Centre Emile Bernheim Research Institute in Management Sciences



Decision time in Belgium: an experiment as to how business angels evaluate investment opportunities

J. Ludvigsen

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JEL Classifications: G24; G11; M13

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ABSTRACT

To what extent do business angels really understand their own decision process? This paper is the first in business angel research literature to use conjoint analysis to capture decision makers' actual decision policies and to compare these results with their stated decision policies. Although more than twenty papers discussing the decision criteria of business angels have been published, most of these studies rely on post hoc methodologies (e.g. interviews and surveys) to capture the decision process. Post hoc methods assume that business angels can accurately introspect about their own decision processes, but studies from cognitive psychology suggest that decision makers are poor at introspecting. In addition, experiments in the venture capital industry have shown that venture capitalists are poor at introspecting and do not fully understand their decision processes. Taking cues from cognitive psychology, this paper starts with the hypothesis that, like venture capitalists, business angels do not fully understand their own decision processes. To test this hypothesis, an experiment including twenty-four Belgian business angels and using conjoint analysis is performed. The findings suggest that business angels are not good at introspecting about their own decision processes. Even within the confines of a controlled experiment, which greatly reduces the amount of information considered, business angels lacked strong understanding of how they made decisions.

Keywords: business angels, decision making, entrepreneurial finance, investment evaluation, conjoint analysis

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1. INTRODUCTION

The importance of entrepreneurship for economic development is widely acknowledged around the world. "In the US, from 1979 to 1995, while Fortune 500 payrolls declined by over 4 million jobs, the entrepreneurial economy generated over 24 million jobs. About seventy-five percent of these jobs were created by fewer than 10% of small firms." (Freear & Sohl et al., 1997).

The entrepreneurial ventures with the most economic potential can be distinguished by their high growth rates. These high-potential ventures are often referred to as gazelles. Although one would expect gazelles to easily attract outside equity capital, this is not always the case. Gazelles are generally in the early stage of development and have little or no track record or collateral. They are seen as risky investments by banks, and their funding requirements are too small to be of interest to venture capitalists. Due to the reluctance of banks and venture capitalists to fund early-stage entrepreneurial firms, an equity gap exists for their funding. Business angels are the primary source of finance that is attempting to fill this equity gap (Mason & Harrison, 1996).

Business angels are private, non-institutional investors having no family or friend connection with their investees (Harrison & Mason, 1999). Although exact data is not available, funding by business angels far exceeds that provided by venture capital firms. In the US, it is estimated that business angels finance 10-20 times as many firms as the institutional venture capital community. Estimates for 2005 in the US are that 227,000 business angels invested \$23.1 billion in 49,500 companies (Sohl, 2005) compared to \$21.7 billion invested by venture capital funds in only 2,939 companies (PricewaterhouseCoopers et al., 2006). There is a scarcity of statistics on European business angel investments. In the UK market, the number of start-ups backed by angel investors is estimated to be eight times the number of venture capital-backed start-ups (Mason, 2006).

In addition to the amounts actually invested, business angels have even greater unutilized finance potential. Mason & Harrison (1993) found that business angels have up to three times more capital available for investment than what they have already invested. Business angels would like to invest more capital but are restricted by the availability of good investment opportunities and the right policy incentives.

Despite their importance, business angels are still not fully understood. The purpose of this paper is to increase our understanding of business angels, specifically how business angels in Belgium use decision criteria to evaluate investment opportunities. The three key questions that we seek to address are:

- 1. What decision criteria are used?
- 2. What is the relevant importance of each decision criteria?
- 3. To what extent do business angels really understand their own decision process?

Given the links between the importance of entrepreneurial firms for economic development, the difficulties high-potential ventures face in obtaining outside equity capital, and the role that business angels play in filling these funding needs, improving our understanding of the investment decision-making processes and criteria employed by business angels should be of interest to policy makers, researchers, entrepreneurs, business angels, and business introduction services.

First, understanding business angel decision-making is important to public policy makers. Governments have recognized the importance of business angels and are seeking ways of encouraging higher levels of business angel investment activity. The design of appropriate public policy initiatives should be grounded in a thorough understanding of business angels' motivations, decision-making processes and criteria.

Second, given the relative size and importance of the business angel market, one can make a case that this market has been under researched to date. For example, researchers have carried out many more studies on decision making by venture capital firms than on decision making by business angels.

Third, to the extent that entrepreneurs understand the kinds of information that business angels seek and how various components of information are weighted in business angels' decisions, they may be better able to present the relevant information and to negotiate from a better informed perspective.

Fourth, business angels face a wealth of information when making an investment decision. It may be difficult for business angels to truly understand their intuitive decision process because of all the noise caused by this information overload. This lack of systematic understanding impedes learning. Business angels cannot make accurate adjustments to their decision process if they do not truly understand it. Therefore, business angels who gain more awareness of their decision process will be more likely to avoid a systematic bias that impedes the quality of their decision making.

Finally, a better understanding of business angel decision making should allow business introduction services to improve their role as facilitator and educator for their communities of entrepreneurs and business angels.

The current study adds to the existing literature in two ways, the first contribution being the use of conjoint analysis as a methodology and the second contribution being the use of a Belgian sample. The first contribution, the use of conjoint analysis to derive the decision policies of business angels, allows us to capture decision makers' "actual theories in use" versus their "espoused theories" (Hitt and Tyler 1991). This is an important contribution to the literature because past studies rely on post hoc methodologies (e.g. interviews and surveys) to capture the decision process. Post hoc methods assume that business angels can accurately introspect about their own decision processes, but studies from cognitive psychology suggest that decision makers are poor at introspecting. To my knowledge, this study is the first in business angel research literature to use conjoint analysis to capture decision makers' actual decision policies versus their stated decision policies. The second contribution, the use of a Belgian sample, is also an important contribution because this study is the first in the literature to focus on decision criteria used by business angels in Belgium. This has the potential to bring new insights and to make comparisons with studies performed in other geographies and cultures.

This article proceeds as follows:

- Overview of risk capital and business angels
 - o Definitions
 - o Size and importance of business angel market
 - o Types of business angels
- Business angel investment process and decision criteria used to evaluate proposals

- Investment process
- o Literature review of decision criteria
- Theory introduction and hypotheses formulation
 - o Importance of criteria
 - o Impediments to accurate introspection
- Research methodology
 - The decision-making task
 - o Attributes and conjoint profiles
 - o Sample
 - o The experiment
- Results
 - Analyses performed
 - o Summary of findings
- Conclusions
 - o Limitations of methodology
 - o Further research
 - o Implications of findings

2. OVERVIEW OF RISK CAPITAL AND BUSINESS ANGELS Definitions

There are three primary sources of external equity capital for entrepreneurs. These three sources are commonly referred to as FFF, business angels, and venture capital. FFF stands for founders, family and friends (or more playfully defined as friends, family and fools). This is the first external source that an entrepreneur will use to secure equity capital. The next external source of equity capital is the business angel market. The business angel market is often referred to as the informal venture capital market. Business angels are private individuals who invest their own money directly in unquoted companies in which they have no family or friend connection. Business angels typically take active roles in their investments and many have prior industry experience themselves. The third source of external equity capital is the formal venture capital market or, more simply, venture capital. Venture capitalists are professional investors who manage the funds of others. Their primary objective is to deliver high returns to the outside investors whose funds they manage.

The business angel market occupies a critical position in the growth firm financing spectrum. Business angels fill the gap in equity financing between founders, family and friends and institutional venture capital funds (Harrison and Mason, 1999).

Size and importance of business angel market

The potential of business angels is enormous. Although exact data is not available, funding by business angels far exceeds that provided by venture capital firms. In the US, it is estimated that business angels finance 10-20 times as many firms as the institutional venture capital community. Estimates for 2005 in the US are that 227,000 business angels invested \$23.1 billion in 49,500 companies (Sohl, 2005) compared to \$21.7 billion invested by venture capital funds in only 2,939 companies (PricewaterhouseCoopers, 2006). There is a scarcity of statistics on European business angel estimates. In the UK market, the number of start-ups backed by angel investors is estimated to be 8 times the number of venture capital-backed start-ups (Mason, 2006).

Types of business angels

Business angels are not a homogenous group. Although many studies have attempted to classify business angels (Sullivan and Miller, 1996; Coveney and Moore, 1998; Sorheim and Landström, 2001), two of the most common classifications are by frequency of investing and by size of investments. Business angels that have invested in more than three investments are often called serial angels. The majority of non-serial angels are called virgin angels because they have not yet invested in a single opportunity (Freear, Sohl and Wetzel (1994)). Angels that invest large sums are often called seraphims and those that invest small sums are called cherubs.

3. BUSINESS ANGEL INVESTMENT PROCESS AND DECISION CRITERIA USED TO EVALUATE PROPOSALS

Investment process

It is likely that different decision criteria will be used depending on the stage of the investment process. Therefore, it is important that we have an understanding of the overall process by which business angels make investment decisions. Among the first to model business angels' investment decision process were Dal Cin, Duxbury, Haines, Riding and Safrata (1993) and Duxbury, Haines, and Riding (1997). Based on in-depth interviews from a Canadian survey of almost 300 business angels, they concluded that the decision process could reasonably be characterized as a five-step linear process. Dal Cin and her colleagues argued that business angels make investment decisions at several stages as the process unwinds and that criteria would logically differ from stage to stage. At each stage, the business angel investor could decide immediately to invest, immediately to reject, or to continue on to the next stage. This process is similar to the five-stage investment process used in Van Osnabrugge's (2000) comparison of the decision-making processes employed by business angels and venture capitalists.

Van Osnabrugge's (2000) five stages are the following:

- 1. Sourcing of potential deals and first impressions
- 2. Evaluation of the proposal
- 3. Negotiation and consummation
- 4. Post-investment involvement
- 5. Exit

The focus of this paper is decision criteria used by business angels to evaluate investment proposals. This would be included in stage two of the overall investment process. This stage involves examination of the business plan and conducting due diligence. Business angels meet with the founders and conduct external and internal evaluation of the opportunity and the entrepreneurial team. Most studies of the business angel decision process have focused on the decision criteria business angels employ.

Literature review of decision criteria

There have been more than 20 papers discussing the decision criteria of business angels. The earliest studies are typically post hoc studies and use interviews as the key methodology. They are largely descriptive in nature. Their purpose is to gain an understanding of business angels and decision criteria is only a small element of the paper. Later papers tend to be more analytical in nature. Most of the papers come up with a ranked list of decision criteria.

A significant number of papers contend that business angels attach great importance to the competence, integrity, and capability of the entrepreneur and management team and to the market potential of the firm's product/service (Harr, Starr and MacMillan (1988); Harrison

and Mason (1992); Erikson, Sorheim and Reitan (2003); Van Osnabrugge (1998)). Mason and Harrison (1996) found that the most important attributes of the entrepreneurs were their expertise, their enthusiasm, and other personal qualities of honesty and trustworthiness. The most important product or market attribute was the growth potential of the business.

Other papers address the question of whether business angels put more emphasis on the product/market or on the entrepreneur/management team when they evaluate opportunities. Mason and Harrison (2002) and Fiet (1995) find that the qualities of the entrepreneurial team matter more than the product or market.

To add to the debate, several papers demonstrate that decision criteria vary across the different stages of the investment process. Duxbury, Haines, and Riding (1997) show that criteria weights used by informal investors shifted across stages and that as the process unwinds the importance of the principals and of financial rewards both increase. Mason and Harrison (1996a) found that deals rejected at the initial review stage tended to be on the basis of a number of deficiencies rather than for a single reason whereas deals rejected after further research were more likely to be characterized by a single deal killer.

In addition, several authors have investigated whether decision criteria leading to rejection differ from decision criteria leading to acceptance. Feeney, Haines and Riding (1999) concluded that business angels consider both the attributes of the business and the attributes of the entrepreneur as important when they consider whether to invest in or reject a proposal. Harrison and Mason (1999) find that the most frequently mentioned deal killers were one man shows, significant gaps in the management team, flawed or incomplete marketing strategies, and incomplete or unrealistic financial projections.

Much of the literature shows that business angels are not a homogeneous population. Decision processes and criteria vary across cultures, countries and even types of business angels. For example, Stedler and Peters (2003) present data from Germany showing that German angels are influenced by a greater number of factors than have been identified in earlier studies based on UK, Canadian, and US data. In Germany, key decision factors include the entrepreneur/ management team, product/service uniqueness and competitiveness, growth potential, profit margins and being able to move into a profitable position quickly. Exit options, rates of return, and degree of self financing are also important. Haines, Madill and Riding (2003) look at Canada and report that Canadian business angels use a wide range of due diligence approaches. At one extreme, business angels indicate that their due diligence process is adhoc and informal. Using these informal approaches, some business angel investors indicate that they depend on "gut feel" and have to trust the people involved in potential deals and would like to work with them. At the other extreme, a small number of business angels indicated that their due diligence process is very sophisticated and involved extensive checklists, thorough documentation checks and an active search for independent evidence about the principals of the firm seeking investment. These tended to be larger scale investors.

Van Osnabrugge (1998) continues the study of different types of business angels. He compared the decision criteria employed by serial angels with those used by non-serial angels. He found that serial angels are less concerned with agency risks and more concerned with market risks than their less-experienced counterparts. He also found that, relative to non-serial angels, serial angels appear to conduct more research, are more likely to co-invest, and are less concerned with the location of the venture.

Trust is another decision criterion that has been researched extensively. Harrison, Dibben and Mason (1997) define trust as "the expectation that arises, within a community, of regular honest and cooperative behavior, based on commonly shared norms, on the part of other members of that community." Manigart, Korsgaard, Folger, Sapienza and Baeyens (2002) find that the role of trust in the decision process appears to be a non-compensatory decision criterion in that trust is a prerequisite for investment. Harrison, Dibben and Mason (1997) focused on the concept of swift trust.

Prasad, Bruton and Vozikis (2000) are among the few to use a theoretical approach. They use signaling theory to suggest that the proportion of the entrepreneur's initial wealth invested in the project ought to be an important criterion for business angels because "it indicates both the project's value and the entrepreneur's commitment to the project." Their conclusion was that other factors appear to be more important.

To conclude this section, it is safe to say that there is no single list of decision criteria used by all business angels across all stages of the investment process. Nevertheless, it is reasonable to conclude from the existing literature that the competence, integrity, and capability of the entrepreneur and management team and the market potential of the firm's product/service are clearly amongst the most important decision criteria.

4. THEORY INTRODUCTION AND HYPOTHESES FORMULATION Importance of criteria

Is it the horse or the jockey? In other words, do business angels put more emphasis on the product/market or on the entrepreneur/management team when they evaluate opportunities? This is a frequent question in the decision criteria literature. Most papers using post hoc methodologies report that the entrepreneur/management team is the most important criteria.

Agency theory suggests why this might be the case. Fiet (1995) and Van Osnabrugge (2000) find that business angels and venture capital firms differ in the importance that they attach to market and agency risk. Venture capital firms are more concerned with market risk because they view it as being less controllable than agency risk through ex post contracting. In contrast, business angels are more concerned with the evaluation of agency risk, often because they have prior industry experience themselves, and view the integrity and intentions of the entrepreneur as being the most potentially damaging contingencies.

Business angels seem to rely on the entrepreneur to evaluate market risk for them. Therefore:

• Hypothesis 1: Decision criteria relating to the entrepreneur/management team is more important than decision criteria relating to the product/market.

Impediments to accurate introspection

In the world of venture capital research, researchers studying selection behavior of VCs taking cognitive learning processes as point of departure have noted that the selection procedure and criteria put forward by investment managers during their research is different from the actual procedure and criteria used by investment managers. As Hitt & Tyler (1991) put it, there is a gap between "in use" and "espoused" decision policies used by VCs. First, this gap is caused by the fact that it is difficult for VCs to truly understand their intuitive decision process because of all the noise caused by information overload (Zacharakis and Meyer, 1998). Second, investment managers suffer from overconfidence. As Zacharakis and Shepherd (2001) point out, more information should enable the VCs to assess any potential

pitfalls, however, it also makes the decision more complex. Thus, more information creates greater confidence, but it also leads to lower decision accuracy.

This is likely to be similar for business angels. Therefore:

• Hypothesis 2: Business angels do not accurately introspect about their decision criteria.

5. RESEARCH METHODOLOGY

The decision-making task

This study uses conjoint analysis to model the decision criteria used by business angels to evaluate investment proposals. Conjoint analysis and policy capturing have been used in hundreds of studies of judgment and decision making (Stewart 1988). These studies vary from research into consumer purchase decisions, managers' strategic decisions (Hitt and Tyler 1991), expert judgment, and venture capitalists' decision policies (Shepherd, Ettenson and Crouch 2000; Zacharakis and Meyer 1998).

Attributes and conjoint profiles

Extensive consultation was held with business angels, financial advisors, and academics to ensure that the attributes and levels chosen in the conjoint profiles were realistic and represented the variation that typically occurs in the decision environment of business angels. This was important in order to enhance the overall believability of the task.

The dependent variable for this experiment is the business angel's assessment of the attractiveness of the investment opportunity. A 7-point Likert Scale was used and anchored by the end points "not attractive at all" and "extremely attractive."

Business angels evaluated a series of conjoint profiles that described new ventures based on eleven attributes. The attributes and their corresponding levels are shown in Appendix A. Each of the attributes is varied at two levels in a 2¹¹ fractional factorial design consisting of twenty-four profiles. The fractional factorial design allowed each main effect to be tested (Hahn and Shapiro 1966). These twenty-four profiles were randomly assigned to avoid order effects. In addition, four holdout profiles were included. In total, twenty-eight profiles were evaluated.

The experiment design has a D-efficiency of 0.975. The efficiency coefficients for each of the attributes are as follows:

Attributes	Efficiency
Entrepreneur	0.973
Management team	0.973
Product/service uniqueness	0.974
Size of target market	0.943
Growth potential	0.943
Nature of competition	0.973
Profit margins	0.960
Time to break-even	0.943

Potential exit routes	0.960
Co-investors	0.943
Investor knowledge of industry	0.981

In order to compare the actual decision policy with the stated decision policy, each business angel was asked to distribute 100 points across the eleven attributes. The final survey is presented as Appendix B.

Sample

For conjoint analysis purposes, sample size n = 672. Twenty-four Belgian business angels participated in the experiment, and each business angel completed twenty-eight conjoint profiles. The participants were identified through business angel networks, professional contacts, and snowballing. Appendix C details the characteristics of the sample.

Business angels are difficult to study because they have a preference for anonymity. In addition, sometimes they are in the market for deals and at other times they are inactive. Comprehensive lists of business angels do not exist. Since the population of business angels is unknown, and probably unknowable, the conclusions of previous studies, as well as those of the present study, must be limited to the sample that they represent. Unfortunately, the conclusions cannot be generalized to the population of business angels as a whole.

The experiment

The conjoint decision-making task was administered to all participants by the author, either in person or via a phone call and email. Business angels took between 30 and 45 minutes to complete the survey. All participants completed the survey in English.

Thirty-seven business angels were contacted and twenty-four business angels agreed to participate in the experiment. The twenty-four business angels participating in the experiment completed the survey between April 2008 and April 2009. Nine business angels completed a first version of the survey in April and May 2008. Twelve business angels completed the final version of the survey in August and September 2008. The remaining three business angels completed the survey in April 2009. The first version of the survey had participants answer two questions for each conjoint profile: "How attractive is this investment opportunity?" and "How likely are you to invest in this venture?" Since the responses to both questions were identical for each of the business angels, the survey was simplified and only the first question was retained in the final version of the survey.

6. RESULTS

Analyses performed

First, the stated decision policy was determined. In the survey, each business angel was asked to distribute 100 points across the eleven attributes. From these answers, mean averages and the associated standard deviations were calculated, and the eleven attributes were ranked. The results of the stated decision policy are presented in Table 1.

Table 1: The Stated Decision Policy

	Stated Decision Policy						
Attributes	Mean	SD	Rank				
Entrepreneur	17.44	4.543	1				

Product/service uniqueness	15.31	5.229	2
Management team	13.54	3.120	3
Growth potential	10.69	4.252	4
Nature of competition	8.96	2.074	5
Size of target market	8.65	4.719	6
Profit Margins	7.81	4.738	7
Investor knowledge of industry	6.98	3.212	8
Time to break-even	5.40	3.372	9
Co-investors	3.67	2.648	10
Potential exit routes	1.56	3.111	11

Next, the actual decision policy was determined. OLS regression with logit rescaling was used to calculate the part-worth utilities for each of the attributes included in the experiment. The conjoint value analysis (CVA) package from Sawtooth Software was the actual tool used in making the calculations. The part-worth utilities related to the actual decision policy were ranked and are presented in Table 2.

Table 2: The Actual Decision Policy

	Actual	Policy	
Attributes	Mean	SD	Rank
Product/service uniqueness	24.29	6.482	1
Profit margins	18.95	3.649	2
Entrepreneur	17.46	5.209	3
Growth potential	9.48	2.929	4
Size of target market	6.78	4.079	5
Management team	6.21	5.802	6
Nature of competition	3.89	3.014	7
Time to break-even	3.70	2.789	8
Investor knowledge of industry	3.52	2.409	9
Potential exit routes	2.96	2.691	10
Co-investors	2.77	2.153	11

Finally, the actual decision policy was compared to the stated decision policy. These results are presented in Table 3.

Table 3: Comparison of Actual Decision Policy with Stated Decision Policy

	Actual Decision Policy			Stated Decision Policy			
Attributes	Mean	SD	Rank	Mean	SD	Rank	
Product/service uniqueness	24.29	6.482	1	15.31	5.229	2	
Profit margins	18.95	3.649	2	7.81	4.738	7	
Entrepreneur	17.46	5.209	3	17.44	4.543	1	
Growth potential	9.48	2.929	4	10.69	4.252	4	
Size of target market	6.78	4.079	5	8.65	4.719	6	
Management team	6.21	5.802	6	13.54	3.12	3	
Nature of competition	3.89	3.014	7	8.96	2.074	5	
Time to break-even	3.70	2.789	8	5.4	3.372	9	
Investor knowledge of industry	3.52	2.409	9	6.98	3.212	8	
Potential exit routes	2.96	2.691	10	1.56	3.111	11	
Co-investors	2.77	2.153	11	3.67	2.648	10	

Summary of findings

Hypothesis 1: Decision criteria relating to the entrepreneur/management team is more important than decision criteria relating to the product/market.

The stated decision policy is consistent with most of the prior research which considers the entrepreneur, product/service, management team, and market issues as the most important in the evaluation process. The top four criteria accounted for 57% of the relative importance of all the decision criteria. In addition, and as was expected, the entrepreneur was decisively stated as being the single most important attribute.

Nevertheless, the actual decision policy tells a different story. Product/service is the clear number one attribute. The entrepreneur comes in at a respectable third position. The biggest surprises are profit margins in second position and the management team appearing only as sixth in relative importance. In the actual decision policy, the top four criteria accounted for 70% of the relative importance of all the decision criteria.

With these findings, it can be concluded that hypothesis 1 is supported by the stated decision policy but not by the actual decision policy.

Hypothesis 2: Business angels do not accurately introspect about their decision criteria.

The relative importance of the different attributes is very different between the actual decision policy and the stated decision policy. In particular, the actual decision policy ranked the entrepreneur and the management team in third and sixth position respectively whereas the

stated decision policy ranked these attributes as first and third most important. The other attribute that appears significantly out of place is profit margins. The actual decision policy ranked profit margins in second position whereas the stated decision policy ranked this attribute as only seventh most important. If we look at the mean utility values, we again see significant differences in relative importance of the different attributes. With these findings, it is fair to conclude that Hypothesis 2 is supported.

Another interesting observation is the large size of the standard deviations. This implies that business angels are not a homogenous group. This is fully supported by the demographic information in Appendix C and by virtually all of the literature on business angels.

7. CONCLUSIONS

Limitations of methodology

An experiment using conjoint analysis allows real-time, unbiased capture of the business angel investment evaluation process. However, it does have some limitations. As with any experiment, the decision situation does not perfectly mirror the real-life decision situation. Business angels would have access to much more information and would use an interactive due diligence process to clarify information cues. Nonetheless, the decisions made in the experiment reflect actual decisions, and insight can be greater in a controlled experiment precisely because much of the noise from the real-life decision situation is removed.

Further research

The findings imply that business angels are not a homogenous group. More analysis needs to be done by segmenting the results. Will the relative importance of the decision criteria used be consistent within certain groupings, such as serial and non-serial investors? Would hypothesis 1 be supported by non-serial investors? This would be in line with the business angel literature.

Implications of findings

The methodology used in this experiment identified the more relevant information factors cited in the business angel literature and demonstrated the differences between stated and actual decision policies.

The results show that the most important criteria used by business angels in Belgium are broadly consistent with studies performed in other regions. As expected, the stated decision policy is consistent with most of the prior research. Nevertheless, the actual decision policy tells a different story.

In particular, the findings in this study suggest that business angels are not good at introspecting about their own decision processes. This sheds an important light on past research. Although business angels undoubtedly use most of the information cited in past studies, the relative importance of that information needs to be reevaluated. Business angels may not, for instance, rely as much as expected on the management team. On the other hand, business angels may actually put much more importance on expected profit margins than originally thought. In addition, it is likely that past studies provide more information factors than business angels actually use. People have a tendency to overstate the information they believe they relied upon. People tend to use far less information (typically three to seven factors) to make a decision than they actually think they use.

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Appendix A: Attributes and their corresponding levels

Attributes	Level 1	Level 2
Entrepreneur	The entrepreneur is average.	The entrepreneur is trustworthy, experienced and enthusiastic.
Management team	The management team is not yet in place.	The management team is complete and has complementary skills.
Product/service	The product is similar (but	The product is unique in the
uniqueness	better) to others in the market.	market.
Size of target market	The market is a mainstream market.	The market is a niche market.
Growth potential	The growth potential is average.	The growth potential is high.
Nature of competition	There are one or two large competitors.	There are several small competitors.
Profit margins	The profit margins are average.	The profit margins are high.
Time to break-even	Break-even is more than a year away.	Break-even is less than a year away.
Potential exit routes	Possible exit scenarios have not been discussed.	Potential exit routes have already been identified.
Co-investors	You are the only investor.	Other co-investors are present.
Investor knowledge of the	You do not have personal	You know this industry and
industry	knowledge of this industry.	can add value.

CASE 1											
 The man The pro The gro There an The pro Break-e Possible You are 	nagemenduct is sinket is a rewith potente several fit marginate exit scent the only	r is average t team is comilar (but niche mari ntial is av I small comes are hig ore than a narios hav investor.	complete t better) to ket. erage. mpetitors h. year awa ye not bee	o others in s. ny. en discuss	n the mark	•	ls.				
How attractive is this investment opportunity?											
Not attractive at all	1	2	3	4	5	6	□ 7	Extremely attractive			
				CASE 2							
 The entrepreneur is average. The management team is complete and has complementary skills. The product is similar (but better) to others in the market. The market is a mainstream market. The growth potential is average. There are several small competitors. The profit margins are high. Break-even is more than a year away. Potential exit routes have already been identified. Other co-investors are present. You know this industry and can add value. 											
How attractive is this investment opportunity?											
Not attractive at all	1	2	3	□ 4	5	6	7	Extremely attractive			

				CASE 3						
 The The The The The The Pote Oth 	manageme product is market is growth po re are seve profit mar ak-even is ential exit re	eur is trustwo ent team is c similar (but a mainstrear otential is hig eral small con gins are aver more than a routes have a stors are pres	omplete better) to n market ch. mpetitors rage. year awa dready be	and has coothers in . s. ay. een identi	omplement the mark	ntary skill	s.			
		How attrac	tive is th	nis invest	ment opp	ortunity	?			
Not attracti at all	ve1	2	3	4	5	6	7	Extremely attractive		
				CASE 4						
 The The The The The The Pos Oth 	manageme product is market is growth po re are seve profit mar ak-even is sible exit se er co-inves	eur is trustwo ent team is c unique in the a mainstream etential is ave eral small con- egins are aver less than a y cenarios have stors are presental l	orthy, exponded a complete an arket erage. appetitors rage. ear away e not been to the control of the control o	perienced and has c en discuss	omplemen		s.			
How attractive is this investment opportunity?										
Not attracti at all	ve	2	3	4	5	6	7	Extremely attractive		

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		Н	ow attrac	tive is th	nis invest	ment opp	ortunity	?		
Not atta	ractive	1	2	3	4	5	6	7	Extremely attractive	
	The man The proof The grow There ar The prof Break-ev Potential Other co	nagement duct is si ket is a r wth potent e several fit marginates ven is lest l exit rous o-investo	r is trustwo t team is comilar (but niche mark ntial is avo I small com ns are high ss than a y attes have a rs are pres personal	orthy, exponentially omplete better) to set. erage. mpetitors in. ear away already besent.	and has coothers in	omplement the mark	ntary skill	ls.		
How attractive is this investment opportunity?										
Not atta	ractive	1	2	3	4	5	6	7	Extremely attractive	

					CASE 7					
	The man The proof The grow There an The prof Break-ey Potentian You are	nagemen duct is si ket is a r wth pote e severa fit margi ven is les l exit rou the only		complete t better) to ket. gh. mpetitors erage. vear away already be	o others in		•	ls.		
		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?		
Not at atl	tractive	1		3	4	5	6	7	Extremely attractive	
					CASE 8					
 The entrepreneur is average. The management team is complete and has complementary skills. The product is unique in the market. The market is a mainstream market. The growth potential is average. There are one or two large competitors. The profit margins are high. Break-even is less than a year away. Possible exit scenarios have not been discussed. Other co-investors are present. You know this industry and can add value. 										
How attractive is this investment opportunity?										
Not at at all	tractive	1	2	3	4	5	6	7	Extremely attractive	

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				CASE 9						
 The m The p The m The g There The p Break Poten You a 	ntrepreneur nanagemen roduct is si narket is a r rowth pote are one or rofit margi -even is lest tial exit rou re the only o not have	t team is c milar (but mainstream ntial is hig two large ns are high ss than a y utes have a	omplete better) to market. th. competite. ear away. dready be	and has coothers in cors.	omplement the mark	ntary skill	S.			
	Н	low attrac	tive is th	nis invest	ment opp	ortunity	•			
Not attractive at all	1	2	3	4	5	6	7	Extremely attractive		
			(CASE 10						
 The m The p The g There The p Break Possib Other 	ntrepreneum nanagement roduct is sinarket is an rowth pote are one or rofit margitieven is less ble exit sce co-investors on not have	t team is n milar (but niche mark ntial is hig two large ns are aver ss than a y narios hav ars are pres	e. ot yet in better) to tet. ch. competit rage. ear away e not bee	place. o others in cors. cors. en discuss	ed.	cet.				
How attractive is this investment opportunity?										
Not attractive at all	1	2	3	4	5	6	7	Extremely attractive		

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				(CASE 11				
•	The man The proof The grow There are The prof Break-ev Potential Other co	lagement luct is sinket is a rawth potent e several it marginates is less lexit rous	t is average t team is remilar (but niche marl nital is avel small comments are highes than a yeates have a res are presendustry an	tot yet in to better) to ket. erage. empetitors h. erar away already be sent.	o others in		cet.		
		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?	
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		Н	ow attrac	ctive is th	is invest	ment opp	ortunity	?	
Not at at all	tractive	1	2	3	4	5	6	7	Extremely attractive

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	Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?				
Not attractive at all	1		3	4	5	6	7	•			
				CASE 14							
 The man The prod The gro There an The prod Break-e Potentian You are 	 CASE 14 The entrepreneur is average. The management team is not yet in place. The product is unique in the market. The market is a mainstream market. The growth potential is high. There are one or two large competitors. The profit margins are average. Break-even is more than a year away. Potential exit routes have already been identified. You are the only investor. You know this industry and can add value. 										
	Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?				
Not attractive at all	all attractive										

CASE 13

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				(CASE 15				
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		Н	ow attrac	ctive is th	nis investi	nent opp	ortunity?	•	
Not attract at all	ive	1	2	3	4	5	□ 6	7	Extremely attractive
				(CASE 16				
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		Н	ow attrac	ctive is th	nis investi	nent opp	ortunity?	•	
Not attract at all	ive	1	2	3	4	5	6	7	Extremely attractive

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•	The man The proof The grov There ar The prof Break-ev Possible You are	lagement luct is unket is a nawth poten e several it marginates is more exit scent the only	is trustwo team is n nique in the nainstream ntial is ave small comes are high ore than a narios have investor.	ot yet in the market of market erage. mpetitors of the pear awa e not bee	place. 	ed.	usiastic.		
		н	ow attrac	tive is th	nic invect	ment onn	ortunity	,	
Not at at all	tractive	1	2	3	☐ 4		6	7	Extremely attractive
					CASE 18				
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		H	ow attrac	tive is th	nis invest	ment opp	ortunity	?	
Not at at all	tractive	1	2	3	4	5	6	7	Extremely attractive

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				(CASE 19				
	The man The prod The grow There are The prof Break-ev Possible You are	agement luct is si ket is a re with potent e one or it marginates yen is mo exit scent the only	tis average t team is r milar (but mainstream ntial is ave two large ns are ave ore than a narios have investor.	not yet in the better) to market erage. competition rage. year awaye not bee	tors. y. en discuss		cet.		
		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?	
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		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?	
Not at at all	tractive	1	2	3	4	5	6	7	Extremely attractive

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		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?	
Not attrac at all	tive	1		3	4	<u> </u>	□ 6	□ 7	Extremely attractive
					CASE 22				
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		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?	
Not attrac at all	Not attractive								

CASE 21

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				(CASE 23				
	The man The prod The grow There are The prof Break-ev Possible Other co	lagement luct is unket is a r wth potent e several it marginates yen is less exit scent	t is average t team is re- nique in the mainstream ntial is high small co- ns are average ss than a y- narios havers are pre- ndustry an	not yet in ne market m market gh. mpetitors rage. rear away ve not bee sent.	en discuss	ed.			
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		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?	
Not at at all	tractive	1	2	3	4	5	6	7	Extremely attractive

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				(CASE 25								
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		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity?	?					
Not atta	ractive	1	2	3	4	5	6	7	Extremely attractive				

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	The man The proof The grov There ar The prof Break-ev Possible Other co	lagement duct is sinket is a rawth potent e one or fit marginated wen is more exit scent exit scent	tis trustwont team is remilar (but niche marlatial is high two large are high pre than a narios haves are presentatives are presentatives are presentatives.	not yet in a better) to ket. gh. competith. year awaye not beent.	place. o others in tors. y. en discuss	n the mark			
		Н	ow attrac	ctive is th	is invest	ment opp	ortunity	?	
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•	The man The proof The grov There ar The prof Break-ev Potential Other co	lagement duct is unket is a rawth potent e one or fit marginates is less lexit rous	is trustwo t team is conique in the niche mark ntial is ave two large as are ave as than a yeates have a rs are presipersonal	orthy, exponential expension of the competition of	perienced and has c tors.	omplemen		ls.	
		Н	ow attrac	ctive is th	nis invest	ment opp	ortunity	?	
Not at at all	tractive	1	2	3	4	5	6	7	Extremely attractive

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Please allocate 100 points among the following list of 11 attributes - the more important the attribute, the more points that should be allocated to it.

Attributes	
Entrepreneur	
Management team	
Product/service uniqueness	
Size of target market	
Growth potential	
Nature of competition	
Profit margins	
Time to break-even	
Potential exit routes	
Co-investors	
Investor knowledge of the industry	
Total (should equal 100 points)	100

May I kindly request that you provide some basic demographic information. This information will only be disclosed in aggregate form and will not contain personally identifiable information.

Gender		Male
		Female
Age		< 40
		40 - 55
	\Box	> 55
Domicile		Brussels
Domene	Ħ	Flanders
	H	Wallonia
Comment		
Current occupation	H	Head of own company
	\vdash	Employed as head of company
	닏	Employed in management
		Independent means
		Retired
Experience by sector		Service industries
-		Telecommunications
		IT
		Manufacturing
		Trade
		Other
Experience by role		General management / CEO
Experience by Total	Ħ	Sales and marketing
	H	Finance
	H	HR / Law
	H	Consulting
Durantina of commentations of d		< 10%
Proportion of own capital invested	H	
	\vdash	10% - 20%
*		> 20%
Investment volumes	\vdash	< EUR 100.000
		EUR 100.000 to EUR 250.000
		EUR 250.000 to EUR 500.000
		> EUR 500.000
Number of current investments		0
		1
		2
		3 or more
Total number of current and prior		0
investments		1
in vestments	\Box	2
	Ħ	3
	Ħ	4 or more
Future willingness to acquire investments		will acquire more investments
ruture winnighess to acquire investments	片	will not acquire more investments
Dusiness whose (more shoose more than		Pre start-up / seed
Business phase (may choose more than	\vdash	*
one)	\vdash	Start-up
	님	Early stages
		Expansion
Motives for investing (may choose more	닏	Passing on professional experience
than one)		Contribute to successful start-up
		High returns
		Promote a product idea
		Fun

Appendix C: Demographic profile of sample

Gender	96%	Male
	4%	Female
Age	13%	< 40
C	38%	40 – 55
	50%	> 55
Domicile	21%	Brussels
	42%	Flanders
	38%	Wallonia
Current occupation	33%	Head of own company
Current occupation	8%	Employed as head of company
	25%	Employed in management
	4%	Independent means
	29%	Retired
Experience by sector	25%	Service industries
Experience by sector	25%	Telecommunications
	25%	IT
	8%	Manufacturing
	0%	Trade
	17%	Other
Experience by role	33%	General management / CEO
Experience by fole	13%	Sales and marketing
	33%	Finance
	4%	HR / Law
	17%	Consulting
Description of own conital invested	67%	< 10%
Proportion of own capital invested	21%	10% - 20%
	13%	10% - 20% > 20%
Investment volumes	42%	< EUR 100.000
investment volumes	38%	EUR 100.000 to EUR 250.000
	8%	
		EUR 250.000 to EUR 500.000
Number of current investments	13%	> EUR 500.000
Number of current investments	8%	0
	25%	
	54%	2
T . 1 . 1	13%	3 or more
Total number of current and prior	0%	0
investments	13%	
	25%	2
	33%	3
	29%	4 or more
Future willingness to acquire investments	96%	will acquire more investments
	4%	will not acquire more investments
Business phase (may choose more than	21%	Pre start-up / seed
one)	71%	Start-up
	88%	Early stages
	58%	Expansion
Motives for investing (may choose more	63%	Passing on professional experience
than one)	75%	Contribute to successful start-up
	50%	High returns
	29%	Promote a product idea
	13%	Fun