



How framing of the information in business plans affects individual versus group evaluations of new ventures

Master thesis

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Abstract

This study examines the effect of framing of the information in business plans. Based on theoretical background, it is hypothesized that framing of the content in business plans in terms of gain and visual frame will enhance the willingness of investors to fund corresponding ventures on the basis on business plan. I hypothesize that this effect is contingent on (i) lay rationalism of each individual investor and on (ii) whether individuals make their decisions by themselves or in a group setting. Findings of between-groups experiment questionnaire design propose that individuals are indeed more likely to invest in new venture when they are presented with gain frame instead with loss frame. Additionally, this paper suggests that when individuals use reasoning instead of emotions and when they pre-discuss the information contained in executive summary with another individual, they are more aware of framing effects, thus the effect of gain framing is as well weaker. Contrary, framing of content in terms of visual versus textual format does not appear to have significant effect on willingness to invest. The findings offer new ideas for entrepreneurs, managers and academics in the area of factors that influence decision making and entrepreneurship.

Keywords: Entrepreneurship, Venture investments, Business plan, Framing effects, Marketing techniques, Group decision making

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Table of Contents

1. Introduction.....	6
2. Problem statement and research question.....	7
2.1. Paper contribution	7
2.1.1. Academic relevance	7
2.1.2. Managerial relevance	8
2.2. Structure of the thesis	9
3. Literature review and theoretical background	9
3.1. Model of decision-making process in new venture creation	10
3.2. The role of business plan in new venture creation	12
3.3. Framing effects.....	13
3.3.1. Framing effects in consumer behavior and marketing psychology	14
3.3.2. Framing effects in corporate environment.....	15
4. Hypotheses development and conceptual model	15
4.1. Positive versus negative frame – gain versus loss presentation.....	15
4.1.1. Theoretical background	15
4.1.2. Hypothesis 1.....	16
4.2. Attribute framing - visual versus textual presentation	17
4.2.1. Theoretical background	17
4.2.2. Hypothesis 2.....	18
4.3. Interaction of gain versus loss frame and visual presentation	18
4.3.1. Hypothesis 3.....	18
4.3.2. Theoretical background	19
4.3.3. Hypotheses 4 and 5	20
4.4. Group decision making.....	20
4.4.1. Theoretical background	20
4.4.2. Hypotheses 6 and 7	21
4.5. Conceptual model.....	21
5. Methodology	23

5.1.	Research method	23
5.2.	Experimental design and subjects	23
5.2.1.	Stimuli and conditions	24
5.2.2.	Procedure	25
5.2.3.	Measurements	26
6.	Empirical analysis	27
6.1.	Data.....	27
6.1.1.	Experiment 1 – online experiment (individual setting).....	27
6.1.2.	Experiment 2 – face-to-face experiment (group setting).....	28
6.2.	Data analysis and results.....	29
6.2.1.	Differences across experimental conditions	29
6.2.2.	Scale validities	30
6.2.3.	Regression models.....	31
6.3.	Results	36
6.3.1.	Hypothesis 1.....	36
6.3.2.	Hypothesis 2.....	36
6.3.3.	Hypothesis 3.....	36
6.3.4.	Hypotheses 4 and 5	37
6.3.5.	Hypotheses 6 and 7	37
6.3.6.	Overview of hypotheses	38
7.	Conclusion	39
7.1.	General discussion.....	39
7.2.	Managerial and academic contributionpae	40
7.2.1.	Academic contribution	40
7.2.2.	Managerial contribution	41
7.3.	Limitations and Future Research Directions	42
8.	Literature list.....	44
9.	Appendices.....	48

1. Introduction

Entrepreneurial activities are gaining a lot of attention in the last years – according to The Kaufmann Index from October 2017 (Morelix and Russell-Fritch, 2017), it is visible that entrepreneurial activity has increased (from 2011) in United States and other parts of the world (Figure 1).

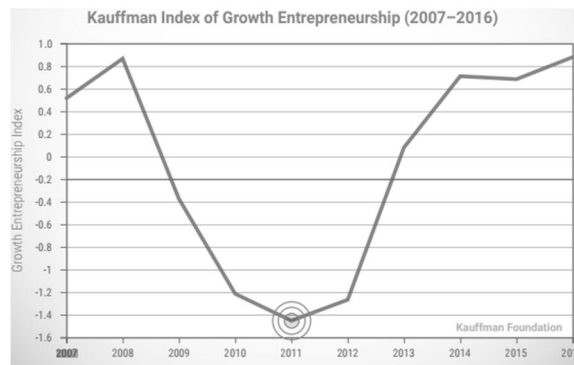


Figure 1: Entrepreneurial activity from 2007 to 2016. Source: Morelix and Russell-Fritch, 2017

Instinctively, this has led to a rising number of requests for funding, where business plans play a crucial role. The highest number of business proposals is written because of one reason – to get financing (Shane and Delmar, 2004). Entrepreneurs, who seek access to capital, deal with plenty of challenges on how to persuade potential investors to invest. According to Barrow, Barrow and Brown (2012: 15), ‘one major venture capital firm alone receives several thousand business plans a year. Only 500 or so are examined in any detail, fewer than 25 are pursued to the negotiation stage, and only six of those are invested in.’

The model of decision making in new ventures consists of various phases but the screening and evaluation phase are the most decisive ones. Screening stage takes up approximately 6 minutes and evaluation stage 21 minutes (Hall and Hofer, 1993). Hence, business plan (and its executive summary even more) is one of the first tools to impress investors in order to raise financial support (Barrow, Barrow and Brown, 2012). Because the screening of proposals is happening so rapidly, it is essential to make its content as appealing as possible.

What is more, investment decisions are characterized by fast decisions under the environment of uncertainty. As presented later, findings suggest that under uncertainty, people respond differently to framed but in reality the same outcomes when making decisions. Prior studies study the effect of framing in various contexts (also in financial decisions) but not in the context of corporate documentation (business plans) and its subsequent effect on investment decisions.

This study looks even further – it studies the effect of framing in the context of corporate documentation on individual and group level. In this topic, the existing literature is even more limited.

To conclude, this paper focuses on the effect of different frame types of the content of business plan and studies how this affects certain behavior, namely willingness to invest funds in proposed venture. Additionally, this paper is testing whether the extent of using reasoning when making decisions weakens the effect of framing and more importantly, whether the effect of framing differs when decisions are made individually or in a group setting.

2. Problem statement and research question

This study puts a light on the field of framing and entrepreneurship. I attempt to answer the following question: *What is the effect of framing in terms of gain versus loss and visual versus textual presentation on the willingness to invest when individuals are making the decision in individual versus group setting and when they differ in lay rationality?*

2.1. Paper contribution

In general, the topic complements the traditional framing framework that explains how framing of choices affects rationality and decision-making. Moreover, although prior studies in this area have documented the effect of framing in various fields in general – medical and clinical decisions, perceptual judgements, consumer choices, auditing evaluations (Levin, Schneider and Gaeth, 1998), little has been done in the context of investment decision making or even narrower, in business planning. Secondly, the topic as well complements existing entrepreneurial literature focusing on variables affecting decision making of investors. It builds a framework on how to frame certain objects or information to increase the effectiveness of business proposals.

Understanding the importance of framing of certain information in business plans therefore provides important insights for academics, investors and entrepreneurs.

2.1.1. Academic relevance

More specifically, this study benefits to two different streams of literature. Firstly, the study benefits to the literature of business planning and investments in new ventures (Kirsch, Goldfarb and Gera, 2009; Karlsson and Honig, 2009; Brinckmann, Grichnik and Kapsa, 2010).

It adds new insights to a number of criteria and business plan characteristics when deciding whether to invest in new venture (Hall and Hofer, 1993; Mason and Rogers, 1997; Chen, Yao and Kotha, 2009; Parhankangas and Ehrlich, 2014; Chan and Park, 2015). The study will help to uncover new variables of business proposals, which will decrease the chance of business proposal being overlooked and increase the chances of successful funding.

Secondly, it adds new insights to a literature of consumer behavior and marketing psychology. Prior studies from this field are exploring the effect of framing on consumer's product evaluations, choices and decision-making (Monroe and Chapman 1987; Maheswaran and Meyers-Levy, 1990; Buda and Zhang, 2000; Park, Jun and MacInnis, 2000; Biswas, 2009) and also consumer's perceptions of prices and promotions (Campbell and Diamond, 1990; Chen, Monroe and Lou 1998; Sinha and Smith, 2000; Darke and Chung, 2005; DelVecchio, Krishnan and Smith, 2007). Therefore, the first part of the study (gain versus loss framing) mostly contributes to the field of pricing and promotions where consumers will react more positively when exposed to gain frame. The second part of the study (visual presentation) highlights the fact that people will process product or service information differently when information is presented visually. Therefore, visualization tools will contribute to the area of decision making of managers and consumers (especially due to the fact that they are also overloaded with information), by offering them ways to 'gain new insights, make data more accessible, increase satisfaction and reduce costs' (Lurie and Mason, 2007: 172).

2.1.2. Managerial relevance

2.1.2.1. Implications for investors and managers

The topic is important for investors and managers, who invest funds in new ventures for the following reasons. Framing is a bias that might affect how proposed venture is perceived by decision makers because it alters the processing of information. Therefore, this study will help to improve decision making of investors and managers and help them to be more aware of framing prejudices in business proposals. They will be more aware ("de-bias") of the "tricks" entrepreneurs could use and also be able to train themselves to avoid irrational decisions coming from framing, by engaging in group discussions and rely on reasoning and not emotions, before making a decision (Mowen and Mowen, 1986).

2.1.2.2. *Implications for entrepreneurs*

This study also holds implications for entrepreneurs, who seek funding in two following ways. Firstly, the study attempts to provide answers to questions, which are raising many discussions in the world of entrepreneurial management. For example, how to persuade investors to invest, what investors value the most, how to sell a good idea, how to write a great business plan, why business planning is important, etc. (for more, please see: Sahlman, 1997; Nivi, 2009; Greene and Hopp, 2017; and others). Hence, the study tackles those managerial problems by uncovering new and unique insights on how to persuade investors to fund. It will help entrepreneurs to derive new techniques and strategies how to write standard corporate documentation in more efficient and attractive way.

Second implication is that the likelihood of external financing could increase if entrepreneurs will employ techniques that will make business proposals more attractive and frame the content to make it more appealing to potential investors (Forlani and Mullins, 2000). With this in mind, more entrepreneurial ideas will be realized accompanied with new products with rising quality, which will in turn lead to better, and more successful markets (Sethi, 2000).

2.2. Structure of the thesis

The flow of this thesis is as follows. In the first part (Section 3), theoretical background on corporate documentation, decision making and framing is presented. Secondly, drawing on the theoretical background of literature, hypotheses are derived and presented with visualized conceptual framework (Section 4). This is followed by methodology, containing information about research method and experimental design (Section 5). Then, proposed framework is experimentally tested and reported in empirical analysis (Section 6). Finally, I provide conclusions and discussion, implications and limitations of the thesis (Section 7).

3. Literature review and theoretical background

In this section, the following stream of literature will be reviewed: Section 3.1 will outline the model of decision-making process with a focus on screening phase in new venture creation, and Section 3.2 will focus on theory of business planning. In the Section 3.3., framing effects in general will be discussed. This will be followed by two subsections, namely, framing effects in consumer and corporate setting.

3.1. Model of decision-making process in new venture creation

In the past, many scholars have come up with a model of decision-making process (Wells, 1974; Tyebjee and Bruno, 1984; MacMillan, Siegel and Narasimha, 1985; Hisrich and Jankowicz, 1990; Fried and Hisrich, 1994; etc.). For example, the first study of Wells (1974) identifies six stages in the process of venture decision-making – (1) the search for investment opportunity, (2) the screening of proposals, (3) the evaluation of proposals, (4) board meetings and follow up, (5) dealing with venture operations and (6) cashing out the new ventures. A more recent study of Mitteness, Baucus and Sudek (2012) describes the funding decision process as a process, composed out of different stages: (1) application stage by entrepreneurs sending online applications, (2) pre-screen stage where entrepreneurs go through initial screening, (3) screening stage where presentations to investors are carried out, (4) due diligence stage where business plan is reviewed in details and (5) dinner meeting stage as last stage to impress investors. According to Tech Coast Angels (largest business angel group from U.S.), only 4% of new ventures manage to go from first stage to the last one (Mitteness, Baucus and Sudek, 2012). However, the most important facts are that in all those studies, researchers agree that model of decision making is integrated of numerous specific stages, that two generic stages (also minimum two stages) common to all studies are screening an evaluation stage and that different criteria can be applied at different stages (Hall and Hofer, 1993; Mitteness, Baucus and Sudek, 2012).

Nevertheless, scholars have built on this model and produced an impressive list of criteria of investor's decision-making; much entrepreneurship literature is focusing on variables that are likely to affect funding decisions (Hall and Hofer, 1993). To see a review of some studies focusing on particular investment criteria, see the table below (Table 1).

This overview of papers in Table 1 is organized according to different factors, such as determinants of entrepreneurs (psychographics and demographics), characteristics of business plan, presentation factors and economic factors. For every above-mentioned factor, sub-factors with corresponding authors, methodology and main conclusions are presented.

Factors	Sub-factors affecting investment decision	Author(s)	Methodology	Key Findings
Psychographics of entrepreneur	<i>Negative/positive affect (mood, feelings, emotions - passion)</i>	Baron, 2008	Using previous findings in the field of affect and cognition to build a theoretical framework	Affect (through cognition) influences main aspects of the entrepreneurial process – how well can one recognize the opportunity, acquire resources needed and respond effectively in environment of high dynamics
		Cardon, Wincent, Singh and Drnovsek, 2012	Extensive review of existing literature, identifying theoretical gaps. Drawing on theoretical gaps, buildup of conceptual model that explicates mechanisms	Entrepreneurial passion (emotional metaexperience) affects three drivers of effectiveness in entrepreneurship: problem-solving, persistence and absorption
	<i>Motivation</i>	Lachman, 1980	The questionnaire filled out during personal interviews with the population of entrepreneurs	Confirmed relationship between entrepreneurial behavior and achievement motive and achievement orientation
	<i>Managerial and leadership skills</i>	Macmillan, Siegel and Narasimha, 1985	Interviews with VC from New York area to determine criteria used in evaluating proposals. Following criteria were assembled into questionnaire	Ability to lead the team is one of the important criteria when evaluating new venture proposals
		MacMillan, Zemann and Subbanarasimha, 1987	Questionnaire rating highly (un)successful ventures based on different criteria	Good leadership skills of entrepreneurial team are predictors of successful venture
		Tyebjee and Bruno, 1984	First study uses telephone survey with structured questionnaire method with VC in California, second study uses mailing to obtain structured questionnaire where deals were evaluated	Managerial capabilities (management skills, marketing skills, financial skills, references of entrepreneur) is very important characteristic when investors evaluate potential deals
	<i>Toleration, evaluation and perception of risk</i>	Keh, Foo and Lim (2002)	Questionnaire mailed to owners of small and medium sized enterprises	Risk perceptions of entrepreneurs mediate opportunity evaluations
Macmillan, Siegel and Narasimha, 1985		Interviews with VC from New York area to determine criteria used in evaluating proposals. Following criteria were assembled into questionnaire	Ability to handle risk is one of the most important criteria of personality when evaluating new venture proposals	
Demographics of entrepreneur	<i>Education and prior experience of entrepreneur</i>	Macmillan, Siegel and Narasimha, 1985	Interviews with VC from New York area to determine criteria used in evaluating proposals. Following criteria were assembled into questionnaire	Prior experience is one of important criteria for VC funding – especially key experience as familiarity of the market and leadership capabilities of entrepreneurs derived from experience
		Hsu, 2007	Data from survey of technology-based start-ups	Entrepreneurial teams with higher educational attainment such as doctoral degree are more likely to get funded and receive higher valuations
		MacMillan, Zemann and Subbanarasimha, 1987	Questionnaire, rating highly (un)successful ventures based on different criteria	Experience of entrepreneurial team are predictors of successful venture
		Carpentier and Suret, 2015	Using Canadian group's archival proposals data and conducting longitudinal analysis	Negative correlation between experience of entrepreneurs and funding due to weaker proposals written
	<i>Gender of entrepreneur</i>	Alsos, Isaksen, and Ljunggren 2006	Data collection carried out in two rounds, at two different times – mail survey + telephone interviews	Females raise significantly less financial capital for development of new businesses. Lower levels of raised capitals are related to lower business growth in early stages (compared with their male counterparts)
		Orser, Riding and Manley, 2006	Using the data obtained by Statistics Canada – using a survey of Financing Small and Medium sized Enterprises from 2002 with a 3,842 responses	Female entrepreneurs are equally likely as males to seek for external funding (except for external equity capital) and are equally likely to get capital when applying for funding

Table 1: A review of literature on variables that affect funding decision

Factors	Sub-factors affecting investment decision	Author(s)	Methodology	Key Findings
Characteristics of corporate documentation – business plans	<i>Images and colors in business plan</i>	Chan and Park, 2015	Quasi-experimental field study combined with controlled experiments	Partial positive relationship between product images on favorable decisions, negative correlation between red color and screening decisions
	<i>Certain impression management behavior in business proposals</i>	Parhankangas and Ehrlich, 2014	Using data set of young firms looking for funding in New York area between 2005 and 2007 based on a one – page investment applications	Investors prefer business proposals differentiated by 'the moderate use of positive language, moderate levels of promotion of innovation, supplication and blasting of competition, and high levels of opinion conformity'
	<i>Completeness of corporate document, inclusion of certain information</i>	Kirsch, Goldfrab and Gera, 2009	Analysis of a sample consisting of funding requests to American VC company	Submission of funding requests does not predict funding; neither does its completeness. Information included: reporting prior equity funding, inclusion of the requested funding capital, team information, educational background, experience in start-ups, prior working experience do not predict funding. Information included which predicted funding were learned independently of business plan - proposals are not important sources of information for investors
Presentational factors	<i>Passion and preparedness during the presentation</i>	Chen, Yao and Kotha, 2009	First using qualitative approach to develop a scale to measure passion and preparedness, followed by a laboratory experiment and field study	In business plan presentations, preparedness is positively correlated to funding outcome, effects of perceived passion are find to be statistically significant
	<i>The role of entrepreneurial narratives (storytelling)</i>	Martens, Jennings and Jennings, 2007	Qualitative analysis of IPO between 1996 and 2000 in three high-technology industries	Storytelling helps entrepreneurs to raise funding capital
	<i>Trust-building behavior during the interaction</i>	Maxwell and Lévesque, 2014	Usage of real-time technique to collect behavior data from actual interactions from TV show Dragons' Den	Trust building behavior during the interaction or presentation is positively correlated with favorable funding outcome
	<i>Entrepreneur's credentials and impression management during the interaction</i>	Nagy, Pollack, Rutherford and Lohrke, 2012	Online experiment with investment and financial professionals	Entrepreneur's credentials and behaviors influence investor's perceptions of new venture legitimacy (which can be achieved through communication-focused actions)
	<i>Communication and delivery style</i>	Clark, 2008	Evaluation of presentational and non-presentational aspects of oral pitch presentations by questionnaire	Quality and content of presentation is positively correlated with business angel interest in presented venture
Economic factors	<i>Market attractiveness</i>	Tyebjee and Bruno 1984;	First study uses telephone survey with structured questionnaire method with VC in California, second study uses mailing to obtain structured questionnaire where deals were evaluated	Market attractiveness determined by the size. growth and accessibility of the market is very important characteristic when investors evaluate potential deals
		Rea, 1989	Questionnaire with members of Western Association of Venture Capitalists	Results indicate that business aspects, especially markets offering unrestrained growth opportunities are essential
		Carpentier amd Suret, 2015	Using Canadian group's archival proposals data and conducting longitudinal analysis	Negative correlation between low attractiveness of market (too small, too competitive) and funding

Table 1 (continued): A review of literature on variables that affect funding decision

Although, the study of Mitteness, Baucus and Sudek (2012) places review of business plan in due diligence stage, this is meant as very detailed review of documentation. For the purposes of this study, it will be assumed that business plan is screened quickly as a part of screening phase (conclusion made by other authors). Screening phase of proposals is ‘fast decision making under high uncertainty’ with limited information and asymmetric information (Kirsch, Goldfarb and Gera, 2009: 487). The problem however is big volume of information to be processed by investors (Kirsch, Goldfarb and Gera, 2009). As already emphasized, out of hundreds screened business proposals, only few of them will gain detailed attention and due diligence and even fewer will get preliminary offer (Metrick and Yasuda, 2011) and this is why investors must be quick and highly effective when categorizing proposals as interesting - deciding which ventures are worth of moving to evaluation phase. Because of time constraint and sparse information, investors rely on cues, gut feel and heuristics (decision-making shortcuts) to speed up the process and therefore categorize proposals. Hence, Clark (2008) concludes that screening decisions are reached immediately or even during the entrepreneur’s presentation. Similar trend is shown for screening of business documentation; Hall and Hofer (1993) conclude that venture capitalists typically need less than 6 minutes to reach a decision and Mason and Rogers (1997) conclude that business angels need a median time of 6 minutes as well. Additionally, usually decisions reached after evaluating written business plans are very subjective and based on intuition or gut feel (Clark, 2008).

3.2. The role of business plan in new venture creation

As previously emphasized, business plans are important tool for entrepreneurs to get the access to finances. Honig and Karlsson (2004: 29) define business plan as ‘a written document that describes the current state and the presupposed future of an organization’. However, scholars debate whether written requests necessary lead to venture success – there is a research gap related to the effect of business plans. Hence, entrepreneurial studies find positive correlation, some negative and others non-existing one.

The study of Honig and Karlsson (2004) shows that new companies are subjects to institutional isomorphic pressure to write business plans and that those have no statistically significant effect on profitability of the firm. Additionally, their later study in 2009 shows that entrepreneurs learning how to write business plans from books and studies write too extensive business plans as a symbolic act and thus this results in discrepancy between plan and financial performance among other factors. Other scholars supporting negative correlation are Lange, Mollov,

Pearlmutter, Singh and Bygrave (2007) and Bhidé (2003). In contrast, Gruber (2007) concludes that business planning can be beneficial for venture success depending on the type of founding environment (low vs. high dynamism), the type and the effort devoted to activities pursued in written requests. In addition, Kraus and Schwarz (2006) support the relationship between business plans and company success (see also Shane and Delmar, 2004; Chwolka and Raith, 2012). Due to these contradictory findings, Brinckmann, Grichnik and Kapsa (2010) conducted review of literature by meta-analysis of the relationship between business planning and conclude that planning increases the success of small firms (with some factors mediating the strength relationship). Taking all together, this paper therefore assumes that writing of business plans should enhance the success of new venture creation.

Business plan as benevolent document fulfills two roles - ceremonial role that serves as a signal that document is as expected. Ceremonial role characterizes characteristics of business plans that follow the norms of exchange – for example, the right form, length, organization of the document and others. In contrast, the second role is communicating role, which serves as a channel that informs about specific and important claims about the opportunity and signals the quality of the document (Kirsch, Goldfarb and Gera, 2009). Kirsch, Goldfarb and Gera (2009: 488) state that ‘communications about planning activities— encoded in objects such as business plans, executive summaries, and similar types of documents - presumably convey information that influences the funding decision.’ Differences in written proposals or even more specific, different attributes in business plans themselves generate differences in meaning and therefore different reactions in investors. To sum up, ceremonial role is connected with inclusion of information in order to conform to norms but communicative role refers to inclusion of information in order to emphasize and communicate essential attributes of proposed business. Hence, the goal is to include information that also fulfills the communicative role. In this case, the information content will not be ignored and will be predictive of investor decision-making (Kirsch, Goldfarb and Gera, 2009). This study will be built on business plan as communicative tool.

3.3. Framing effects

Before focusing on different frame types and development of hypotheses, it is important to discuss framing effects in general. From economic point of view, people and their choices are perceived to be rational (Cheng and Chiou, 2008). However, there are numerous studies showing that when making decisions, people are rather irrational (Cheng and Chiou, 2008).

With the help of many examples, they illustrate the reversal of choices when in reality the same outcome is framed in more than one way. Otherwise said, rational decisions do not change when the frame of presented choices is changed, but irrational decisions do. As stated by Kahneman and Tversky (1981: 453), people ‘systematically violate the requirements of consistency and coherence’ (which are satisfied by rationality).

Building on the work of Kahneman and Tversky, Levin, Schneider and Gaeth (1998) introduce three types of valence framing effects – risk choice framing, goal framing and attribute framing, discussed later. Valence framing refers to framing of the same information in positive or in negative way, which will be central of this study. First type of valence framing is “risky choice framing.” By studying the framing of two different framed choices with the same outcome, the preferred choices show that ‘choices involving gains are often risk averse and choices involving losses are often risk taking’ (Kahneman and Tversky, 1981: 453). Second frame is called “attribute framing” and it relates to the framing of the single attribute so that evaluations of object or characteristics are affected; for example, visual framing. This form of frame is the simplest because it helps to understand how descriptive valence affects information processing (Levin, Schneider and Gaeth, 1998). Third type of framing is “goal framing” in which goal of an action is framed (Levin, Schneider and Gaeth, 1998). Scholars focusing on all three types of framing provide mixed results on effect of each.

This paper will focus primarily on the first type of framing – gain versus loss (based on assumption that investors as risk-averse driven) and on attribute framing where attributes of textual information will be framed as visual.

3.3.1. Framing effects in consumer behavior and marketing psychology

Literature on framing effects in the area of human judgment and decision-making has expanded to other areas such as in: psycholinguistics, perception, social, health, clinical, educational psychology and business (Levin, Schneider and Gaeth, 1998). Scholars in the field of consumer behavior mostly examine framing effects in consumer’s product evaluations, choices and purchase intentions. For example, Buda and Zhang (2000) conclude that message framing affects consumers and their perception on attractiveness of a product and similarly, the study of Park, Jun and MacInnis (2000) uses the method of option-framing and concludes that there is an effect on product choice decisions. Framing effects are also found in the setting of consumer pricing and promotions. Namely, marketers who employ pricing and promotion

strategies can frame promotional strategies in order to increase the perception of deal value (Darke and Chung, 2005). Similar conclusions are reached by Sinha and Smith (2000) who examine the effect of three distinct promotional frames used in supermarkets (see also DelVecchio, Krishnan and Smith, 2007 and Janiszewski and Cunha, 2004).

3.3.2. Framing effects in corporate environment

Framing as in general appears in business setting where an agent (manager) describes some entity (company) in such way that the way in which information is framed affects decisions made by other agents (auditors, analysts, investors, etc.) (Johnson, Jamal and Berryman, 1991). Literature on framing in corporate setting is mainly limited and focused on finances, auditing and investing in stocks.

Mowen and Mowen (1986) concludes about suboptimal decision making in business setting due to framing – decision bias does occur in business environment. Hence, the effect of framing is therefore studied in various business settings such as in auditing (Johnson, Jamal and Berryman, 1991; Jamal, Johnson and Berryman, 1995; Emby and Finley, 1997; Mueller and Anderson, 2002; Fukukawa and Mock, 2011), on stock market (Fox and Dayan, 2004; Kumar and Lim, 2008; Glaser, Langer and Reynders, 2007) and on annual reports (Davison 2011). Perhaps the research of Davison (2011) is the closest to the topic of this thesis. Davison (2011), studying the usage of Para textual framing of the annual reports, concludes that framing of physical format, names, titles, epigraphs and prefaces included in annual reports, frame the reception of the text and create a connection between the organization and the society.

4. Hypotheses development and conceptual model

This section is devoted to development of hypotheses that will form the conceptual model of this paper. Firstly, theoretical background for each hypothesis is presented and after, each hypothesis is reasonably derived and stated.

4.1. Positive versus negative frame – gain versus loss presentation

4.1.1. Theoretical background

First hypothesis is built on the ‘prospect theory’ by Kahneman and Tversky (1986) who concludes that people make decisions based on the potential value of losses and gains rather than on the basis of the final outcome. Classical theories of choice state that ‘decision makers

prefer smaller risks to larger ones (provided all other factors are constant) (March and Shapira, 1987: 1404) and are according to many classical scholars, risk averse (March and Shapira, 1987). Under uncertainty (under which also investment decisions are made (Baron, 2008; Kirsch, Goldfarb and Gera, 2009; Parhankangas and Ehrlich, 2014)), there is a property of risk aversion in a positively framed environment and a property of risk seeking in a negative framed environment.

Investors who are ‘risk-averse and profit-oriented in their decision making under uncertainty’ (Tyebjee and Bruno, 1984: 1064), are characterized by the change of their financial wealth when putting funds into a new proposed venture. Therefore, they are much more sensitive to reductions in wealth than to increases (loss-aversion property) (Barberis, Huang and Santos, 2001). Evaluations and decisions are disproportionately impacted by the amount of negative information compared to equivalent amount of positive information (O’Keefe and Jensen, 2008), because negative information triggers negativity bias in processing (Levin, Schneider and Gaeth, 1998). Investors are motivated by both losses and gains, but as losses potent larger (Kahnemmn and Tversky, 1981), they tend to give greater decision weight to potential losses (Kanouse, 1984; Maheswaran and Meyers-Levy, 1990; Rozin and Royzman, 2001). This is further evidence that investors will react differently when faced with gain or loss situation under risk and uncertainty.

4.1.2. Hypothesis 1

When decision makers are presented with various objects, they form evaluations and judgements about the object and its attributes, before making a decision (Garbarino and Edell, 1997). However, when information or objects are presented in either positive or negative format, this creates ‘asymmetry in the importance of the information under the typical judgement strategy - people weight negative information more heavily than positive information’ (Kanouse, 1984: 704) – negativity bias.

Hereby, when a choice is framed in negative format, decision makers will form stronger (Ito, Larsen, Smith and Cacioppo, 1998) and at the same time less favorable (Levin, Johnson, Russo and Deldin, 1985; Janiszewski, Silk and Cooke, 2003; Kim, Kim and Marshall, 2014) evaluations about a choice. Strongly negative evaluations about a choice are correlated with higher probability of rejecting the choice than choosing it compared to positive evaluations,

which are correlated with higher probability of choosing the choice rather than rejecting it (Shafir, 1993).

Therefore, I conclude that individuals who face positively framed information will be more willing to choose and commit to gain presented option, compared to individuals who face negatively framed information.

Accordingly, the first hypothesis is as follows:

H1: *Information presented in positive frame (gain) instead in negative frame (loss) will have a positive effect on the willingness to invest in proposed venture.*

4.2. Attribute framing - visual versus textual presentation

4.2.1. Theoretical background

Lurie and Mason (2007) argue that presentation format has essential consequences for information accessibility and processing. First, visual presentation is important because it is easier to be processed compared to non-visual presentation (hereby referred as textual). Visual information also affects motivation and cognitive evaluations by being automatically captured and processed by human sense (Chan and Park, 2015). ‘The form of display organization and the prominence (i.e., salience) of visual cues clearly affects the way in which decision makers acquire and attend to information’ (Bettman and Kakkar, 1977; Jarvenpaa, 1989) (Beattie and Jones, 2002: 178). The transformation of textual to visual data affects insights derived from the data and has implications for improved decision making and its outcomes – one the one hand, it makes it easier to see certain patterns, increases attention to certain information and on the other hand it lowers biases in decision making (Lurie and Mason, 2007). Increased attention to visual data will result in superiority of visual data over textual data in memory, because ‘the greater number of memory codes for pictures act as multiple retrieval routes to those pictures. A considerable body of research shows that the likelihood of retrieval is related directly to the number of alternative retrieval routes in memory’ (Unnava and Burnkrant, 1991: 226).

Essentially, when information is presented in textual form and when the same information is presented in visual form, visual effect will have dominant effect and maybe even negate the effect of textual information in decision-making (Chan and Park, 2015). According to Ambady and Gray (2002), Ambady, Bernieri and Richeson (2000), visual cues are robust even under conditions of high informational volume, time pressure, monetary incentives, which are

conditions with which investors are faced when screening business proposals (Chan and Park, 2015).

4.2.2. Hypothesis 2

When decision makers have to make a judgement about an object, they rely on a subset of information that appears as more accessible (Kanouse, 1984). Based on arguments built in previous section one can conclude that visual format presents information in more efficient and more salient way (Lurie and Mason, 2007). Information which is visually salient (or vivid), takes less time to be captured by human sense (Lutz and Lutz, 1977), thus is ‘detected earlier on visual system’ (Ramsøy, 2015: 82). Consequently it anticipates greater favorability, greater weight and attention capture to presented information (Lurie and Mason, 2007; Orquin and Loose, 2013; Ramsøy, 2015). By driving attention, it ‘directly affects what people end up choosing – especially under conditions of short exposure, rapid decisions and high cognitive load’ (Ramsøy, 2015: 82); (for review, see also Lurie and Mason, 2007; Orquin and Loose, 2013).

Therefore, it can be concluded that decision makers, who are exposed to visual presentation instead to textual information, tend to place greater attention on this information due to its saliency and vividness. Consequently, they are more likely to change their option choices in the direction of this option, which is presented in visual format – i.e. there is higher probability that subjects will choose and commit to a choice, which triggers their attention through visualization.

Accordingly, the second hypothesis is as follows:

***H2:** Framing of information in visual format instead in textual format will have a positive effect on the willingness to invest in proposed venture.*

4.3. Interaction of gain versus loss frame and visual presentation

4.3.1. Hypothesis 3

‘By changing the presentation of a given problem, visual representations may accentuate biases and heuristics in decision making’ (Lurie and Mason, 2007: 170). By visually presenting loss and gain situations, the level of attention and focus shifted to those two frames will with visualization increase even more. Negative frame will loom even more negatively (higher

negativity bias), therefore will be weighted even heavier and even less favorably by decision makers. Hence, the evaluation of proposed venture will be less favorable and the probability of rejecting a choice even higher.

This suggest the following: visual presentation and its saliency will moderate the effect of positive versus negative framing on judgment (Lurie and Mason, 2007) - visualization of gain versus loss frame (interactivity) should enhance the individual effect of gain frame on willingness to invest in proposed venture.

Accordingly, the third hypothesis is as follows:

***H3:** The effect of gain versus loss on willingness to invest is stronger for information presented visually than for information presented textually.*

4.3.2. Theoretical background

'Lay rationality refers to the notion of decision making using reason rather than feelings to guide decisions' (Hsee, Yang, Zheng and Wang, 2015: 134). However, individuals differ in their actual usage of feelings versus reason in decision-making - they put different weights on those two factors, which in turn influences behavior patterns. Individuals who are more (less) lay rationalistic, react more (less) favorably to pro-reason decisions and value feelings less (more) in decision making (Hsee, Yang, Zheng and Wang, 2015).

Making decisions based on reasoning rather than on emotions, has important implication for framing effects, since emotions have an influence on opportunity evaluation (Foo, 2011) and a role in framing effects (Miu and Crisan, 2011). Scholars as Kahneman and Frederick (2007); Fagley, Coleman and Simon (2010) conclude that emotional involvement decreases susceptibility to framing. Emotions evoke experiential system which 'is relatively automatic and holistic leading to an automatic contextualization of problems' (McElroy and Seta, 2003: 611). Experiential system processes information automatically, rapidly and is based on intuition and heuristics (Fagley, Coleman and Simon (2010)), which can in turn result in bias of judgement (Shiloh, Salton and Sharabi, 2002). Individuals, who use this system of processing, depend on contextual clues that allow them to make assumptions without deep analysis of material. This type of processing is the most sensitive when contextual clues are framed. Contrarily, according to Shafir, Simonson and Tversky (1993), Stanovich and West (1998), an analysis that is stationed on logic (reasoning) can adjust effects coming from framing.

Individuals who use reasoning that is more skilled and have high cognitive abilities are more likely to avoid fallacies coming from framing.

4.3.3. Hypotheses 4 and 5

More lay rationalistic decision makers are more likely to use reasoning compared to less lay rationalistic decision makers who are more likely to use emotions in their decision-making. Putting more weight on using reasoning instead emotions leads to more systematic and conscious analysis. Prior papers show that decision makers with higher cognitive ability who use systematic analysis of choices, will be more likely to analyze information logically and examine alternative viewpoints, which will lead to higher likelihood of avoiding framing fallacies (Fagley, Coleman and Simon, 2010). Contrary, decision makers who use emotions when making decisions are more likely to use heuristics and will therefore be more prone to framing effects.

Accordingly, the fourth and fifth hypotheses are as follows:

H4: The effect of gain versus loss on willingness to invest is weaker for individuals with high lay rationalism than for individuals with low rationalism.

H5: The effect of visual versus textual presentation on willingness to invest is weaker for individuals with high lay rationalism than for individuals with low rationalism.

4.4. Group decision making

4.4.1. Theoretical background

Usually, entrepreneurial and marketing literature focuses on individual decision-making. Nevertheless in reality, many decisions are made in the group (Arora and Allenby, 1999) and so, the question arises: how would investment decisions under framing effects differ when affected by group and not just individual decision. Literature in this field is however very limited and mixed.

Decisions made in a group diverge from individual decisions in aspects such: as heterogeneity of opinions, knowledge and communication characteristics among group members (Milch, Weber, Appelt, Handgraaf and Krantz, 2009). Stasser and Tituts (1985) figure that when individuals form a group discussion, decision-making can be enhanced. They state that

individual members have limited information that would individually result in biased decision, but conjointly they can construct unbiased alternative of that decision. The same is concluded by meta-analysis of Kühberger (1998) who concludes that decisions reached after group discussion could lead to less powerful effect of framing due to the knowledge sharing on a particular problem. All in all, decision making in groups should be less vulnerable to framing affects due to the following reasons: groups have 'more resources, catch errors that individuals possibly miss and consequently have been shown to be more accurate in some judgement tasks, including numerical estimation and judgements of risks' (Milch, Weber, Appelt, Handgraaf and Krantz, 2009: 243).

4.4.2. Hypotheses 6 and 7

Based on the theory built in previous section, it is assumed that decision-making based on group discussion will evolve in different manner when exposed to framing effects. As previously outlined, individuals must communicate between each other and when they do so, they merge different and sometimes exclusive viewpoints in order to reach a consensus about a decision. I assume that communication and preparation in a group will improve the decision - based on the assumption that those groups are faced with the decision for the first time. As individuals in a group will discuss about presented decision frame, they will share their unique knowledge, viewpoints and as a result, they will be less prone to errors that might arise in each individual (Shaw, 1932; Milch, Weber, Appelt, Handgraaf and Krantz, 2009). From this, it follows that the group will be less biased in their judgements and thus, less prone to effect of framing of presented choices.

Accordingly, the sixth and seventh hypotheses are as follows:

H6: *The effect of gain versus loss on willingness to invest is weaker for individuals making decision in a group setting than for individuals making decision in individual setting.*

H7: *The effect of visual versus textual presentation on willingness to invest is weaker for individuals making decision in a group setting than for individuals making decision in individual setting.*

4.5. Conceptual model

Figure 2 presents the conceptual framework, which summarizes hypotheses described above. The model attempts to determine the effect of framing techniques in business plans on new

venture evaluation. Both independent variables (framing in terms of gain versus loss and visual versus textual presentation) should have positive effect on the willingness to invest (H1 and H2). Secondly, there is interaction of both framing effects (H3), where by the role of visual moderator, independent variable should have even stronger effect on dependent variable. As hypothesized, both individual framing effects are moderated by lay rationality of decision makers (H4 and H5) and by decision-making in a group setting (H6 and H7) where the effect of independent variable on dependent variable should be weaker. See conceptual model as Figure 2 below.

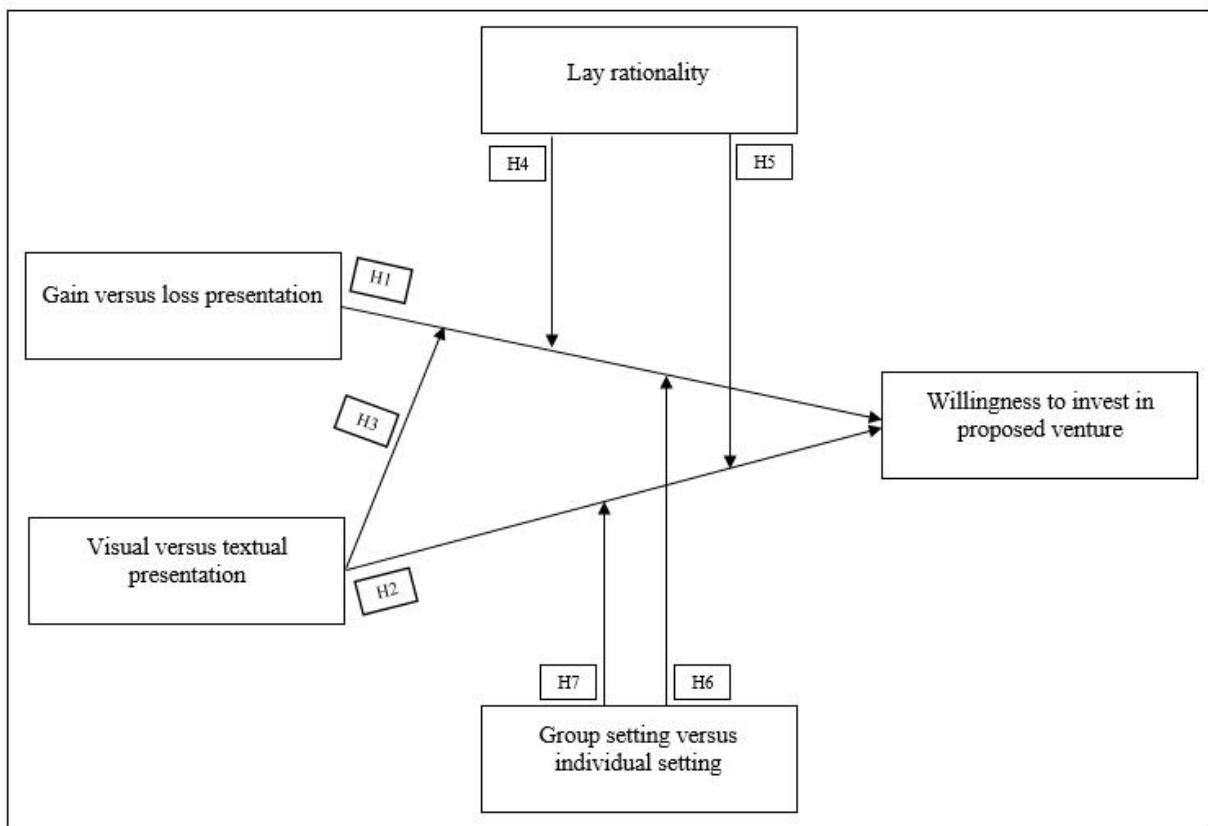


Figure 2: Conceptual model

5. Methodology

5.1. Research method

In order to test the conceptual model proposed above, I chose questionnaire-based experiment as a method. Employing this specific method enables to establish cause and effect relationship – it allows efficient manipulation of independent variable and observation of the effect of this manipulation on dependent variable, while everything else is held constant. Hence, it can be stated that the observed effect was only caused by this certain manipulation of independent variable.

I decided to conduct this experiment based on questionnaire, due to the following advantages: (1) questionnaire enables efficiently and flexible collection of the data from larger set of respondents, (2) it is less costly, (3) easier to be distributed as compared to other means of testing and (4) can be easier customized to research topic with numerous formats and response options (Salkind, 2010).

5.2. Experimental design and subjects

To test the proposed framework, I chose between-groups design due to many reasons from literature. Between-groups design is less time consuming, it offers simplicity, it randomly allocates subjects to different treatments, with no correlation in performance between different treatments (bias of results) (Field and Hole, 2002).

This paper employed a 2 (gain / loss presentation) x 2 (visual / textual presentation) x 2 (individual decision / group decision) between-group factorial design. I divided the experimental design into two parts, one held in individual setting and the second one in a group setting. It follows that subjects were randomly assigned to one of eight different experimental conditions. For this, 247 respondents participated in these two experiments on voluntary basis altogether.

5.2.1. Stimuli and conditions

5.2.1.1. Stimuli

Positive versus negative framing in the terms of gain versus loss

Effect of positive versus negative framing was manipulated with the gain and loss frame. According to scholars (Bazerman, Magliozzi and Neale, 1985; Schurr, 1987), two frames that are an analogy to gain and loss frame proposed by Kahneman and Tversky, are net profit and expenses. ‘If decision maker (i.e. investor) focuses on net profit which is associated with an investment in proposed venture, this perspective is framed in terms of net monetary gain. Conversely, focusing on the expenses associated with alternative agreement levels frames a bargainer's perspective in terms of monetary decrease or loss’ (Schurr, 1987: 351). Hence, individuals exposed to gain frame were given information for 5-year net profit stream – monetary gain; for individuals exposed to loss frame, those information were converted into expenses that they would occur if investing – monetary loss. As already emphasized, both subjects yield the same profit outcomes, with the only difference being in gain or loss frame.

Visual versus textual presentation

The effect of framing in terms of visual presentation was manipulated by changing the format of information with the help of graphs, while everything else in the executive summary remained the same. In the first manipulation, respondents were faced with information written as text and in the second manipulation, respondents were faced with information presented solely as graphs. Again, both stimuli contained 5-year financial stream.

5.2.1.2. Conditions

I based conditions on an executive summary of business plan for a fictional venture that seeks investment funds to establish its business. Executive summary of business plan contained sections that are usually included in the real business plans – contact details, company profile, management, business idea, the service and financial projections. I included the following sections in order to enhance the realism and clarity. I kept everything (the length, format, and all other sections mentions above) else except financial projections constant. Accordingly, the frame of financial projections was changed in order to produce four different versions.

The condition number one was presented positively as gain, whereas the condition number two was presented negatively as loss. Gain condition contained information about net profit and

loss condition contained information about expenses. Note that the amount of information is the same between both manipulations (since $\text{net profit} = \text{gross profit} - \text{expenses}$, as long as revenue is constant in both frames, information outcome is the same), what differs is the perspective (Schurr, 1987).

The condition number three was visual presentation, where above described stimuli was presented as graph, whereas the condition number four was presented textually.

The condition number five was individual setting. Individuals received one version of executive summary and had to make a decision individually. The condition number six was decision making in a group setting. Participants were asked to make a short discussion before deciding in order to estimate the effect of group discussions.

5.2.2. Procedure

Before the actual experiment, I carried out a pretest in order to make sure that respondents perceived directions and questions clear and easy to understand. This was carried out with eight respondents – two respondents received one version of executive summary. This small sample consisted of master students with some prior knowledge about finances. I asked them to fill in trial questionnaire in order to ensure validity and reliability of experiment questionnaire. I also asked them to provide any concerns or comments on the stimulus or questions and they were automatically excluded from the actual experiment, which took place later on. On average, respondents needed 12.7 minutes to finish. Respondents stated that questionnaire is objective, non-biased and of the right length. Pretest showed that the Likert response scales need to be reversed and that numeracy questions should be open questions (choices make a correct answer too obvious) and that an education option “some college but no degree” is not clear, that is why it was left out. Otherwise, the questionnaire and its questions were generally clear. Respondents also indicated some concerns with stimuli and in accordance with that, some changes were done. Respondents emphasized difficulties with the word “pledge,” and that is why it was changed into “ask”. They also stated that they are missing some information – such as future projections, the number of trucks. That is why a sentence on future expansion was added. As all respondents indicated that the length of stimuli is long enough, therefore that was kept the same. Respondents given loss and visual condition also expressed a thought that the figure does not look very negative. That is why a graph was changed slightly.

Four executive summaries with above described stimuli were set and two different experiments were carried out. In general (for both experiments), the first page contained general instructions. Respondents were told that the study intends to study their investment decision. I asked them to read the executive summary very carefully as if they would be the one to invest funds in proposed business and answer all the questions afterwards. Then, one manipulation of executive summary was shown to them. Executive summary was utilized due to the following reasons: it is the most important portion of business plan, it is short enough to represent a valid stimuli and in real life, investors are the most likely to read one-page executive summary out of all other documents (Abrams, 2003; Parhankangas and Ehrlich, 2014).

I carried out experiment 1 (individual setting) with online questionnaire. Each respondent was given above described experiment questionnaire to answer it individually and online.

I carried out experiment 2 (group setting) in person (face-to-face). I grouped respondents two by two and then they were given one of above described executive summaries. Afterwards, they were instructed to read the executive summary together and make a very short discussion based on the plan – whether they would (not) invest and why (not). On this point, it is important to note that my personal interference with respondents was minimal. Afterwards, they were instructed to answer all the questions individually. Their comments were rephrased and some of them are presented in Appendix D.

5.2.3. Measurements

All measurement scales that were used to measure the following variables are found in Appendix A. Please note that for all measurements using Likert Scale, I followed recommendations from prior literature (Green and Rao, 1970; Jacoby and Matell, 1972; Preston and Colman, 2000; Dawes, 2008, etc.) and decided to use seven-point Likert Scale in order to keep validity in my sample.

5.2.3.1. Willingness to invest

To measure willingness to invest, I followed the measure of Yi (1990), which measures purchase intention (measuring evaluation of certain product) by using seven-point Likert Scale ranging from “strongly likely” to “strongly unlikely”. This measurement was adjusted to willingness to invest - respondents were asked to evaluate their willingness to invest in proposed venture from 1 (“strongly disagree”) to 7 (“strongly agree”). See Appendix A.

5.2.3.2. *Lay rationalism*

I measured lay rationalism by following a six-item scale introduced by Hsee Yang, Zheng and Wang (2015). Respondents were given six questions, which were to be evaluated by the seven-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”) – see Appendix A.

5.2.3.3. *Demographics*

Respondents were given standard questions in order to control for demographic variables as they are normally used in prior papers. I measured age, gender and education. To measure the education of respondents, I followed the paper of Hsee Yang, Zheng and Wang (2015).

5.2.3.4. *Numeracy*

Prior literature shows that numeracy of investors is important for the investment behavior and decision-making (for review, see Lipkus, Samsa and Rimer, 2001; Hsee, Yang, Zheng and Wang, 2015; Kleber, Florack and Chladek, 2016). Therefore, I included it as a control variable. I followed the scale derived by Weller, Dieckmann, Tusler, Mertz, Burns and Peters (2013), which combines items from existing numeracy scales of different scholars to create single, shorter scale, which retains the range of difficulty across existing numeracy scales. The scale consists out of eight items, however, four items with the highest outfit and infit were employed. See Appendix A.

5.2.3.5. *Risk attitudes*

In order to control for risk attitudes, I adopted a scale introduced by Weber, Blais and Betz (2002), which evaluates risk attitude in different fields – among others, in finance. All four elements of the risk attitudes scale in finance were employed ranging from 1 (“strongly unlikely”) to 7 (“strongly likely”).

6. Empirical analysis

6.1. Data

6.1.1. Experiment 1 – online experiment (individual setting)

The questionnaire was sent to respondents asking them to participate in an online experiment. The aim was to attract respondents with mixed obtained education, gender and age. Although

143 started an experiment, I excluded 16 of respondents from the analysis due to incomplete data. As a result, a final (net) sample contained 127 respondents. Out of 127 respondents who completed the questionnaire, 58 (45.7%) of them were males and 69 (54.3%) were females. The most respondents were college graduates (55.9%) followed by postgraduates (27.6%) and high school graduates (16.5%). The average age of respondents was 23.5 years.

Following the procedure of Armstrong and Overton (1977), I checked the sample for nonresponse bias in mail surveys. I compared the first half (64) of respondents (those who filled in questionnaire earlier) to the second half (63) of respondents (those who filled in questionnaire late), irrespective of the condition they were assigned to. Afterwards, I employed ANOVA to distinguish between late and early questionnaires. Early and late classification showed that there is no significant difference in terms of age, gender, education, numeracy, risk attitudes, willingness to invest, lay rationality, i.e. no response bias (all p -values > 0.1).

6.1.2. Experiment 2 – face-to-face experiment (group setting)

Experiment 2 – face to face experiment refers to decision making in a group setting.

In face to face experiment (group setting), there were 120 voluntary respondents. No respondent had to be excluded from the sample. Hereby, a net sample contained 120 respondents. Out of 120 respondents who completed the questionnaire, 64 (53.3%) of them were males and 56 (46.7%) were females. The most respondents were high school graduates or equivalent (46.7%) followed by college graduates (41.7%) and post graduates (11.7%). The average age of respondents was 22.3 years.

6.2. Data analysis and results

Variable	Variable description
Gain versus loss presentation (GL)	Value 0 if information is presented as loss; value 1 if information is presented as gain
Visual versus textual presentation (VT)	Value 0 if information is presented as textually; value 1 if information is presented visually
Age	Continuous variable
Gender	Value 0 if respondents is female; value 1 if respondent is male
Education (EDU)	Continuous variable, value of 1 if respondents highest education is less than high school graduate, 2 if high school graduate or equivalent, 3 if college graduate and 4 if post graduate
Lay rationality (LR)	Interval variable, ranging from 1 (strongly disagree) to 7 (strongly agree)
Risk attitudes (RA)	Interval variable, ranging from 1 (strongly likely) to 7 (strongly unlikely)
Numeracy (NU)	Interval variable, ranging from 0 (zero correct answers) to 4 (four correct answers)
Group versus individual setting (GI)	Value 0 if decision is done in individual setting; value 1 if decision is done in group setting

Table 2: Overview of variables

6.2.1. Differences across experimental conditions

I assessed whether random assignment of respondents to four conditions obtained online, through manipulation of (1) gain versus loss and (2) visual versus textual presentation, was successful. To do so, I applied one-way ANOVA to compare respondents in terms of their demographics (i.e., age, gender, and education). As can be seen from the Table 3 below, p-values are higher than 0.50 significance level for all demographic variables. This shows that those four conditions do not significantly differ from each other in terms of age, education and gender. Hence, random assignment of respondents to different conditions was successful.

Variable		Sum of squares	Degrees of freedom	Mean square	F	Sig.
Age	Between groups	12.37	13	0.95	0.67	0.79
	Within groups	160.53	113	1.42		
	Total	172.90	126			
Education	Between groups	7.38	2	3.69	2.77	0.07
	Within groups	165.51	124	1.34		
	Total	172.90	126			
Gender	Between groups	4.98	1	4.98	3.71	0.06
	Within groups	167.92	125	1.34		
	Total	172.90	126			

Table 3: Randomization check across conditions for online experiment (individual setting)

I also assessed whether random assignment of respondents to four conditions, obtained with face-to-face questionnaires (group setting), through manipulation of (1) gain versus loss and (2) visual versus textual presentations was successful. As all p-values are higher than the threshold, this shows that randomization to different conditions was successful.

Variable		Sum of squares	Degrees of freedom	Mean square	F	Sig.
Age	Between groups	40.25	11	3.66	1.42	0.17
	Within groups	277.55	108	2.57		
	Total	317.79	119			
Education	Between groups	8.40	2	4.20	1.59	0.21
	Within groups	309.39	117	2.64		
	Total	317.79	119			
Gender	Between groups	1.08	1	1.08	0.40	0.53
	Within groups	316.72	118	2.68		
	Total	317.79	119			

Table 4: Randomization check across conditions for face-to-face experiment (group setting)

6.2.2. Scale validities

I assessed the Cronbach's alpha for each scale (lay rationality and risk attitudes) in order to check for internal consistency and reliability (Lavrakas, 2008). Please note that as numeracy scale is formative and not reflective scale, Cronbach's alpha was not reported since items do not have to be correlated.

In online experiment (individual setting), I measured lay rationality with six items and (please note that as two items were reversed back, I reverse coded them in analysis). The scale showed a Cronbach's alpha of 0.635 (N = 127). To increase Cronbach's alpha further to more satisfactory level, the reverse coded item number 5 was excluded. Therefore, the final lay rationality variable was computed as a mean of five items with $\alpha = 0.662$, N = 127. In face-to-face experiment (group setting), I measured lay rationality by using only five items. This showed weak Cronbach's Alpha of 0.554 (N = 120). Also with pooled data, Cronbach's Alpha

was too weak ($\alpha = 0.540$, $N = 247$) and that is why I excluded the lay rationality variable from models 7a, 7b and 8.

For control variable risk attitudes, four-item scale was used. I assessed two Cronbach's alphas, each for one experimental part. For the online experiment (individual setting), Cronbach's Alpha showed that ($\alpha = 0.604$, $N = 127$) the scale is weak but still acceptable for the first part (Models 1-6). Exclusion of any item would not improve Cronbach's alpha any further. Hence, as the scale was accepted, risk attitude variable was accepted as control variable and later computed as a mean of four items. For the second part (group setting), the scale was not deemed as acceptable, because it showed too weak internal correlation ($\alpha = 0.467$, $N = 120$). Also by analyzing Cronbach's Alpha with pooled data, Cronbach's Alpha did not improve ($\alpha = 0.583$, $N = 247$). Exclusion of any item would not improve Cronbach's alpha any further. Therefore, the risk attitude variable (control variable) was dropped out of models 7a, 7b, 8.

6.2.3. Regression models

Firstly, I estimated below proposed models for the main effect, controlling for demographic variables, numeracy and in some models also risk attitudes. Afterwards, I added interactions and moderators in models. To test proposed hypotheses, a standard multiple regression analyses were applied. Summary of ANOVA results and coefficient summaries are presented in Tables 5, 6a and 6b below and then each hypothesis is presented together with results.

MODEL 1

a) *The effect of gain versus loss frame on willingness to invest*

$$Y(\text{Willingness to invest}) = b_0 + b_1GL + b_2AGE + b_3EDU + b_4GENDER + b_5RA + b_6NU + e$$

b) *The effect of visual versus textual presentation on willingness to invest*

$$Y(\text{Willingness to invest}) = b_0 + b_1VT + b_2AGE + b_3EDU + b_4GENDER + b_5RA + b_6NU + e$$

MODEL 2

The effect of interaction between visual and textual presentation and gain versus loss frame

$$Y(\text{Willingness to invest}) = b_0 + b_1VT + b_2GL + b_3AGE + b_4EDU + b_5GENDER + b_6RA + b_7NU + b_8VT * GL + e$$

MODEL 3

The effect of lay rationalism on relationship of gain versus loss presentation and willingness to invest

Please note that before estimating this model, variable lay rationalism was mean centered (LRmc) to reduce multicollinearity in multiple moderator regression (Kromrey and Foster-Johnson, 1998).

$$Y (\text{Willingness to invest}) = b_0 + b_1GL + b_2AGE + b_3EDU + b_4GENDER + b_5RA + b_6NU + b_7LRmc + b_8LRmc*GL + e$$

MODEL 4

The effect of lay rationalism on relationship of visual versus textual presentation and willingness to invest

Please note that before estimating this model, variable lay rationalism was mean centered (LRmc) to reduce multicollinearity in multiple moderator regression (Kromrey and Foster-Johnson, 1998).

$$Y (\text{Willingness to invest}) = b_0 + b_1VT + b_2AGE + b_3EDU + b_4GENDER + b_5RA + b_6NU + b_7LRmc + b_8LRmc*VT + e$$

MODEL 5

The effect of lay rationalism on relationship of visual versus textual presentation, gain and loss presentation and willingness to invest

$$Y (\text{Willingness to invest}) = b_0 + b_1VT + b_2GL + b_3AGE + b_4EDU + b_5GENDER + b_6RA + b_7NU + b_8LRmc + b_9LRmc*VT + b_{10}LRmc*GL + e$$

MODEL 6

The effect of lay rationalism on relationship of visual versus textual presentation, gain and loss presentation, interaction between gain and loss presentation and visual and textual presentation, and willingness to invest

$$Y (\text{Willingness to invest}) = b_0 + b_1VT + b_2GL + b_3AGE + b_4EDU + b_5GENDER + b_6RA + b_7NU + b_8LRmc + b_9LRmc*VT + b_{10}LRmc*GL + b_{11}VT * GL$$

MODEL 7

a) *The effect of group discussions on relationship of gain versus loss presentation and*

$$Y (\text{Willingness to invest}) = b_0 + b_1GL + b_2AGE + b_3EDU + b_4GENDER + b_5NU + b_6GI + b_7GI*GL + e$$

b) *The effect of group discussions on relationship of visual versus textual presentation and willingness to invest*

$$Y (\text{Willingness to invest}) = b_0 + b_1VT + b_2AGE + b_3EDU + b_4GENDER + b_5NU + b_6GI + b_7GI*VT + e$$

MODEL 8

The effect of group discussions on relationship of visual versus textual presentation, and gain versus loss presentation and willingness to invest

$$Y (\text{Willingness to invest}) = b_0 + b_1GL + b_2VT + b_3AGE + b_4EDU + b_5GENDER + b_6NU + b_7GI + b_8GI*GL + b_9GI*VT + e$$

	Model 1a	Model 1b	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7a	Model 7b	Model 8
Sum of squares	25.33	15.17	27.43	29.20	15.87	29.45	31.71	31.76	22.03	32.24
Degrees of	6	6	8	8	8	10	11	7	7	9
Mean square	4.22	2.53	3.43	3.65	1.98	2.95	2.88	4.54	3.15	3.58
F	3.43	1.92	2.78	3.00	1.49	2.38	2.35	2.34	1.59	1.83
Sig.	0.00***	0.08*	0.01***	0.00***	1.17	0.01***	0.01***	0.03**	0.14	0.06*
R	0.38	0.30	0.40	0.41	0.30	0.41	0.43	0.25	0.21	0.26
R²	0.15	0.09	0.16	0.17	0.09	0.17	0.18	0.06	0.04	0.07
Adj. R²	0.10	0.04	0.10	0.11	0.03	0.10	0.11	0.04	0.02	0.03

Asterisks indicate significance of coefficients at levels: (***) significance level at 99%, (**) significance level at 95%, (*) significance level at 90% ; total sample size (N) = 127 for models from 1-6, total sample size (N) = 247 for models 7a, 7b and 8

Table 5: ANOVA summary for regression models

	MODEL 1a		Model 1b		Model 2		Model 3		Model 4	
	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.
Constant	5.28 (0.96)	0.00***	5.16 (1.01)	0.00***	5.21 (0.98)	0.00***	5.36 (0.98)	0.00***	5.32 (1.04)	0.00***
Gain versus loss presentation (GL)	0.59 (0.20)	0.00***			0.33 (0.28)	0.24	0.58 (0.20)	0.00***		
Visual versus textual presentation (VT)			0.10 (0.21)	0.64	-0.19 (0.29)	0.52			0.08 (0.21)	0.70
Age	-0.02 (0.04)	0.66	-0.00 (0.04)	0.93	-0.01 (0.04)	0.81	-0.02 (0.04)	0.68	-0.01 (0.04)	0.87
Education (Edu)	-0.32 (0.17)	0.06*	-0.31 (0.17)	0.07*	-0.34 (0.17)	0.05**	-0.36 (0.17)	0.03**	-0.31 (0.17)	0.08*
Gender	-0.44 (0.22)	0.05**	-0.37 (0.22)	0.10***	-0.48 (0.22)	0.03**	-0.47 (0.22)	0.03**	-0.40 (0.23)	0.09*
Risk attitudes (RA)	0.15 (0.10)	0.13	0.15 (1.00)	0.13	0.15 (0.10)	0.13	0.13 (0.10)	0.17	0.14 (0.10)	0.17
Numeracy (NU)	-0.08 (0.11)	0.44	-0.10 (0.11)	0.39	-0.07 (0.11)	0.55	-0.05 (0.11)	0.65	-0.10 (0.11)	0.37
Lay rationality – mean centered (LRmc)							0.28 (0.17)	0.11	0.09 (0.18)	0.60
Visual versus textual presentation * Gain versus loss presentation (VT * GL)					0.51 (0.41)	0.21				
Gain versus loss presentation * Lay rationality (GL * LRmc)							-0.39 (0.24)	0.10*		
Visual versus textual presentation * Lay rationality (VT * LRmc)									7.80*10 ⁻⁵ (0.25)	1.00

Asterisks indicate significance of coefficients at levels: (***) significance level at 99%, (**) significance level at 95%, (*) significance level at 90% ; total sample size (N) = 127 for models from 1-6, total sample size (N) = 247 for models 7a, 7b and 8

Table 6a: Summary of regression models – willingness to invest is dependent variable, standardized and significance values are reported for control, interaction and manipulation terms

	Model 5		Model 6		Model 7a		Model 7b		Model 8	
	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.	Unstandardized Coefficients (SE)	Sig.
Constant	5.28 (1.00)	0.00***	5.23 (1.00)	0.00***	5.63 (0.72)	0.00***	5.79 (0.75)	0.00***	5.63 (0.75)	0.000***
Gain versus loss presentation (GL)	0.58 (0.20)	0.01***	0.31 (0.28)	0.28	0.57 (0.25)	0.02**			0.57 (0.25)	0.02**
Visual versus textual presentation (VT)	0.09 (0.20)	0.66	-0.19 (0.29)	0.52			0.09 (0.25)	0.71	0.08 (0.25)	0.76
Group versus individual decision (GI)					0.49 (0.26)	0.06*	0.29 (0.26)	0.27	0.58 (0.32)	0.07*
Age	-0.02 (0.04)	0.69	-0.01 (0.04)	0.87	-0.02 (0.03)	0.49	-0.02 (0.03)	0.58	-0.02 (0.03)	0.46
Education (Edu)	-0.36 (0.17)	0.04**	-0.38 (0.17)	0.03**	-0.24 (0.15)	0.10*	-0.24 (0.15)	0.10*	-0.24 (0.15)	0.10*
Gender	-0.46 (0.22)	0.04**	-0.52 (0.23)	0.02**	-0.26 (0.18)	0.16	-0.23 (0.19)	0.23	-0.26 (0.19)	0.17
Risk attitudes (RA)	0.14 (0.10)	0.17	0.14 (0.10)	0.16						
Numeracy (NU)	-0.05 (0.11)	0.67	-0.03 (0.11)	0.81	-0.10 (0.11)	0.33	-0.11 (0.11)	0.30	-0.10 (0.11)	0.34
Lay rationality – mean centered (LRmc)	0.28 (0.20)	0.17	0.29 (0.20)	0.14						
Visual versus textual presentation * Gain versus loss presentation			0.56 (0.41)	0.18						
Gain versus loss presentation * Lay rationality (GL * LRmc)	-0.41 (0.25)	0.10*	-0.43 (0.25)	0.09*						
Visual versus textual presentation * Lay rationality (VT * LRmc)	0.00 (0.24)	1.00	-0.03 (0.24)	0.89						
Group versus individual decision * Gain versus loss presentation					-0.61 (0.36)	0.09*			-0.61 (0.36)	0.09*
Group versus individual decision * Visual versus textual							-0.18 (0.36)	0.62	-0.18 (0.36)	0.62

Asterisks indicate significance of coefficients at levels: (***) significance level at 99%, (**) significance level at 95%, (*) significance level at 90% ; total sample size (N) = 127 for models from 1-6, total sample size (N) = 247 for models 7a, 7b and 8

Table 6b: Summary of regression models – willingness to invest is dependent variable, standardized and significance values are reported for control, interaction and manipulation terms

6.3. Results

6.3.1. Hypothesis 1

Hypothesis 1 states that information in business plans, which are presented as gain, instead as loss, will have positive effect on the willingness to invest in proposed venture. ANOVA summary in Table 5 shows that all models containing gain and loss effect are significant. By looking at Table 6a and Table 6b, it can be concluded that gain versus loss variable is significantly and positively related to the willingness to invest in models 1a, 3, 5, 7a and 8 (in models, where there is no interaction between gain versus loss and visual versus textual variable). From that, it follows that gain presentation influences willingness to invest in proposed venture positively compared to loss presentation. Hence, by results from Tables 5, 6a and 6b, the hypothesis 1 is supported.

6.3.2. Hypothesis 2

Hypothesis 2 states that information in business plans, which are presented in visual format, instead in textual format, will have positive effect on the willingness to invest in proposed venture, after controlling for age, education, gender, risk attitudes and numeracy. Looking at Tables 6a and 6b it can be seen that the linear regression behind this model is insignificant. In models 1b, 2, 4, 5, 6, 7b and 8, the effect of visual versus textual presentation on willingness to invest is insignificant even at 90% confidence level. This implies that visual versus textual presentation does not influence willingness to invest in proposed venture, compared to textual presentation and thus results are not in support of hypothesis 2.

6.3.3. Hypothesis 3

Hypothesis 3 states that the effect of gain versus loss presentation on willingness to invest is stronger for presentation in terms of visual format than for presentation in terms of textual format. In order to check this assumption, an interaction variable was created (VT*GL) and added to the model. As indicated in ANOVA Table 5, the model (Model 2) as whole is statistically significant. In this case, independent and control variables which explain about 16% of variation in willingness to invest have significant relationship with willingness to invest (R^2 is 0.16).

Looking at table 6a, the main effects between visual versus textual presentation and gain versus loss presentation on willingness to invest is insignificant. For the interaction term, results show the same trend. However, since all main effects and interaction effects were not significantly related to willingness to invest, hypothesis 3 cannot be supported.

6.3.4. Hypotheses 4 and 5

To verify hypothesis 4, an additional variable lay rationalism was added to the model in order to check what happens to the main effect between gain versus loss presentation and willingness to invest when lay rationality of individuals is taken into account. In previous models, I found that gain versus loss influences willingness to invest positively (see models 1a, 3, 5, 7a and 8). By adding lay rationality in the model, the relationship still holds and the model overall is significant. Lay rationality does not influence willingness to invest directly, but it influences the relationship between the gain versus loss and willingness to invest (model 3). This implies that there is a change in the effect of gain versus loss on the willingness to invest when lay rationality increases for one unit, but only if 90% confidence level is taken into account. As the relationship is negative, it can be stated that higher lay rationality negatively moderates the effect of gain frame on willingness to invest. Therefore, hypothesis 4 is supported.

To verify Hypothesis 5, an additional variable lay rationalism was added to the model in order to check what happens to the main effect between gain versus loss presentation and willingness to invest when lay rationality of individuals is taken into account. In previous models (1b, 2, 4, 5, 6, 7b, 8), I found that visual versus textual presentation do not influence willingness to invest. By adding lay rationality in the model, the relationship is still insignificant. In addition, lay rationality does not influence willingness to invest neither influences the relationship between visual versus textual presentation (model 4). Therefore, the hypothesis 5 is rejected.

6.3.5. Hypotheses 6 and 7

To verify Hypothesis 6, an additional variable group setting was added to the model in order to check what happens to the main effect between gain versus loss presentation and willingness to invest when individuals pre-discuss the decision in a group. Again, I find that gain versus loss influences willingness to invest positively (see models 1a, 3, 5, 7a and 8). By adding group setting in the model, the relationship still holds and the model overall is significant. Group setting positively influences willingness to invest at 90% confidence level (models 7a and 8). Group setting also negatively moderates the main effect between the gain versus loss

presentation and willingness to invest at 90% confidence level (models 7a and 8). As the relationship is negative, it can be stated that decision making in a group decreases the effect of gain frame on willingness to invest. Hence, the hypothesis 6 is confirmed at 90% confidence level.

To verify Hypothesis 7, an additional variable group versus individual decision making was added to the model in order to check what happens to the main effect between visual versus textual presentation and willingness to invest individuals pre-discuss the decision in a group. In previous models (1b, 2, 4, 5, 6, 7b, 8), I found that visual versus textual presentation do not influence willingness to invest. By adding group setting in the model, the relationship is still insignificant. In addition, group setting not influence willingness to invest neither influences the relationship between visual versus textual presentation. Therefore, the hypothesis 7 is rejected.

6.3.6. Overview of hypotheses

Hypothesis		Proposed effect	Result
1	Information presented in positive frame (gain) instead in negative frame (loss) will have a positive effect on the willingness to invest in proposed venture	+	Supported
2	Framing of information in visual format instead in textual format will have a positive effect on the willingness to invest in proposed venture	+	Not supported
3	The effect of gain versus loss on willingness to invest is stronger for information presented visually than for information presented textually	+	Not supported
4	The effect of gain versus loss on willingness to invest is weaker for individuals with high lay rationalism than for individuals with low rationalism	-	Supported
5	The effect of visual versus textual presentation on willingness to invest is weaker for individuals with high lay rationalism than for individuals with low rationalism	-	Not supported
6	The effect of gain versus loss on willingness to invest is weaker for individuals making decision in a group setting than for individuals making decision in individual setting	-	Supported
7	The effect of visual versus textual presentation on willingness to invest is weaker for individuals making decision in a group setting than for individuals making decision in individual setting	-	Not supported

Table 7: Overview of hypotheses

7. Conclusion

7.1. General discussion

Results in this paper provide new insights what might be factors in business plans that influence business decisions. I found support for three out of seven proposed hypotheses (Table 7) at 90% confidence level.

Firstly, results show that individuals are more willing to invest their funds in company, when information in business plans is presented as a gain instead as loss (confirmation of hypothesis 1). Gain presentation has positive and stronger effect on willingness to invest in proposed venture, compared to loss presentation as loss information patents larger and more negative to profit-seeking individuals. This is in line with academic papers that conclude about shifting effects in decision making when comes to gain versus loss framing (see literature review for more details). This relationship was found significant in almost all models. Specifically, looking at model 1a, the value of b_{GL} / standardized coefficient of 0.59 implies that presenting information as gain, increases willingness to invest by 0.59 points relative to presenting information as loss, *ceteris paribus*, when individuals make their decisions individually.

Another interesting finding is that the effect of framed content on individual decisions was moderated by the usage of reasoning instead of emotions - so called lay rationalism. Specifically, the value of $b_{GL \times LR_{mc}} = -0.39$ implies that there is a negative change in the effect of gain versus loss on the willingness to invest of 0.39 points when lay rationality increases for one unit, but only if 90% confidence level is taken into account. In line with Hsee, Yang, Zheng and Wang (2015), more lay rationalistic individuals chose what is more reasonable. Hence, this is a proof (hypothesis 4) that using cognitive thinking instead of emotions and affect enables individuals to spot framing issues in terms of gain versus loss more effectively.

Furthermore, this study attempted to determine the influence of group discussions – whether individuals will generate stronger framing effects compared to individuals who act as part of a group (Kühberger, 1998). As proposed in theoretical section, group setting influences the positive relationship between gain versus loss presentation and willingness to invest. Interaction variable between gain versus loss and group versus individual decision-making was found significant and negative at 90% confidence level ($b_{GL \times GL} = -0.61$, $p = 0.09$). This implies that there is a change in the impact of gain versus loss on the willingness to invest; taking into

account group setting as moderator, but only at 90% confidence level (supported hypothesis 6). As the relationship is negative, it can be stated that decision making in a group decreases the effect of gain frame on willingness to invest. This implies that group discussions “de-bias” individuals and display a framing manipulation as less effective (Kühberger, 1998).

Secondly, the positive relationship between visual versus textual presentation and willingness to invest was not found in any of the models. I did not find any difference between individuals who were presented with version containing visual presentation and individuals who were presented with version containing textual presentation, irrespective of lay rationality of individuals or whether the decision is made in individual or group setting.

Additionally, this paper took into account the demographic characteristics of individuals. The study found that males were less likely to invest in proposed ventures compared to females. This is not in line with many scholars, who claim that females are more risk-averse and conservative when it comes to investing (Watson and Robinson, 2003; Robb and Watson, 2012). One likely explanation is that, as the venture is considered as environmentally and sustainably good, that might provoke stronger positive emotions in females, compared to males and that could explain gender differences in this financial decision (Eriksson and Simpson, 2010). By establishing a simple regression on lay rationality between females versus males, males seem to show higher levels of lay rationality. Hence, females in my sample report higher usage of emotions and not reasoning. Education of individuals and willingness to invest was found as negative in all the models, suggesting that as the level of education increases, the willingness to invest decreases. Age was not significant in any of the models and this might be the consequence of not having high variation of age of the respondents.

7.2. Managerial and academic contribution

7.2.1. Academic contribution

Findings of this study are important for two streams of literature, namely consumer psychology and decision-making and for literature of business planning.

To begin, this topic contributes to the literature of business planning and new ventures. It adds a new factor that might be crucial when investors are choosing whether to invest in the proposed venture or not (see Table 1 for other factors influencing investment decisions). In addition, the literature on factors that affect the success of business plans is limited - this study is one of the

first studies that tackles framing effects of content in business plans. I found that investors are much more likely to invest in a venture, when the information about the venture is presented in positive way. If business plan is written in such a way that it emphasizes the gains coming from investing, this will most likely lead to more positive decision. The extent of this success depends of course on the personality of investor – for example, how likely he is to use reasoning instead emotions and whether investor is screening business plan alone or as a part of the group.

Moreover, the study also benefits the literature of consumer psychology and decision-making. Firstly, as part of consumer psychology, it contributes to the field of pricing and promotions. Consumers will be more likely and willing to commit to a choice of product if prices and promotions would be targeted as gains in positive sense, rather than as losses. In this field, it also benefits the limited literature of using rational, cognitive reasoning instead of basing decisions on emotions. Secondly, the study benefits the literature of consumer decision making, where certain behavior (product preferences, etc.) would be enhanced with gain framed messages. The biggest contribution of these findings would be in the field of group decision-making, since currently the literature in this field is limited. Where few studies conclude that framing effects in a group would lead to reaching extreme conclusions because of group polarization, this study suggests that individuals will be less prone to framing biases when making decisions in groups.

7.2.2. Managerial contribution

The findings of this paper are also important for investors and managers who invest money in the new ventures and for entrepreneurs who seek funding.

The results suggest that investors should rely on the reasoning and not emotions when deciding whether to invest based on business plan. I found out that the usage of reasoning weakens the effects coming from framing. Therefore, managers and investors should avoid or at least limit the usage of emotions in their decision-making and rather be guided by the reasoning.

Additionally, this study finds out that investors could “de-bias” themselves if they would screen business proposals in a group setting. My findings indicate that framing effects were weaker for individuals who screen business plans in a group setting. Therefore, investors and managers could pre-discuss business plans; share their unique viewpoints, concerns and at the same base their decision making on reasoning in order to avoid any irrational decisions.

This study also holds implications for entrepreneurs. It adds a new insight or factor on how to create more attractive and irresistible business plans and thus persuade potential investors to provide financing for proposed venture and its growth. By using positive frames, the investors would be more willing to put funds in the proposed venture as conceptualized. Gain frame will evoke favorable evaluations, which are correlated with choosing rather than rejecting. At this point, it is worth noticing that the strength of gain frame effect will depend on the type of investors. Namely, entrepreneurs should target those investors who are less lay rationalistic. This is because investors who are using reasoning instead of emotions are less willing to invest their money if the content is framed, i.e. they are less prone to framing.

Additionally, entrepreneurs should not target the group of investors, because group discussions are found to be very effective against biases coming from framing. If entrepreneur is trying to frame the information in such a way so that it looms more positively, the group of investors will most probably be more likely to spot those effects.

7.3. Limitations and Future Research Directions

The first limitation is related to the sample. Respondents follow different majors and study programs (marketing, financial economics, etc.). Therefore, they have different educational background and that could affect their ability to spot framing fallacies. Additionally, they have very limited or non-investing experience. Therefore, in the future, it would be better to compose a sample of business professionals with broad knowledge and investing experience in order to get more valid and credible results.

Secondly, as already outlined, the lack of support for hypotheses 2 (visual versus textual presentation) and 3 (the moderating role of visual on gain presentation) might lie in the light of the amount of information to process. In the stimuli, I included just 5-year financial stream, which was somewhat easy to read and process in both formats. This leaves the opportunity in research to expand the textual and visual presentation by including more data in order to increase the difficulty of processing it. It would also be a good step forward if including the style of cognitive processing as a moderator to see whether this affects the processing of information (as suggested by Chan and Park, 2015).

In the light of previous paragraph, the future research could also take a step forward in time management. In my experiment, I noticed that as participants were not time limited, they took time in looking at financial data. For example, in the case of loss frame, they took time to

calculate the difference between gross profit and expenses and they could see that the data is not so negative in reality. In order to create a room for more difficult processing of information and limit the focus on other factors of business plan, I would suggest limiting the available time for screening of executive summary (since also in real life, investors spend very limited amount of time on screening of information).

As already outlined, group setting was composed out of two individuals. The future research could focus on the effect of the size of the group. As stated by Kühberger (1998), framing effects in a group depend as well on the number of group members. Therefore, as the future direction, the moderator analysis could be done in order to check the effect of the group size. Additionally, as scholars find differences between males and females when it comes to investing and risk-taking, researchers could also test whether the composition of the group in terms of gender would affect the decision.

Paese, Bieser and Tubbs (1993) conclude that leaders of the group shape the final decision of the group. In some cases it was very hard to prepare individuals to discuss – in many cases, there was just one individual expressing his opinion and the other individual just agreeing and not compelling the other one. To account for this, the future research could do a controlled experiment where each individual has to express his opinion and then challenge each other to reach a conclusion.

8. Literature list

- Abrams, R. M. (2003). The successful business plan: secrets & strategies. The Planning Shop.
- Alsos, G. A., Isaksen, E. J., & Ljunggren, E. (2006). New Venture Financing and Subsequent Business Growth in Men- and Women-Led Businesses. *Entrepreneurship theory and practice*, 30(5), 667-686.
- Ambady, N., & Gray, H. M. (2002). On being sad and mistaken: Mood effects on the accuracy of thin-slice judgments. *Journal of personality and social psychology*, 83(4), 947.
- Ambady, N., Bernieri, F. J., & Richeson, J. A. (2000). Toward a histology of social behavior: Judgmental accuracy from thin slices of the behavioral stream. In *Advances in experimental social psychology* (Vol. 32, pp. 201-271). Academic Press.
- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of marketing research*, 396-402.
- Arora, N., & Allenby, G. M. (1999). Measuring the influence of individual preference structures in group decision making. *Journal of Marketing Research*, 476-487.
- Barberis, N., Huang, M., & Santos, T. (2001). Prospect theory and asset prices. *The quarterly journal of economics*, 116(1), 1-53.
- Baron, R. A. (2008). The role of affect in the entrepreneurial process. *Academy of management Review*, 33(2), 328-340.
- Barrow, C., Barrow, P., & Brown, R. (2012). *The business plan workbook*. Kogan Page Publishers.
- Bazerman, M. H., Maglioni, T., & Neale, M. A. (1985). Integrative bargaining in a competitive market. *Organizational behavior and human Decision Processes*, 35(3), 294-313.
- Beattie, V., & Jones, M. J. (2002). The impact of graph slope on rate of change judgments in corporate reports. *Abacus*, 38(2), 177-199.
- Bettman, J. R., & Kakkar, P. (1977). Effects of information presentation format on consumer information acquisition strategies. *Journal of Consumer Research*, 3(4), 233-240.
- Bhidé, A. V. (2003). *The origin and evolution of new businesses*. Oxford University Press.
- Biswas, D. (2009). The effects of option framing on consumer choices: Making decisions in rational versus experiential processing modes. *Journal of Consumer Behaviour*, 8(5), 284-299.
- Brinckmann, J., Grichnik, D., & Kapsa, D. (2010). Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms. *Journal of Business Venturing*, 25(1), 24-40.
- Buda, R., & Zhang, Y. (2000). Consumer product evaluation: the interactive effect of message framing, presentation order, and source credibility. *Journal of Product & Brand Management*, 9(4), 229-242.
- Campbell, L., & Diamond, W. D. (1990). Framing and Sales Promotions: The Characteristics of a "Good Deal". *Journal of Consumer Marketing*, 7(4), 25-31.
- Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M. (2005, August). Entrepreneurial passion: the nature of emotions in entrepreneurship. In *Academy of Management Proceedings* (Vol. 2005, No. 1, pp. G1-G6). Briarcliff Manor, NY 10510: Academy of Management.
- Carpentier, C., & Suret, J. M. (2015). Angel group members' decision process and rejection criteria: A longitudinal analysis. *Journal of Business Venturing*, 30(6), 808-821.
- Chan, C. R., & Park, H. D. (2015). How images and color in business plans influence venture investment screening decisions. *Journal of business Venturing*, 30(5), 732-748.
- Chen, S. F. S., Monroe, K. B., & Lou, Y. C. (1998). The effects of framing price promotion messages on consumers' perceptions and purchase intentions. *Journal of retailing*, 74(3), 353-372.
- Chen, X. P., Yao, X., & Kotha, S. (2009). Entrepreneur passion and preparedness in business plan presentations: a persuasion analysis of venture capitalists' funding decisions. *Academy of Management journal*, 52(1), 199-214.
- Cheng, P. Y., & Chiou, W. B. (2008). Framing effects in group investment decision making: Role of group polarization. *Psychological reports*, 102(1), 283-292.
- Chwolka, A., & Raith, M. G. (2012). The value of business planning before start-up—A decision-theoretical perspective. *Journal of business venturing*, 27(3), 385-399.
- Clark, C. (2008). The impact of entrepreneurs' oral 'pitch' presentation skills on business angels' initial screening investment decisions. *Venture Capital*, 10(3), 257-279.
- Darke, P. R., & Chung, C. M. (2005). Effects of pricing and promotion on consumer perceptions: it depends on how you frame it. *Journal of Retailing*, 81(1), 35-47.
- Davison, J. (2011). Paratextual framing of the annual report: Liminal literary conventions and visual devices. *Critical Perspectives on Accounting*, 22(2), 118-134.
- Dawes, J. (2008). Do data characteristics change according to the number of scale points used? *International journal of market research*, 50(1), 61-77.
- DelVecchio, D., Krishnan, H. S., & Smith, D. C. (2007). Cents or percent? The effects of promotion framing on price expectations and choice. *Journal of Marketing*, 71(3), 158-170.
- Emby, C., & Finley, D. (1997). Debiasing framing effects in auditors' internal control judgments and testing decisions. *Contemporary Accounting Research*, 14(2), 55-77.
- Eriksson, K., & Simpson, B. (2010). Emotional reactions to losing explain gender differences in entering a risky lottery. *Judgment and Decision Making*, 5(3), 159.
- Fagley, N. S., Coleman, J. G., & Simon, A. F. (2010). Effects of framing, perspective taking, and perspective (affective focus) on choice. *Personality and Individual Differences*, 48(3), 264-269.
- Field, A., & Hole, G. (2002). *How to design and report experiments*. Sage.

- Foo, M. D. (2011). Emotions and entrepreneurial opportunity evaluation. *Entrepreneurship Theory and Practice*, 35(2), 375-393.
- Forlani, D., & Mullins, J. W. (2000). Perceived risks and choices in entrepreneurs' new venture decisions. *Journal of Business Venturing*, 15(4), 305-322.
- Fox, S., & Dayan, K. (2004). Framing and risky choice as influenced by comparison of one's achievements with others: The case of investment in the stock exchange. *Journal of Business and Psychology*, 18(3), 301-321.
- Fried, V. H., & Hisrich, R. D. (1994). Toward a model of venture capital investment decision making. *Financial management*, 28-37.
- Fukukawa, H., & Mock, T. J. (2011). Audit risk assessments using belief versus probability. *Auditing: A Journal of Practice & Theory*, 30(1), 75-99.
- Garbarino, E. C., & Edell, J. A. (1997). Cognitive effort, affect, and choice. *Journal of consumer research*, 24(2), 147-158.
- Glaser, M., Langer, T., Reynders, J., & Weber, M. (2007). Framing effects in stock market forecasts: The difference between asking for prices and asking for returns. *Review of Finance*, 11(2), 325-357.
- Green, P. E., & Rao, V. R. (1970). Rating scales and information recovery. How many scales and response categories to use? *The Journal of Marketing*, 33-39.
- Greene, F. J., & Hopp, C. (14. July 2017). Research: Writing a Business Plan Makes Your Startup More Likely to Succeed. Accessed from Harvard Business Review: <https://hbr.org/2017/07/research-writing-a-business-plan-makes-your-startup-more-likely-to-succeed>.
- Gruber, M., 2007. Uncovering the value of planning in new venture creation: a process and contingency perspective. *Journal of Business Venturing* 22(6), 782-807.
- Hall, J., & Hofer, C. W. (1993). Venture capitalists' decision criteria in new venture evaluation. *Journal of business venturing*, 8(1), 25-42.
- Hisrich, R. D., & Jankowicz, A. D. (1990). Intuition in venture capital decisions: An exploratory study using a new technique. *Journal of business venturing*, 5(1), 49-62.
- Honig, B., & Karlsson, T. (2004). Institutional forces and the written business plan. *Journal of Management*, 30(1), 29-48.
- Hsee, C. K., Yang, Y., Zheng, X., & Wang, H. (2015). Lay rationalism: Individual differences in using reason versus feelings to guide decisions. *Journal of Marketing Research*, 52(1), 134-146.
- Hsu, D. H. (2007). Experienced entrepreneurial founders, organizational capital, and venture capital funding. *Research Policy*, 36(5), 722-741.
- Ito, T. A., Larsen, J. T., Smith, N. K., & Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of personality and social psychology*, 75(4), 887.
- Jacoby, J., & Matell, M. S. (1971). Three-point Likert scales are good enough. *Journal of marketing research*, 8(4), 495-500.
- Jamal, K., Johnson, P. E., & Berryman, R. (1995). Detecting framing effects in financial statements. *Contemporary Accounting Research*, 12(1), 85-105.
- Janiszewski, C., & Cunha Jr, M. (2004). The influence of price discount framing on the evaluation of a product bundle. *Journal of Consumer Research*, 30(4), 534-546.
- Janiszewski, C., Silk, T., & Cooke, A. D. (2003). Different scales for different frames: The role of subjective scales and experience in explaining attribute-framing effects. *Journal of Consumer Research*, 30(3), 311-325.
- Jarvenpaa, S. L. (1989). The effect of task demands and graphical format on information processing strategies. *Management science*, 35(3), 285-303.
- Johnson, P. E., Jamal, K., & Berryman, R. G. (1991). Effects of framing on auditor decisions. *Organizational Behavior and Human Decision Processes*, 50(1), 75-105.
- Kahneman, D., & Frederick, S. (2007). Frames and brains: Elicitation and control of response tendencies. *Trends in cognitive sciences*, 11(2), 45-46.
- Kanouse, D. E. (1984). Explaining negativity biases in evaluation and choice behavior: Theory and research. *ACR North American Advances*.
- Karlsson, T., & Honig, B. (2009). Judging a business by its cover: An institutional perspective on new ventures and the business plan. *Journal of Business Venturing*, 24(1), 27-45.
- Keh, H. T., Foo, M. D., & Lim, B. C. (2002). Opportunity evaluation under risky conditions: The cognitive processes of entrepreneurs. *Entrepreneurship theory and practice*, 27(2), 125-148.
- Kim, J., Kim, J. E., & Marshall, R. (2014). Search for the underlying mechanism of framing effects in multi-alternative and multi-attribute decision situations. *Journal of Business Research*, 67(3), 378-385.
- Kirsch, D., Goldfarb, B., & Gera, A. (2009). Form or substance: the role of business plans in venture capital decision making. *Strategic Management Journal*, 30(5), 487-515.
- Kleber, J., Florack, A., & Chladek, A. (2016). How to present donations: the moderating role of numeracy in cause-related marketing. *Journal of Consumer Marketing*, 33(3), 153-161.
- Kraus, S., & Schwarz, E. (2006). The role of pre-start-up planning in new small business. *International Journal of Management and Enterprise Development*, 4(1), 1-17.
- Kromrey, J. D., & Foster-Johnson, L. (1998). Mean centering in moderated multiple regression: Much ado about nothing. *Educational and Psychological Measurement*, 58(1), 42-67.
- Kühberger, A. (1998). The influence of framing on risky decisions: A meta-analysis. *Organizational behavior and human decision processes*, 75(1), 23-55.
- Kumar, A., & Lim, S. S. (2008). How do decision frames influence the stock investment choices of individual investors? *Management science*, 54(6), 1052-1064.
- Lachman, R. (1980). Toward measurement of entrepreneurial tendencies. *Management International Review*, 108-116.
- Lange, J.E., Mollov, A., Pearlmutter, M., Singh, S., Bygrave,

- W.D., 2007. Pre-start-up formal business plans and post-start-up performance: a study of 116 new ventures. *Venture Capital* 9(4), 237-256.
- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Sage Publications.
- Levin, I. P., Johnson, R. D., Russo, C. P., & Deldin, P. J. (1985). Framing effects in judgment tasks with varying amounts of information. *Organizational behavior and human decision processes*, 36(3), 362-377.
- Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational behavior and human decision processes*, 76(2), 149-188.
- Lipkus, I. M., Samsa, G., & Rimer, B. K. (2001). General performance on a numeracy scale among highly educated samples. *Medical decision making*, 21(1), 37-44.
- Lurie, N. H., & Mason, C. H. (2007). Visual representation: Implications for decision making. *Journal of Marketing*, 71(1), 160-177.
- Lutz, K. A., & Lutz, R. J. (1977). Effects of interactive imagery on learning: Application to advertising. *Journal of Applied Psychology*, 62(4), 493.
- Macmillan, I. C., Siegel, R., & Narasimha, P. S. (1985). Criteria used by venture capitalists to evaluate new venture proposals. *Journal of Business venturing*, 1(1), 119-128.
- Macmillan, I. C., Zemann, L., & Subbanarasimha, P. N. (1987). Criteria distinguishing successful from unsuccessful ventures in the venture screening process. *Journal of business venturing*, 2(2), 123-137.
- Maheswaran, D., & Meyers-Levy, J. (1990). The influence of message framing and issue involvement. *Journal of Marketing research*, 361-367.
- March, J. G., & Shapira, Z. (1987). Managerial perspectives on risk and risk taking. *Management science*, 33(11), 1404-1418.
- Martens, M. L., Jennings, J. E., & Jennings, P. D. (2007). Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition. *Academy of Management Journal*, 50(5), 1107-1132.
- Mason, C., & Rogers, A. (1997). The business angel's investment decision: An exploratory analysis. In *National Small Firms Policy and Research Conference* (pp. 29-46). Cranfield School of management.
- Maxwell, A. L., & Lévesque, M. (2014). Trustworthiness: A critical ingredient for entrepreneurs seeking investors. *Entrepreneurship Theory and Practice*, 38(5), 1057-1080.
- McElroy, T., & Seta, J. J. (2003). Framing effects: An analytic-holistic perspective. *Journal of Experimental Social Psychology*, 39(6), 610-617.
- Metrick, A., & Yasuda, A. (2011). Venture capital and other private equity: a survey. *European Financial Management*, 17(4), 619-654.
- Milch, K. F., Weber, E. U., Appelt, K. C., Handgraaf, M. J., & Krantz, D. H. (2009). From individual preference construction to group decisions: Framing effects and group processes. *Organizational Behavior and Human Decision Processes*, 108(2), 242-255.
- Mittiness, C. R., Baucus, M. S., & Sudek, R. (2012). Horse vs. Jockey? How stage of funding process and industry experience affect the evaluations of angel investors. *Venture Capital*, 14(4), 241-267.
- Miu, A. C., & Crişan, L. G. (2011). Cognitive reappraisal reduces the susceptibility to the framing effect in economic decision making. *Personality and Individual Differences*, 51(4), 478-482.
- Monroe, K. B., & Chapman, J. D. (1987). Framing effects on buyers' subjective product evaluations. *ACR North American Advances*
- Morelix, A., & Russell-Fritch, J. (2017). *Kauffman Index 2017: Growth Entrepreneurship National Trends*.
- Mowen, M. M., & Mowen, J. C. (1986). An empirical examination of the biasing effects of framing on business decisions. *Decision Sciences*, 17(4), 596-602.
- Mueller, J. M., & Anderson, J. C. (2002). Decision aids for generating analytical review alternatives: The impact of goal framing and audit-risk level. *Behavioral Research in Accounting*, 14(1), 157-177.
- Nagy, B. G., Pollack, J. M., Rutherford, M. W., & Lohrke, F. T. (2012). The influence of entrepreneurs' credentials and legitimization management behaviors on perceptions of new venture legitimacy. *Entrepreneurship Theory and Practice*, 36(5), 941-965.
- Nivi, B. (10. February 2009). How Do I Get Meetings With Investors? Accessed from Harvard Business Review: <https://hbr.org/2009/02/how-do-i-get-meetings-with-inv>.
- O'Keefe, D. J., & Jensen, J. D. (2008). Do loss-framed persuasive messages engender greater message processing than do gain-framed messages? A meta-analytic review. *Communication Studies*, 59(1), 51-67.
- Orquin, J. L., & Loose, S. M. (2013). Attention and choice: A review on eye movements in decision making. *Acta psychologica*, 144(1), 190-206.
- Orser, B. J., Riding, A. L., & Manley, K. (2006). Women entrepreneurs and financial capital. *Entrepreneurship Theory and Practice*, 30(5), 643-665.
- Paese, P. W., Bieser, M., & Tubbs, M. E. (1993). Framing effects and choice shifts in group decision making. *Organizational Behavior and Human Decision Processes*, 56(1), 149-165.
- Parhankangas, A., & Ehrlich, M. (2014). How entrepreneurs seduce business angels: An impression management approach. *Journal of Business Venturing*, 29(4), 543-564.
- Park, C. W., Jun, S. Y., & MacInnis, D. J. (2000). Choosing what I want versus rejecting what I do not want: An application of decision framing to product option choice decisions. *Journal of Marketing Research*, 37(2), 187-202.
- Preston, C. C., & Colman, A. M. (2000). Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. *Acta psychologica*, 104(1), 1-15.
- Rea, R. H. (1989). Factors affecting success and failure of seed capital/start-up negotiations. *Journal of business Venturing*, 4(2), 149-158.

- Robb, A. M., & Watson, J. (2012). Gender differences in firm performance: Evidence from new ventures in the United States. *Journal of Business Venturing*, 27(5), 544-558.
- Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. *Personality and social psychology review*, 5(4), 296-320.
- Sahlman, A. W. (July-August 1997). How to Write a Great Business Plan? Accessed from Harvard Business Review: <https://hbr.org/1997/07/how-to-write-a-great-business-plan>.
- Salkind, N. J. (Ed.). (2010). *Encyclopedia of research design* (Vol. 1). Sage.
- Schurr, P. H. (1987). Effects of gain and loss decision frames on risky purchase negotiations. *Journal of Applied Psychology*, 72(3), 351.
- Sethi, R. (2000). New product quality and product development teams. *Journal of Marketing*, 64(2), 1-14.
- Shafir, E. (1993). Choosing versus rejecting: Why some options are both better and worse than others. *Memory & cognition*, 21(4), 546-556.
- Shafir, E., Simonson, I., & Tversky, A. (1993). Reason-based choice. *Cognition*, 49(1-2), 11-36.
- Shane, S., & Delmar, F. (2004). Planning for the market: business planning before marketing and the continuation of organizing efforts. *Journal of Business Venturing*, 19(6), 767-785.
- Shaw, M. E. (1932). A comparison of individuals and small groups in the rational solution of complex problems. *The American Journal of Psychology*, 44(3), 491-504.
- Shiloh, S., Salton, E., & Sharabi, D. (2002). Individual differences in rational and intuitive thinking styles as predictors of heuristic responses and framing effects. *Personality and Individual Differences*, 32(3), 415-429.
- Sinha, I., & Smith, M. F. (2000). Consumers' perceptions of promotional framing of price. *Psychology & Marketing*, 17(3), 257-275.
- Stanovich, K.E., & West, R.F. (1998). Individual differences in framing and conjunction effects. *Thinking and Reasoning*, 4, 289-317.
- Stasser, G., & Titus, W. (1985). Pooling of unshared information in group decision making: Biased information sampling during discussion. *Journal of personality and social psychology*, 48(6), 1467.
- Thomas Zoëga Ramsøy (2015) Introduction to Neuromarketing and consumer neuroscience, Neurons Inc. Consultancy. EndFragment
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211(4481), 453-458.
- Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *Journal of business*, S251-S278.
- Tyebee, T. T., & Bruno, A. V. (1984). A model of venture capitalist investment activity. *Management science*, 30(9), 1051-1066.
- Unnava, H. R., & Burnkrant, R. E. (1991). An imagery-processing view of the role of pictures in print advertisements. *Journal of Marketing Research*, 226-231.
- Watson, J., & Robinson, S. (2003). Adjusting for risk in comparing the performances of male-and female-controlled SMEs. *Journal of business venturing*, 18(6), 773-788.
- Weber, E. U., Blais, A. R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of behavioral decision making*, 15(4), 263-290.
- Weller, J. A., Dieckmann, N. F., Tusler, M., Mertz, C. K., Burns, W. J., & Peters, E. (2013). Development and testing of an abbreviated numeracy scale: A Rasch analysis approach. *Journal of Behavioral Decision Making*, 26(2), 198-212.
- Wells, W. A. (1974). *Venture capital decision-making* (Doctoral dissertation, Carnegie-Mellon University).
- Yi, Yougae: Cognitive and Affective Priming Effects of the Context for Print Advertisements. *Journal of Advertising* 19 (1990): 40-48.

9. Appendices

Appendix A – Constructs and measurements used in questionnaire

Willingness to invest

Willingness to invest in proposed venture (Yi, 1990): “Please evaluate the following statement, ranging from 1 (strongly disagree) to 7 (strongly agree): On the basis of executive summary presented, I am willing to invest in proposed venture.”

-
- | | | |
|------------------------------|---------------------------|-----------------------|
| 1. ... Strongly disagree | 4. ... Undecided | 7. ... Strongly agree |
| 2. ... Disagree | 5. ... More or less agree | |
| 3. ... More or less disagree | 6. ... Agree | |

Lay rationalism

Lay rationalism (Hsee, Yang, Zheng and Wang, 2015): “Please evaluate the following statements, ranging from 1 (strongly disagree) to 7 (strongly agree):”

- a) “When making decisions, I like to analyze financial costs and benefits and resist the influence of my feelings.”
- b) “When choosing between two options, one of which makes me feel better and the other better serves the goal I want to achieve, I choose the one that makes me feel better (R).”
- c) “When making decisions, I think about what I want to achieve rather than how I feel.”
- d) “When choosing between two options, one of which is financially superior and the other “feels” better to me, I choose the one that is financially better.”
- e) “When choosing between products, I rely on my gut feelings rather than on product specifications (numbers and objective description (R).”
- f) “When making decisions, I focus on objective facts rather than subjective feelings.”

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- | | | |
|------------------------------|---------------------------|-----------------------|
| 1. ... Strongly disagree | 4. ... Undecided | 7. ... Strongly agree |
| 2. ... Disagree | 5. ... More or less agree | |
| 3. ... More or less disagree | 6. ... Agree | |

*Note that (R) denotes the reverse coding

Control variables

Age: “Please indicate your age: “

Standardized score of age is used

Gender: “Please indicate your gender: “

“Female, “ 1 = “Male “

Highest obtained education (Hsee, Yang, Zheng and Wang, 2015): “Please indicate your highest obtained education“

1 = “Less than high school graduate, “ 2 = “High school graduate or equivalent, “ 3 = “ College graduate, “ 4 = “Post graduate “

Risk Attitudes ($\alpha = 0.604$) (Weber, Blais and Betz, 2002): “Please evaluate how likely you are to engage in the activities, illustrated by the latter statements, ranging from 1 (strongly unlikely) to 7 (strongly likely):”

- a) “Investing 10% of your annual income in a moderate growth mutual fund?”

- b) "Investing 5% of your annual income in a very speculative stock?"
- c) "Investing 5% of your annual income in a conservative stock?"
- d) "Investing 10% of your annual income in government bonds (treasury bills)?"

-
- | | | |
|------------------------------|----------------------------|------------------------|
| 1. ... Strongly unlikely | 4. ... Undecided | 7. ... Strongly likely |
| 2. ... Unlikely | 5. ... More or less likely | |
| 3. ... More or less unlikely | 6. ... Likely | |

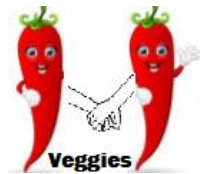
Numeracy (Weller, Dieckmann, Tusler, Mertz, Burns and Peters, 2013): "Please answer the following questions:"

- a) "If a chance of getting a disease is 20 out of 100, this would be the same as having a __% chance of getting the disease?"
- b) "If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 1000?"
- c) "In the **BIG BUCKS LOTTERY**, the chances of winning a \$10.00 prize are 1%. What is your best guess about how many people would win a \$10.00 prize if 1000 people each buy a single ticket from **BIG BUCKS**?"
- d) "Suppose you have a close friend who has a lump in her breast and must have a mammography. The table below summarizes all of this information. Imagine that your friend tests positive, what is the likelihood that she actually has a tumor?"

	Tested positive	Tested negative	Totals
Actually has tumor	9	1	10
Does not have tumor	9	81	90
Total	18	82	100

Appendix B – Manipulations of executive summary used in four experimental groups

Executive summary of business plan – gain + textual frame



Company Profile:
URL: www.movingveggies.com
Industry: Food Services
Employees: 5
Founded: 2018

Contact:
Harvey Horage
info@movingveggies.com
w: +386-40-888-991
f: +386-40-888-991

Management:
Harvey Horage, President & CEO
Jeff Bentson, CFO

Business Idea

MovingVeggies is a new, social concept of moving truck, which delivers fresh vegetables straight to your door. According to our market research, people living in three biggest Dutch cities buy their daily vegetables in big supermarkets and wish to eat more locally produced food but due to time scarcity do not have time to search for local producers. As being the first in the market, our mission is to improve local food system, making quality organic vegetables more accessible and create more opportunities for local farmers.

Our Service

Our transformed old-truck will be used to drive around Rotterdam and will be delivering seasonal vegetables with the help of distribution system of local producers. Vegetables come to us straight from local producers and are delivered to customer's door freshly packed in environment-friendly basket within two days. Customers can order fresh products from an app or our website and schedule the timing and location of the delivery. In the future, we plan to expand our service in Den Hague, Utrecht and possible also to Amsterdam.

Financial projections

Financial projections of particular year are expected as follows:

In the year one, the firm is expected to generate €540 of net profit over the course of the year.

In the year two, the firm is expected to generate €23464 of net profit over the course of the year.

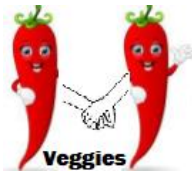
In the year three, the firm is expected to generate €39154 of net profit over the course of the year.

In the year four, the firm is expected to generate €11134 of net profit over the course of the year.

In the year five, the firm is expected to generate €1393 of net profit over the course of the year.

In order to develop our business further, we ask for €40000 of your investment in return for 20% of your ownership in this company (hereby you are entitled to 20% of net profit in particular year).

Executive summary of business plan – loss+ textual frame



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URL: www.movingveggies.com
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Financial projections

Financial projections of particular year are expected as follows:

In the year one, the firm is expected to generate €9731 of gross profit, but you will lose €0191 due to expenses over the course of the year.

In the year two, the firm is expected to generate €148460 of gross profit, but you will lose €124998 due to expenses over the course of the year.

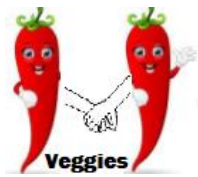
In the year three, the firm is expected to generate €229154 of gross profit, but you will lose €190000 due to expenses over the course of the year.

In the year four, the firm is expected to generate €451010 of gross profit, but you will lose €389876 due to expenses over the course of the year.

In the year five, the firm is expected to generate €630003 of gross profit, but you will lose €37610 due to expenses over the course of the year.

In order to develop our business further, we ask for €40000 of your investment in return for 20% of your ownership in this company (hereby you are entitled to 20% of net profit in particular year).

Executive summary of business plan – gain + visual frame



Company Profile:
URL: www.movingveggies.com
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Business Idea

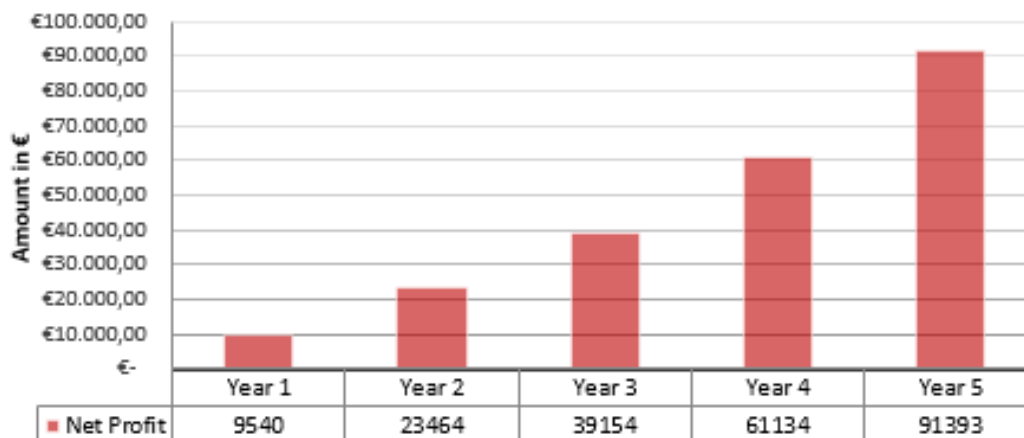
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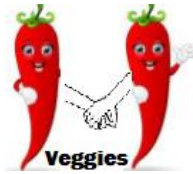
Financial projections

Financial projections of particular year are expected as follows:



In order to develop our business further, we ask for €40000 of your investment in return for 20% of your ownership in this company (hereby you are entitled to 20% of net profit in particular year).

Executive summary of business plan – loss + visual frame



Company Profile:
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Business Idea

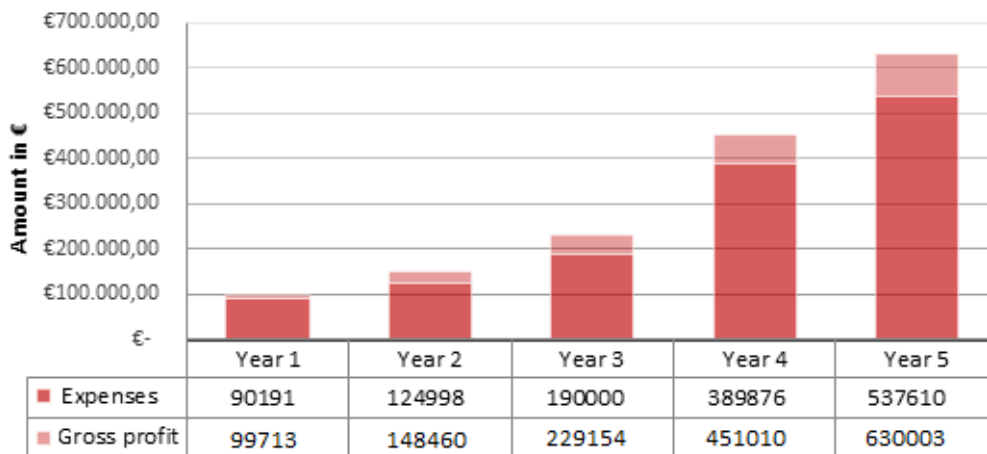
MovingVeggies is a new, social concept of moving truck, which delivers fresh vegetables straight to your door. According to our market research, people living in three biggest Dutch cities buy their daily vegetables in big supermarkets and wish to eat more locally produced food but due to time scarcity do not have time to search for local producers. As being the first in the market, our mission is to improve local food system, making quality organic vegetables more accessible and create more opportunities for local farmers.

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Financial projections

Financial projections of particular year are expected as follows:



In order to develop our business further, we ask for €40000 of your investment in return for 20% of your ownership in this company (hereby you are entitled to 20% of net profit in particular year).

Appendix C – Introduction and instructions to online survey

Hi!

Thank you for participating in this questionnaire for my master thesis at the Erasmus University Rotterdam.

This experiment looks into investment behavior of people. The questionnaire will take you around 5 minutes to finish. All answers will be kept in strict confidentiality.

If you have any questions regarding the questionnaire, feel free to contact me.

Eva Colnarić

You will be presented with an executive summary of business plan of start-up company. Please read the following information very carefully.

Imagine, you are an actual investor, looking to invest in proposed company. On the basis of executive summary decide whether you would be willing to invest in this company.

Please answer all the following questions. There is no wrong or right answers.



Appendix D – Experiment 2: Review of some comments

Gain + text

Comments	Willingness to invest
Person A: So many times, I have been in this situation that I wanted to buy these vegetables the same as in the market. Today there is a market but I cannot go food is in plastic, I like business idea and the service is very convenient. Also net profit is expected to grow a lot. Person B: Yes, I think the same; especially profit seems to increase every year.	Person A: 7 Person B: 7
Person A: ...I really like business idea; this saves a lot of money for the customer. Person B: Yes, we need to eat more local food; you would get those vegetables from Rotterdam, right? Person A: The only complain is the service, there will probably be a logistic problem.... Apart from that, idea is very well decided. As long as numbers as reliable, return is very fine.	Person A: 6 Person B: 6
Person A: Well, you talk about net profit only and not about costs. As an investor, I would like to see costs and improvements (that would require additional costs). I would like to see variable and fixed costs.	Person A: 3 Person B: 4
Person A: It sounds like a good business idea, but I would like to see the model behind the numbers. What do you think? Person B: I would need more information. Person A: Yes, at least forecast, what the assumptions are, so that we can calculate NPV. However, it looks like it is profitable. Person B: Especially, net profit of €100,000 with one truck is quite ambitious.	Person A: 5 Person B: 2
Person A: What do you think? I think it is interesting. Person B: I do not have enough information to actually consider it as an investment. It is nice that you provide financial projections but based on what? I would need to see market research and actual demand ... Profits are really nice, but based on what?	Person A: 3 Person B: 2
Person A: I think no. I would put a lot of money and I would like more. Person B: Yes, but if you calculate, if you put €40,000 for 20% it is ok. Person B: But it is not €40,000 in 5 years, I will not get my money back.	Person A: 3 Person B: 3
Person A: I think business idea is the great opportunity, especially now with the health trend going on. Looking at financial projections, it looks like a great opportunity to invest in and actually try to make good profit out of it. Person B: I think it is true; we can make a lot of profit in few years. Person A: I think for now it does sound like a great concept and idea, I would just like to see on what basis financial are based. Once I would get that I would consider this as very nice business opportunity. Person B: If we had more info, it would be clearer yes but expected profit seems to be very nice.	Person A: 6 Person B: 6
Person A: I would like to invest in this company because I see that profits are increasing year per year. It looks like a good opportunity. Person B: Yes, it can be seen that every year, the profits are increasing more and more, I believe that personally investing €40,000 and taking 20% of ownership is good deal.	Person A: 6 Person B: 5
Person A: I believe your projections and they are really nice. Net profit seems to grow much from year to year. Person B: I also like the whole idea. I guess it would make money.	Person A: 7 Person B: 6
Person A: If the numbers would be reliable, I suppose they are; I would just like to know more information. Person B: I would invest because it is sustainable solution for people who are in hurry and want local food.	Person A: 5 Person B: 6
Person A: It seems like nice investment opportunity with nice return per year. Person B: 20% for ownership is very good share I believe. Usually you get small share.	Person A: 5 Person B: 5

Gain + visual

Comments	Willingness to invest
Person A: I think I would invest in it, if I had money for it. Person B: Idea is good.	Person A: 6 Person B: 6
Person A: We will get 20% of profits, right? So you pay everything in dividends directly? Pretty amazing amount. Person B: You expect to make profit in the first year? Person A: Yes, you have to do an investment first, I think.	Person A: 4 Person B: 4
Person A: Well, you talk about net profit only and not about costs. As an investor, I would like to see costs and improvements (that would require additional costs). I would like to see variable and fixed costs.	Person A: 3 Person B: 4
Person A: I think I probably would invest. It seems like it is earning money, so... Person B: So you have to give €40,000 and then you get 20% in the company? Seems like a lot. Person A: Probably yes, I would. Person B: It seems like it is going up.	Person A: 7 Person B: 6
Person A: More or less after 5 years, more or less, you would have your money back. I would not invest in it because my initial investment would be payed back after year five. What if one year in those projections is not as good? Person B: You are right, yes.	Person A: 1 Person B: 3
Person B: Idea is great and that would work in terms of demand. Person A: Competition can change their business model so that they can produce vegetables and make that come true. They have much more budget and they can so easily decide for that. I mean it is definitely intriguing and I would definitely look into it but just based on this information, I would not put €40,000 in this. I would need research in my opinion but it is super interesting.	Person A: 1 Person B: 2
Person A: I love the idea, I think it goes together with a trend. Person B: I do not have time to go to market but I like to eat ecologically. I think I would invest in such business – it has a future. Person A: Yes, I think many people would use this kind of service, so demand would be high I guess.	Person A: 5 Person B: 6
Person A: No, I would not. Something like that already exists (Picnic for example). In addition, prices on the market every Tuesday and Saturday are very low and I do not think you would be able to offer such prices. Person B: I think that the margins would be too low at the end to have good profit.	Person A: 1 Person B: 3
Person A: I like the return on investment. In 5 years, I would already get my investment back, right? Person B: As investor, I would like more info in order to consider it as good investment. I think net profit is not enough. Person A: However, this is how much you would get at the end, so that is important.	Person A: 5 Person B: 4
Person A: I like the idea. I like to buy fresh vegetables but I do not know where to buy them. In supermarkets, you cannot buy fresh vegetables. Just in plastic. Person B: It is very up to date idea; it would save many issues.	Person A: 6 Person B: 6

Loss + text

Comments	Willingness to invest
Person A: So I am a shareholder in this company? Person B: So the total investment would be like €240,000 altogether? 20% times 5, if I want to buy 100% of firm? Person A: Take it easy, you do not buy the whole firm.	Person A: 3 Person B: 3
Person A: So we make like €9,000 profit, right? Person B: Of course, but in first year.	Person A: 6 Person B: 6
Person A: €40,000 and you would make €100,000 in five years? In five years €100,000? Would generate more than you invested but it would still take 10 years to get double plus a bit more. Person B: But, it would be a nice thing to invest in. Person A: Yes I guess, why not. I mean if you have the money, it would take just couple of years. It would be good for people and farmers. But for business people, I am not sure that would be so profitable, you could invest €40,000 in something else. Person B: Wait – you invest €40,000 first and every year you get 20% of net profit and you do not have to make any work for it? Person A: Yes and that means that you would be investing in other things as well, it is just a small thing.	Person A: 5 Person B: 5
Person A: To be honest, I would not invest in that, because I am broke. I do not think it would be that profitable actually. What do you think? Person B: Yes, because you have super tight margins and that is probably the optimistic forecast. Person A: So when you say gross profit and then you lose expenses – is that all expenses incurred? So what is left is net profit? It is very tight. €40,000 for 20% is very small.	Person A: 2 Person B: 4
Person A: No, I would invest in a company with higher added value. Person B: I also think that moving around with an old truck would not be so, as sustainable as said here. Person A: And the question is also how to keep hygiene on high level in old truck? Person B: I also agree that there is not enough added value to this business.	Person A: 1 Person B: 3
Person A: Financial projections are nice, net profit is growing nice. Person B: Idea is not very good for sustainability and environment actually. Diesel is and will be banned in city centers of cities. For example, in Utrecht, it is already banned. So, I do not know.	Person A: 5 Person B: 4
Person A: I think something similar already exists and I would want more info about business plan – there is few things missing. Person B: But it is a good return.	Person A: 5 Person B: 6
Person A: I think net profit is growing very nice, as I see, 20% of net profit is growing as well. Person B: Yes, definitely getting back after 5 years. But I think that there is not enough information for me to invest. Person A: I think I would like to know more about market research, demand and the future.	Person A: 2 Person B: 2
Person A: I think numbers are too optimistic, I do not believe to be honest. Person B: If the numbers are realistic and true, I like the whole idea and investment as such as well – if I would have lot of money, I would consider it as possible portfolio. Person A: I do not think that would work out, especially with positive net income in first year.	Person A: 2 Person B: 5
Person A: If those numbers are real, then I think the results would be good. Person B: However, I personally think, I would require more info about everything. Person A: It is hard to decide just on the basis of net profit, gross profit and expenses. Person A: ... and short description of the service.	Person A: 4 Person B: 4

Loss + visual

Comments	Willingness to invest
Person A: So €40,000 for 20% of ownership, right? I would not invest. Person B: I would not either. If you have 20% ownership, it means that you are only entitled to 20% of net profit; I would not even make my capital return in next years, so you would be making loss. Person A: Yes, it makes sense.	Person A: 3 Person B: 3
Person A: Gross profit is somewhat high, but its net profit then. Person B: 20% is like approximately €20,000 in the first year. Person A: And then here its €50,000 of gross profit, so I guess it is like €10,000 net. It is hard to say but if it keeps growing, then every year it is a bit. Therefore, I think I would consider investing. What about you? Person B: Still thinking, I am looking for any flaws to be honest.	Person A: 6 Person B: 6
Person B: I think no. Person A: But why not, I mean its upward trend but that are obviously just projections. The trend nowadays is to have sustainable products and from local farmers which is good and healthy. Person B: Yes but I guess it depends on price. Person A: But question is how does fundamentally differ from other delivery services? Other supermarkets are providing their deliveries as well and if they would decide to go sustainable (which Picnic already is with electric cars), they have so much more bargain power. Then, if they would enter the market, prices would be relatively high compared to the existing super markets. Obviously, we do not know what financial projections are based on, so that is difficult as well.	Person A: 2 Person B: 2
Person A: I think in general, the idea is very nice. It is bio, eco, on the trend. Person B: It is very nice that vegetables are fresh and locally produced. If financial data is realistic, I think it is very ambitious. Person B: I think I agree with that, but for me as investor, there is not enough information to decide whether yes or no. Person A: I mean, if I would have really too much money, I would because the concept as it, is very good. I also think that there is high competition on the market. Person B: Maybe there is no direct competition (fresh vegetables in truck), but there is indirect competition which is very strong and flexible to adjust their business.	Person A: 3 Person B: 3
Person A: I think I would probably not invest. I am very risk averse; it actually looks good but still... Person B: It would depend on how my portfolio would look at that moment.	Person A: 3 Person B: 3
Person A: You give us the gross profit and the expenses. I'm only entitled to 20% of net profit, so I am entitled to gross profit – expenses, times 20% of that. I mean, for year 2, I would get €4,000. Person A: That is pretty good. What about taxes? Is this on projections what I get at the end?	Person A: 6 Person B: 6
Person A: Very competitive, you are the first on the market. Person B: Should we invest or not? Person A: I mean, I would because initial investment is so low and financial projections seems attractive – €40,000 for 20%, but then again you need to speculate and speculate so I do not know.	Person A: 4 Person B: 6
Person A: I think, I would not get my money back fast enough. 20% of net profit is ok, but not high enough for €40,000. Person B: I guess if you have a lot of money, maybe. But there is not enough info. Expenses also look high.	Person A: 3 Person B: 4
Person B: Is this all information that I can get? Based on this, it looks good. Looks kind of profitable. Person B: Sure, I think that kind of service would make a lot of lives easier. I believe a lot of people would like it.	Person A: 5 Person B: 6
Person A: So if I understand correctly, we get net profit by subtracting expenses from gross? Then profits look somewhat small. Person B: You get then 20% of net? I think if you have portfolio with many investments, as long as it makes money its nice.	Person A: 6 Person B: 5