.93	-0.28

* Min = minimum; max = maximum; M = mean; SD = standard deviation

$N = 55$ respondents answered questions on entrepreneurial intention, which was measured on a 5-point Likert scale consisting of five items (statements). Entrepreneurs on average agreed most on considering setting up their own investment ($M = 4.13$; $SD = 1.31$) and least that they would set up their own investment soon ($M = 3.82$; $SD = 1.35$). They had intentions of investing, they would take time to decide on it.

Motivation for being a business angel

Table A23: Descriptive statistics on motivation for being business angel

	n	Min	Max	M	SD	Skewness	Kurtosis
The potential for a high capital appreciation.	52	1	5	3.98	1.15	-0.94	0.06
For personal satisfaction from being involved with entrepreneurial business.	52	1	5	3.96	1.15	-1.12	0.63
To support new generations of entrepreneurs.	52	1	5	3.79	1.27	-0.83	-0.33
For current or future income (e.g., dividends, fees).	52	1	5	3.65	1.17	-0.50	-0.70
To support socially beneficial products or services.	52	1	5	3.38	1.19	-0.37	-0.67
As a way of having some fun with my money.	52	1	5	3.29	1.32	-0.56	-0.73
To help friend(s) set up a business.	52	1	5	3.04	1.10	-0.17	-0.26
For positive recognition in the community.	52	1	5	2.81	1.22	-0.09	-1.09
To make use of tax breaks.	52	1	5	2.69	1.18	0.04	-0.83
For nonfinancial perks, privileges, etc.	52	1	5	2.40	1.11	0.30	-0.89

* Min = minimum; max = maximum; M = mean; SD = standard deviation

$N = 52$ respondents answered questions about their motivation for being a business angel. This was measured on a 5-point Likert scale consisting of 10 items (statements). The most important motivating factor for being a business angel was the potential for high capital appreciation ($M = 3.98$; $SD = 1.15$), followed by personal satisfaction from being involved with entrepreneurial business ($M = 3.96$; $SD = 1.15$). The least important motivating factor seemed to be working for nonfinancial perks, privileges, etc. ($M = 2.40$; $SD = 1.11$).

Table A24: Descriptive statistics on entrepreneurial experience

	n	Min	Max	M	SD	Skewness	Kurtosis
Total number of angel investments in career as a business angel	49	1	50	9.53	10.18	2.08	5.32
Total number of angel investments in the last 2 years.	49	1	20	3.71	3.63	2.34	7.58
Total number of years over which operating as an angel investor.	49	1	24	7.51	5.75	0.75	-0.14
Number of years that worked as an entrepreneur outside of investing experience.	49	1	40	13.82	11.42	0.70	-0.44
Number of deals done in ventures at the seed stage of development.	49	1	32	7.20	7.59	1.68	2.48
Number of hours normally spent conducting due diligence prior to making an investment.	49	1	100	18.84	25.30	2.45	5.45
Number of deals that found through personal relationships.	49	1	25	5.10	5.58	1.87	3.18
Number of investments in which there were already investors prior to involvement as an angel investor.	49	1	22	5.69	5.99	1.22	0.19
Number of hours per week normally spent with all ventures in which already invested.	49	1	50	8.90	11.60	2.09	4.63
Number of investments that exited at less than 0% IRR.	49	1	23	3.06	3.87	3.62	15.73
Number of investments that exited a return of > 100% IRR.	42	1	20	2.76	4.17	3.61	13.37
Mean € amount of angel investments in new ventures.	42	1	19	7.26	5.24	0.77	-0.30
Number of syndicated investments as a business angel.	42	1	38	5.76	7.16	2.63	9.15
Total amount to date invested as a business angel.	42	1	26	14.36	8.71	-0.32	-1.26

* Min = minimum; max = maximum; M = mean; SD = standard deviation

$N = 49$ respondents answered questions on entrepreneurial experience. The average number of angel investments in their career as a business angel was 9.53 ($SD = 10.18$) and in the last two years 3.71 ($SD = 3.63$). Respondents had been working as a business for an average of 7.51 ($SD = 5.75$) years. The average number of years of investment experience was 13.82 ($SD = 11.42$).