The effect of cultural tightness-looseness on effectuation or causation strategies of novice entrepreneurs in Germany

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ABSTRACT

Within today's uncertain business environment an entrepreneur brings innovation, creativity and economic coordination to the economy. How do entrepreneurs set up their business? How do they make decisions? The literature proposes two approaches of entrepreneurial decision-making: causation and effectuation. An individual following the causation process is goal-oriented, focuses on expected returns, emphasizes competitive analysis, exploits pre-existing knowledge and attempts to predict the uncertain future. In contrast, an individual following the effectuation strategy is means-oriented, focuses on affordable loss, emphasizes strategic alliances, exploits contingencies and attempts to control the unpredictable future. Nevertheless, these two approaches are not substitutional, but rather complementary. Either one approach might fit to different situations and different contexts. In addition, the term 'effectuation' arose out of a study focusing on expert entrepreneurs. So, how do novice entrepreneurs make their decisions? Which factors do influence their decision-making process? One aspect, which might influence this process, is the national culture of the individual. As norms and values of a society shape its members' behavior, this study focused on the cultural looseness-tightness and relates it to the decision-making processes of causation and effectuation. A tight culture can be explained as a culture with many norms and values, and with a low tolerance of deviant behavior. Whereas a loose culture is the opposite: less norms and values and high tolerance towards deviant behavior.

Novice German entrepreneurs, who are not more than five years in business and who have at least a bachelor degree, were asked to fill in an online questionnaire. The results show that the respondents tend to perceive their culture as rather tight. However, the perceived tightness has nearly no effect on either causation or effectuation. Nevertheless, a relation between the perception of the national culture and the attempt to control the unpredictable future (effectuation) could be detected. Therefore, future research should include other factors besides the cultural tightness-looseness into their research, such as the industry type, the venture type and the cognitive style as well as the educational background of the individuals.

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Keywords

Entrepreneurs, novice entrepreneurs, decision-making processes, effectuation-causation, national culture, tightness-looseness of cultures, Germany

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1. INTRODUCTION

In today's ever-changing business environment, an entrepreneur is the driving force of economic change, bringing innovation, creativity, and coordination to the economy (Lavoie, 2015). What exactly is an 'entrepreneur'? Up until now, no uniformly accepted definition exists concerning the term 'entrepreneur'. Nevertheless, the majority of definitions include that the entrepreneur is a person who turns opportunities into a business (Blanchflower & Oswald, 1998; Cunningham & Lischeron, 1991; Djankov, Qian, Roland, & Zhuravskaya, 2008; Stevenson & Jarillo, 2007). This awakens the interests on how the entrepreneurs do turn the opportunities into a business. Is it essential to prepare a business plan, or is it better to be plunged in at the deep end (Brinckmann, Grichnik, & Kapsa, 2010)? Existing literature in Entrepreneurship is based on the rational decision-making models. Within these decision-making models, the opportunities are discovered through a planned and thus goal-driven approach (Perry, Chandler, & Markova, 2012). According to Sarasvathy (2001), a goal-driven decision-making approach can be defined as causation. Besides causation, another important aspect of the decision-making process of an Entrepreneur arose, namely effectuation (Venkataraman & Sarasvathy, 2001).

Effectual decision-making stands in contrast to the causal decision-making process of an entrepreneur (Stienstra, Harms, & R.A. van der Ham, 2012). However, these terms are not substitutional as these concepts can occur simultaneously as well as overlapping in different situations and contexts of decisions (Venkataraman & Sarasvathy, 2001). An entrepreneur following the effectuation approach will first check the availability of resources, such as financial capital, before defining the end-product (S. D. Sarasvathy, 2001), thus the entrepreneur will start with formulating a business plan. Whereas, an entrepreneur following the causation approach will first focus on what the outcome should be and then think about the approaches and resources to get there. Therefore, an entrepreneur following the causation process will be plunged in at the deep end, with no business plan, but with the goal of the business in mind. Nevertheless, human beings do not make decisions by relying on specific goals, but humans tend to decide between means to achieve a specific goal (Venkataraman & Sarasvathy, 2001). Thus, in reality, humans seem to choose the effectuation approach over the causation approach.

However, research indicated that the decision-making process of a person is influenced by the national culture he/she is related to (Hopp & Stephan, 2012), due to the fact that people from different cultural backgrounds prefer different ways of handling different situations (Smith, Dugan, Peterson, & Leung, 1998). Next to that, research revealed that entrepreneurial activities are influenced by the national culture of an entrepreneur. Understanding the influence of national culture on entrepreneurial activities is especially important since these activities differ across countries (Hayton, George, & Zahra, 2002).

According to Hofstede, individualism-collectivism, uncertainty avoidance, power distance, and masculinity-feminity are the key dimensions of national culture (Hechavarria & Reynolds, 2009). However, Hofstede's cultural model has been criticized widely. Besides forgetting about the sub-cultures within a country, such as the community-level culture or the individual-level culture, his stories are fabricated unwittingly. He does not validate, but vindicate his theory (McSweeney, 2002). Additionally, Hofstede is inconsistent about his conception of culture as he describes that national culture in highly influential, whereas other types of cultures have no or nearly no influence on individuals (Brewer & Venaik, 2014; McSweeney, 2002). As Hofstede's cultural theory is criticized and does not seem to be validated, Gelfand et al. (2006) introduced the principle of cultural tightness and looseness.

Research exists focusing on Hofstede's dimension and relating them to the decision-making process concerning disagreements, but little do we know about how the dimensions of tight and loose cultures do influence the way an entrepreneur starts its business. The norms and values surrounding an entrepreneur might shape the decision-making process, but will it lead to causation or effectuation? Existing literature about cultures and leadership includes the aspects of cultural values, such as Hofstede's dimensions (Aktas, Gelfand, & Hanges, 2016). However, these studies neglect other aspects which might be important, such as how tight or loose the culture is.

Tight cultures can be described as cultures that have strong norms and low tolerance of deviant behavior, whereas loose cultures are the opposite; having weak norms and high tolerance of deviant behavior (Gelfand et al., 2011).

Combining the fact that the national culture influences the decision-making process and entrepreneurial activities differ from country to country, with the principal of a tight or loose society, results in the research question:

To what extent do the cultural dimensions of tightness/looseness lead to an effectuation or causation decision-making process of novice Entrepreneurs?

The following research will give an indication of whether the national culture of entrepreneurs in Germany influence the way they base decisions on when developing a business. Besides, this research will give an indication of whether the effectuation or causation is preferred by novice entrepreneurs.

1.1 Relevance of this research

Existing empirical studies used Hofstede's dimension to test the influence of national culture on entrepreneurship, nevertheless other domains have been underdeveloped (Hayton et al., 2002).

This study will make a contribution to the literature by researching the relation between Gelfand's cultural dimensions and the decision-making process of novice entrepreneurs. A novice entrepreneur is an entrepreneur who does not have any prior entrepreneurial experience either as founder, or purchaser of a business (Westhead & Wright, 1998). It is especially important to conduct this research on novice entrepreneurs, since the term effectuation arose out of the study of expert entrepreneurs, and expert entrepreneurs are of course not representative for all entrepreneurs (Perry et al., 2012). Thus, it is interesting to analyze whether this term can be related to novice entrepreneurs and as a result, to the entrepreneurial population as a whole.

Furthermore, the study will include industry factors and educational backgrounds, which have not been included in the study of the effect of the tightness/looseness principle (Mitchell, Smith, Seawright, & Morse, 2000). These factors will be seen as control variables, as they might have an influence on the result of this study, nevertheless they are not the main focus of this research

These aspects will then be related to the decision-making process of a novice entrepreneur.

Moreover, research indicates that effectuation theory should provide a clearer delineation of resources and information leading to either causation or effectuation (Arend, Sarooghi, & Burkemper, 2015).

To conclude, the following research will help to create a more solid theory about effectuation and causation. It depicts aspects, such as the cultural tightness and looseness in relation to the decision-making process of novice entrepreneurs, which has only been researched limitedly.

2. THEORETICAL FRAMEWORK

In order to conduct relevant articles for the planned research, ISI Web of Knowledge was used. The impact factor of the different Journals has been analyzed, and only the Journals with a high impact factor are chosen. Having found the most suitable Journals through ISI Web of Knowledge, Scopus, Google Scholar and Science Direct were used to find relevant articles. Besides, the number of citations related to an article is important when deciding on which article to use. Therefore, articles with nearly no or no citations will not be considered for this research. Besides, articles from the last five years (2011-2016) will be taken into consideration to reflect on the latest findings concerning tightness/looseness of Cultures and the entrepreneurial decision-making process.

2.1 Decision-making process: Effectuation or Causation

The decision-making process that leads to the creation of a new venture, can either be described as planned or emergent, while the planned approach reflects causation and the emergent reflects effectuation (Stienstra et al., 2012).

Effectuation *processes "takes a set of means as given focus on selecting between possible effects that can be created with that set of means*" (S. D. Sarasvathy, 2001, p. 245). In order to differentiate causation and effectuation, one can state that within the effectuation process the focus lies on short-term experiments to identify the business opportunities in an unpredictable future. Thus, effectuation means that an entrepreneur first checks the availability of resources followed by defining the objectives (S. D. Sarasvathy, 2001). In contrast, a causation process predicts the uncertain future by defining the objectives before checking for the availability of needed resources (Chandler, DeTienne, McKelvie, & Mumford, 2011). As the environment influencing an entrepreneur is changing fast and therefore is uncertain, following an effectuation strategy might be more efficient than a causation strategy (Harms & Schiele, 2012).

However, causation and effectuation are not contrary to each other, instead, these are different approaches which can be used in different situations (Sarasvathy, 2001).

There are five different principles described in the existing literature which differentiate effectuation and causation.

These behavioral principles were firstly developed by Sarasvathy in 2001 and adjusted in 2008 (Alsos, Clausen, & Solvoll, 2014). The five principles are divided by the basis of taking action, the view of risks and resources, the attitude towards others, the attitude towards unexpected events and the view of the future of individuals.

The effectuation and causation sub-constructs as defined by Sarasvathy (2008) are shown in Table 1.

Table 1: Sub-constructs of Effectuation and Causation

	Effectuation	**Causation**
Taking actions	Means	Goals
Risk and resources	Affordable loss	Expected return
Attitude towards others	Commitments	Competitive analysis
Attitude towards unexpected events	Exploiting Contingencies	Pre-existing Knowledge
View of the future	Controlling the unpredictable future	Predicting the uncertain future

Taking action by means, considering the affordable loss, commitment, exploiting contingencies and controlling the unpredictable future are elements of an effectuation decision-making-process (Sarasvathy, 2001; Alsos, Clausen, & Solvoll, 2014).

2.1.1 Taking action: Means vs Ends

According to Sarasvathy (2008), an individual following the effectuation decision-making process, follows the 'patchwork quilt principle'. Within this principle, one should focus on creating something new with existing means, rather than on trying to discover new ways of doing things, which would be the causation process (S. D. Sarasvathy, 2008). 'Means' can be divided into three different aspects: 'what I know', ' who I am' (identity) and 'whom I know' (networks) (Read, Song, & Smit, 2009). 'What I know' defines the type of knowledge that can be characterized as expertise. Expertise enables entrepreneurs to make decisions without relying on predetermined ends (S. D. Sarasvathy, 2008). All these aspects of means correlate with each other: the identity of the entrepreneur depends on the knowledge as well as the networks and the other way around (S. D. Sarasvathy, 2008)

An 'effectuator' is a person who prefers actions that create more opportunities in the future instead of maximizing the returns of those actions (S. D. Sarasvathy, 2001). Furthermore, the effectuation approach focuses on identity, knowledge, and networks to generate new potential opportunities (S. Sarasvathy, Kumar, York, & Bhagavatula, 2014). In contrast, the causal logic follows the process of selecting the end, or the goal before selecting the means to achieve the aim (Dew, Read, Sarasvathy, & Wiltbank, 2009). Conducted research provides reason for the assumption that an entrepreneur's means, thus the effectuate logic, is more of importance in the development of entrepreneurial intention than the causal logic (Reuber & Fischer, 2011). This assumption is underlined by the result of a case study, which states that only a third of the interviewees demonstrated that they follow a causal decision-making process (Fisher, 2012).

2.1.2 Risk and Resources: Affordable loss vs expected returns

Besides the focus on means or goals, the perception of risk influences the decision-making within the start-up process of an entrepreneur (S. Sarasvathy et al., 2014).

Individuals following the principle of expected returns are following the causation process. They focus on maximizing returns by selecting the best strategies, whereas an effectuator would focus on the affordable loss and the experimenting of

possible strategies (S. D. Sarasvathy, 2001). Thus, the effectual logic examines the limitation of downside risks (Read et al., 2009). Focusing on affordable loss rather than on expected returns seems to foster the creativity within a start-up organization (Fisher, 2012). As described previously, creativity is one of the essential skills an entrepreneur should possess (Lavoie, 2015).

In addition, Research shows that expert entrepreneurs pay more attention to the downside risk and affordable loss, thus following the effectuation approach, than novice entrepreneurs (Dew, Read, et al., 2009; Dew, Sarasvathy, Read, & Wiltbank, 2009).

2.1.3 Attitude towards others: Commitment vs Competitive Analysis

Effectuators follow the 'bird-in-hand principle' (S. D. Sarasvathy, 2003) , which involves emphasizing on strategic alliances and pre-commitments from stakeholders to reduce uncertainty (S. D. Sarasvathy, 2008), while people following the causation model, would focus on, for instance, the Porter model of strategy (S. D. Sarasvathy, 2001). Following an effectual approach, the resources that can be affordably lost define the risk. Therefore, research indicates that it is essential to have partnerships as a central method to expand resources (S. Sarasvathy et al., 2014). This act of diversifying the potential risk among a network of stakeholders allows the effectuator to make the potential loss more affordable (Chandler et al., 2011).

2.1.4 Attitude towards unexpected events: Exploiting contingencies vs pre-existing knowledge

Individuals involved in an effectual decision-making process follow the 'lemonade principle' (S. D. Sarasvathy, 2003). This principle states that one should leverage surprises rather than avoiding them.

Research has found that prior knowledge, or pre-existing knowledge, influences the discovery of opportunities (Shane, 2000). According to Sarasvathy (2001), individuals whose competitive advantage is existing knowledge about an innovation or expertise about the new technology, should focus on a causation approach. The effectuation approach needs to be used for exploiting contingencies that arose over time (Sarasvathy, 2001). While research indicates that pre-commitment is essential when following an effectual decision-making process (S. D. Sarasvathy, 2001), other research indicates that alliances are important for both approaches, effectuation and causation (Chandler et al., 2011).

2.1.5 View of the future of individuals: Controlling the unpredictable future vs predicting the uncertain future

People who try to control the unpredictable future follow the 'pilot-in-the-plane' principle (S. D. Sarasvathy, 2003). Of course, it is impossible to predict the future, but individuals can still try to control some of the factors that determine the future, excluding natural trajectories or technological developments (S. D. Sarasvathy, 2003). Sarasvathy (2014) together with other researchers added that effectual entrepreneurs learn more about uncertain event space with a view of intervening in the event space, and not by updating their probability estimates. Thus, *'effectual entrepreneurs do not see history running on autopilot, but rather consider themselves one of many who copilot the course of history'* (S. Sarasvathy et al., 2014, p. 75). However, the fact how entrepreneurs behave in an uncertain environment has been analyzed only in minor cases (Perry et al., 2012).

2.2 Cultural dimensions: Tightness and Looseness

In order to understand the difference of a tight and a loose culture, the term 'national culture' needs to be defined. According to Hofstede (1980), culture is *"the collective programming of the mind which distinguishes the members of one human group from another, including its values. One reason for a differentiation of culture is that nations do vary in cultural dimensions"* (Doney, Cannon, & Mullen, 1998, p. 607). Culture influences the daily lives of humans, even though it is partly intangible, as it is a pattern of learned behavior (Stienstra et al., 2012). Research relating Hofstede's dimensions to a business context started way earlier than research about the dimensions of tightness and looseness (Vitell & Nwachukwu, 1993). In comparison, relating tightness and looseness to the business context was first started by Gelfand in 2006, while these terms have been widely researched in the fields of anthropology, sociology and psychology, starting in the 1960s (Gelfand, Nishii, & Raver, 2006).

The norms and values of a society shape the way permissible, morally contentious behavior is judged. Therefore, the judgement varies across the world, depending on the national culture (Mrazek, Chiao, Blizinsky, Lun, & Gelfand, 2013). Moreover, research indicates that cultural tightness/looseness does influence the norm enforcement and individual, psychological processes, thus, it influences the strength of social norms (Mrazek et al., 2013).

As described previously, tight cultures are cultures that have strong norms and low tolerance of deviant behavior. Whereas loose cultures are the opposite: having less norms and higher tolerance of deviant behavior. Thus, cultural tightness is homogeny in values, norms and behaviors (Uz, 2015). The principle of tightness and looseness is unique and not substitutional to other cultural dimensions.

In addition, prevailing institutions and practices also reflect the strength of social norms and the tolerance of deviant behavior (Gelfand et al., 2011). The societal culture is expressed in the functioning of societal institutions, their organizations, practices and policies. Therefore, one can conclude that such institutions mediate the effect of culture on individuals (Schwartz, 2014). Tight culture institutions have a narrow socialization, which restricts the range of permissible behavior, whereas loose institutions depend on high socialization (Gelfand et al., 2011). Also, tight nations do are more likely to have autocratic governance systems, such as that the media institutions in tight cultures have more laws and more control than media institutions in loose cultures (Gelfand et al., 2011; Triandis, 2004).

Gelfand et al. (2011) also indicate that the phenomenon of cultural tightness or looseness is reflected in every-day situations. Within their research, they make a distinction between strong and weak situations. Strong situations have more restricted range of appropriate behavior and leave little space for individual discretion, whereas weak situations can be defined as the opposite. In other words, loose cultures have a preponderance of weak situations, while tight cultures have a preponderance of strong situations (Realo, Linnamägi, & Gelfand, 2015). In most researches, the association between the national culture and its impact on entrepreneurial activities have been neglected (Stienstra et al., 2012).

To conclude, the following research will identify the relation between tight and loose cultures to either the effectuation or the causation decision-making process based on the five principles of effectuation and causation.

2.3 Hypotheses

As this research is going to investigate whether the culture is influencing the way a novice entrepreneur makes decisions during the start-up phase of a business, and will be undergone within Germany, it is essential to describe the German culture. According to Gelfand et. al (2011), the German culture can be described as a rather tight culture, scoring on average a 7.0 within the tightness dimension. However, these researchers split up Germany into the former East and the former West, even though most of the Germans do not identify themselves as much with either the East or the West anymore (Nolteernsting, 2013). So therefore it is interesting to analyze whether the novice entrepreneurs responding to the survey perceive their culture as tighter or looser. In order to identify how the respondents perceive their culture, without splitting Germany into East and West, the following first Hypothesis results:

H1: *Novice Entrepreneurs in Germany perceive their culture as rather tight than loose.*

Furthermore, as research states, individuals perceiving their culture as rather loose, seem to have more freedom within the decision-making process (Chua, Roth, & Lemoine, 2015). People in a loose culture would therefore be able to improvise based on the circumstances, such as a sudden rise of a new opportunity (Gelfand et al., 2011).

As within the causation process, the end needs to be defined before starting to make decisions, there is less freedom during the decision-making process. Therefore, when the entrepreneurs perceive their culture as tight, the causation process would be a better fit with the related amount of norms and values.

As the German culture is perceived rather tight, it is interesting to analyze whether this tightness leads to a causal decision-making process. However, other research resulted in the conclusion that respondents from Germany seem to focus on the effectuation process (Stienstra et al., 2012). This makes it even more interesting to see whether the respondents of this survey choose either one of the sites.

This assumption leads to the second hypothesis, namely:

H2: *Novice entrepreneurs, who perceive their culture as tight, use the causal decision-making process, rather than the effectual approach.*

In order to answer the research question defined in section 1, it is essential to relate the five sub-constructs of effectuation/causation to the principle of cultural looseness or tightness.

During an effectuation process, goals can change, are shaped and designed and sometimes formed out of a sudden opportunity (Fisher, 2012). As tight cultures follow strong norms, values, rules and regulations (Dew, Read, et al., 2009; S. Sarasvathy et al., 2014; S. D. Sarasvathy, 2001), being dependent on sudden opportunities as well as sudden changes would fit a loose culture. Therefore, it is assumed that when the Entrepreneurs perceive their culture as tight, they would rather choose a goal-oriented approach than a means-oriented decision-making process. Supporting this assumption, within a causation process, goals need to be defined before making a decision (Harms & Schiele, 2012). These assumptions result in the following hypothesis:

H3: *Novice Entrepreneurs, who perceive their culture as tight, use a goals-oriented approach rather than a means-oriented one*.

Furthermore, the fourth hypothesis concerns whether the novice entrepreneur focuses on expected returns rather than on an affordable loss. As research indicates, it seems that expert entrepreneurs follow the effectuation process more often than novice entrepreneurs (Dew, Read, et al., 2009; Dew, Sarasvathy, et al., 2009). What is interesting is, whether this is dependent on the perceived national culture the entrepreneur is operating in. Due to the fact that the environment, entrepreneurs are operating in nowadays, is so uncertain, creativity is an essential skill of an entrepreneur (Lavoie, 2015). As research indicates, a person from a tight culture is less likely to engage and succeed in creative tasks than a person from a loose culture (Chua et al., 2015). In addition, research conducted about Japan and the US indicates that an invention is more often the unexpected by-product in the US than in Japan (Sadao & Walsh, 2009). While the US can be described as a more loose culture (Gelfand et al., 2011), and Japan as a tight culture (Triandis, 2004). Thus, there might be a relation between loose cultures being more innovative than tight cultures. Due to the fact that tight cultures prefer stability to change, they may be more risk-averse, focusing on affordable loss, than loss-averse (Uz, 2015).

This supports a result of another research, which indicates that affordable loss, which is part of the effectuation approach, seems to foster creativity (Fisher, 2012). Resulting in the assumption that the tightness of the German culture influences the tendeny of the decision on focusing on expected returns:

H4: *Novice Entrepreneurs, who perceive their culture as tight, focus on expected returns rather than on affordable loss.*

Individuals, who follow the effectuation approach, follow the lemonade-principle, stating that one should rather leverage surprises than avoiding them (S. D. Sarasvathy, 2003). Considering the definition of a tight culture, one can come to the conclusion that surprises do not fit the understanding of a tight culture. Since tight cultures have strong norms and values, sudden surprises might let the individuals feel confused and unprepared. In addition, pre-existing knowledge, which is part of the causal decision-making approach, influences the discovery of opportunities (Shane, 2000). As the goal of the effectuation approach is to discover new opportunities in the long-run, an individual with expert knowledge in a particular field knows about the opportunities, and should therefore follow the causal process (S. D. Sarasvathy, 2001). Tight cultures follow many rules and regulations, and rely on pre-existing knowledge, thus individuals within such a culture would follow the causal decision-making approach.

Therefore, it seems that people in tight cultures make more use of existing knowledge than exploiting new opportunities, aiming in the following hypothesis:

H5: *Novice entrepreneurs, who perceive their culture as tight, focus on more use of existing knowledge rather than on exploiting contingencies.*

Considering the next sub-construct of emphasizing competitive analysis or focusing on strategic alliances, one can state that tight societies have more rules, and the range of behavior is

restricted (Gelfand et al., 2011). The logical conclusion is that novice entrepreneurs focus more on emphasizing competitive analysis, as they would rather analyze the behavior of the opponent to judge whether the behavior is appropriate. As individuals in tight cultures scan other individuals on whether they perform in an acceptable manner, one can also assume that entrepreneurs would rather analyze their competitors instead of making them a partner, since there are many rules concerning behaving in an overall acceptable manner within a tight culture (Gelfand et al., 2011). These assumptions result in the following hypothesis:

H6: *Novice Entrepreneurs, who perceive their culture as tight, focus on emphasizing competitive analysis rather than on commitment.*

Causation processes rely on controlling the unpredictable future, since what can be predicted, can also be controlled (Stienstra et al., 2012). Being able to control the unpredictable future would rather fit a tight culture since a deviant behavior, also in the future, is basically unacceptable within such a culture (Gelfand et al., 2006).

Moreover, less research has been made about how entrepreneurs behave in uncertain environments (Perry et al., 2012), therefore it is interesting to analyze whether entrepreneurs who perceive their culture as rather tight have a greater tendency to predict the uncertain future than controlling the unpredictable future. Thus, the following hypothesis will lead to an answer:

H7: *Novice entrepreneurs, who perceive their culture as tight, try to predict the uncertain future rather than to control the unpredictable future.*

The following figure (1) gives an overview about the assumed relations between the cultural tightness and the 5 principles of causation.

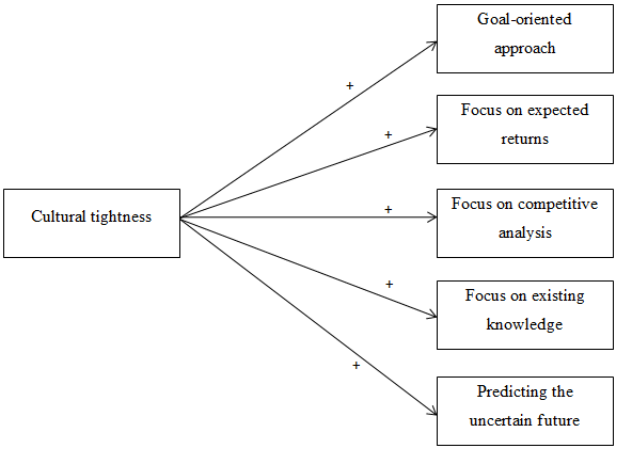

Figure 1: Overview about the hypotheses

3. METHODOLOGY

The following chapter examines the sample favored for conducting this quantitative research, the sampling methods as well as the indication of the dependent and the independent variables. In addition, the control variables will be defined as well as tested and the methods of analysis will be described.

3.1 Sample

In order to conduct the research, a total of approximately 2000 entrepreneurs in Germany were contacted to fill in the online questionnaire. The survey was sent via email and through Social Networks such as Facebook and LinkedIn. Newsletter2go was perceived the most reliable program to send the emails. After a period of two weeks, an email reminder was sent out to the addressed entrepreneurs.

The contact details of the different entrepreneurs were found on the databank of Gründerszene.de. In total, 130 entrepreneurs responded. However, the conditions, which are to be found hereafter, led to a decrease in suitable respondents, resulting in a total of relevant cases equaling to n = 69, with a response rate of 6.5%. These conditions for being a suitable respondent are that the business should not exist more than five years, to be able to analyze the decision-making process during the start-up phase. Additionally, the respondents should at least have a bachelor's degree to fit into this research.

All entrepreneurs who were contacted to fill in the survey are German, due to the fact that Germany has recently been ranked 'the best country of entrepreneurship' ("U.S. News Unveils 2016 Best countries ranking," 2016).

3.2 Sampling methods

Since this research is part of a large project including different constructs with different items, the following will focus on the items relevant to this research.

The scales used for the questionnaire are tested, reliable and valid scales existing in the literature about effectuation/causation as well as tightness/looseness. All scales were established into a survey using Google Forms.

The combination of the different scales helped to answer the research question previously described within this article.

The questions will be translated into German, to ensure that the entrepreneurs understand the questions to the fullest to overcome language barriers. However, the results in the end will be presented in English.

In order to overcome a low response rate and survey fatigue, the items have been formulated in a short and clear way (Field, 2013). Also, all participants within this research cycle will agree on who sends the survey to whom. That way no entrepreneur will receive the survey twice, which might also lead to a refuse of answering the survey, as they might feel penetrated or confused when they receive the same questionnaire from different students.

3.2.1 Effectuation/Causation decision-making

Effectuation/causation is the dependent variable of this research. The dependent variable will be measured using a 10-item questionnaire. The scale has been developed by Alsos, Clausen and Solvoll (2014). Within their research, they focused on entrepreneurs who are during their start-up process of a business, thus this makes the scale a huge fit to this research. The scale is 'easy to administer', and can therefore be used by other researchers (Alsos et al., 2014).

The scale consists of 10 items, while each item represents one of the 10 principles of effectuation and causation. 5 items do reflect the 5 principles of effectuation, whereas the other 5 items reflect the 5 principles of causation. Moreover, the scales

are tested and validated measuring the effectuation-causation as one-dimensional construct. According to Alsos, Clausen and Solvoll (2014), the items can be used to relate the principle of effectuation and causation to other aspects.

Therefore, this paper will relate it to the cultural dimensions of tightness/looseness to the principles.

The answers to the scales of effectuation and causation will be measured using a 7-point-Likert scale. Where 1 = 'I strongly disagree' and 7 = 'I strongly agree'. The reason for using a 7-point-Likert scale is that the respondents are not forced to choose a site.

The scale for effectuation and causation can be found in the appendix. The items are split into causation items and effectuation items.

3.2.2 Tightness/looseness principle of cultures

The tightness/looseness principle serves as the independent variable for this research.

The validated scale which will be used for this research has been developed by Gelfand, Nishii and Raver (2006). The purpose of the scale is to assess the degree to which social norms are existing, clearly defined and reliably imposed within the country of research, in this case Germany (Gelfand et al., 2006).

The scale consists of 6 statements related to tightness and looseness, which can be found in the appendix of this paper. When the average of the respondents indicates to agree with the statements, this will mean that they perceive their culture as tight. On the other hand, when the average disagrees with the statements, this would indicate that their culture is rather loose.

The answers will be measured on a 6-point-Likert-scale in which 1='I strongly disagree', 2 = 'I moderately disagree', 3 = 'I slightly disagree', 4 = 'I slightly agree', 5 = 'I moderately agree' and 6 = 'I strongly disagree'.

3.3 Methods of analysis

The results of the questionnaire were analyzed using IBM SPSS Statistics 23.

In order to analyze the collected relevant data, an exploratory factor analysis was conducted. This analysis will help to measures the constructs of effectuation/causation and tightness/looseness and identifies the underlying relationships between these variables. It is essential to apply the exploratory factor analysis, since the items were translated into German, while they have been established in English. Cronbach's alpha of 0.7 indicates the reliability of the scale. In fact, it is the most common way to measure reliability of scales (Field, 2013). Since the items for effectuation and causation are split into either causation or effectuation, it is necessary to see whether the items do measure what is intended to be measured. The method of factor rotation chosen for the exploratory factor analysis is the varimax method, since this is a good approach to clarify the interpretations of different factors, and it is applicable to independent factors, in this case causation and effectuation (Field, 2009).

The causation scale existed of 5 items ($\alpha = 0.74$), and the effectuation scale out of another 5 items ($\alpha = 0.81$). Besides, the perceived-culture scale consisted of 10 items with a Cronbach's alpha of $\alpha = 0.7$. Therefore, the scales used to undergo this research are reliable, as they all have a Cronbach's alpha of equal to or more than 0.7.

To further strengthen the reliability of the scale, a principal component analysis (PCA) was conducted on the 10 items, reflecting causation and effectuation, with orthogonal rotation (varimax). The Kaiser-Mayer-Olkin measure verified the sampling adequacy, KMO = 0.76. Besides, Bartlett's test of sphericity ($\chi^2(69) = 214.05$, $p < 0.001$) indicates that the correlations between the items are sufficiently large for a PCA. Furthermore, two components had an eigenvalue after Kaiser's Criterion of 1, and in combination explained 54.42% of the variance. The items that cluster on the same components suggest that component 1 measures effectuation and component 2 measures causation.

In order to interpret the results of the collected data concerning the hypotheses described in section 2.3, an OLS linear regression analysis was conducted in order to be able to identify whether there is a relation between the dependent and the independent variables.

The variables within this research can be treated as interval, due to the fact that the differences from 1 to 2, as well as from 4 to 5 are constant throughout the scale (Field, 2009).

Next to that, within this research two different scales will be combined, therefore it has to be indicated which items are relevant for answering the research question.

3.4 Control variables

As other random independent variables beside the national culture might influence the dependent variable, age, industry and study type will serve as control variables. The influence of the control variables on the dependent variable is analyzed by conducting a correlation analysis.

The correlation analysis indicates that there is no statistically significant relation between age and causation ($r = -0.038$, $p = 0.757$) nor between age and effectuation ($r = -0.014$, $p = 0.907$). In addition, no statistically significant relation could be found for industry type and causation ($r = -0.078$, $p = 0.522$) nor for industry type and effectuation ($r = 0.088$, $p = 0.47$).

However, the educational background of following a business administration study is significantly, related to the causation decision-making process ($r = -0.242$, $p = 0.045$). In fact, there is a weak, negative, significant relation between having followed a business administration study and the tendency to make use of the causation approach.

4. RESULTS

4.1 Descriptive Statistics

Table 2 displays the range (Min, Max), the mean and the standard deviation of the variables relevant for this research.

Table 2: Descriptive Statistics

	Min	Max	Mean	SD
Causation	1.4	6.4	4.56	1.02
Goal-oriented	1	7	5.13	1.39
Expected Returns	1	7	4.88	1.45
Pre-existing Knowledge	1	6	3.35	1.39
Competitive Analysis	1	7	4.74	1.46
Uncertain Future	1	7	4.68	1.55

Effectuation	1.2	6.2	3.57	1.32
Means-oriented	1	7	3.48	1.69
Affordable Loss	1	7	4.10	1.87
Contingencies	1	7	3.44	1.87
Commitments	1	7	3.74	1.69
Unpredictable Future	1	7	3.09	1.69
Perceived Culture	3.17	6	4.48	0.58
Many Social Norms	1	6	4.61	1.06
Clear expectations	1	6	4.46	1.15
Appropriate Behavior	1	6	4.32	0.98
Importance of Freedom	1	6	2.54	1.15
Acting inappropriately	2	6	4.57	0.96
Comply with Social Norms	2	6	4.3	0.9

Comparing the means of causation (mean = 4.56, SD = 1.02) and effectuation (mean = 3.57, SD = 1.33), one can find a tendency of the respondents to the causation approach. Furthermore, the respondents seem to be more goal-oriented (mean = 5.13, SD = 1.39) than means-oriented (mean = 3.48, SD = 1.69). The small difference in means between the focus on pre-existing knowledge (mean = 3.35, SD = 1.39) and the focus on affordable loss (mean = 4.10, SD = 1.87) seems to not indicate a tendency towards effectuation or causation for this sub-construct.

Continuing, there is only a small difference in means for relying on pre-existing knowledge (mean = 3.35, SD = 1.39) and exploiting contingencies (mean = 3.44, SD = 1.87), thus there seems to be no tendency to either one of the constructs.

Furthermore, there is a tendency to focus on competitive analysis (mean = 4.74, SD = 1.46), rather than on commitments with strategic alliances (mean = 3.74, SD = 1.69). The tendency of the last construct is rather to predict the uncertain future (mean = 4.68, SD = 1.55) than to control the unpredictable future (mean = 3.09, SD = 1.69). Thus, expect for the last sub-construct of effectuation and causation, the German entrepreneurs seem to rely on a causation approach.

Besides, the mean for the perceived culture determines, that the German entrepreneurs perceive their culture as rather tight (mean = 26.87, SD = 3.45). All mean-scores for the culture dimension are above 4.0, while 1 would be a loose culture and 6 a tight culture. However, the importance of freedom is reversed coded, thus for this item, 1 indicates a tight culture and 6 a loose one. Therefore, the mean of 2.54 does still indicate that the culture is rather perceived as tight.

This finding will be tested and validated within the Hypotheses testing section (Section 4.3.).

4.2 Test of Normality

In order to identify the distribution of the variables the Shapiro-Wilk test was conducted. The Shapiro-Wilk test's significance level is responsible for determining whether the distribution is normal.

The Shapiro-Wilk test shows no statistically significant deviation from Normality, neither for the effectual items ($SW(69) = 0.975$, $p = 0.171$), nor for the Culture items ($SW(69) = 0.983$, $p = 0.484$).

Besides, the Shapiro-Wilk test shows a statistical deviation from a normal distribution for the causal items ($SW(69) = 0.96$, $p = 0.027$). The deviation from Normality can be explained by a low amount of outliers and a moderately skewness of -0.717 (SE = 0.289). According to the rule of thumb for skewness, skewness lower than |1| can be treated as normally distributed (Joh & Malaiya, 2014).

4.3 Paired-sample t-test

To identify whether novice entrepreneurs in Germany tend to make more use of the causation approach than the effectuation approach, a paired sample t-test was executed. The paired-sample t-test can be conducted due to the fact that the same group of respondents was asked about the causation approach, as well as the effectuation approach.

The paired sample t-test revealed the tendency to make more use of the causation approach with a (mean = 4.56, SD = 1.02) than the effectuation approach (mean = 3.57, SD = 1.32). This test shows a statistically significant difference between the causation and the effectuation decision-making approach ($t(68) = -4.25$, $p \leq 0.001$). In order to verify this result, additional paired-sample t-tests were analyzed for each sub-construct of the effectuation and the causation dimension.

Starting with the first sub-construct, the paired sample t-test gives a result about whether the respondents focus on a goal-oriented approach, rather than a means-oriented approach. The paired sample t-test revealed that novice entrepreneurs make more use of a goal-oriented approach (mean = 5.13, SD = 1.39) than the means-oriented approach (mean = 3.48, SD = 1.86). This test shows a statistically significant difference between the goal-oriented approach and the means-oriented approach ($t(68) = -5.27$, $p \leq 0.001$).

Continuing with the second sub-construct, the paired sample t-test gives a result about whether the entrepreneurs in Germany focus on expected returns rather than on affordable loss. The paired sample t-test revealed that novice entrepreneurs focus slightly more on the expected returns (mean = 4.88, SD = 1.45) than on the affordable loss (mean = 4.1, SD = 1.69). This test shows a statistically significant difference between the focus on expected returns and affordable loss ($t(68) = -2.598$, $p = 0.011$).

The third sub-construct deals with the question whether novice entrepreneurs focus on pre-existing knowledge rather than on exploiting contingencies. The paired sample t-test revealed that novice entrepreneurs focus slightly more on exploiting contingencies (mean = 3.44, SD = 1.87) than on pre-existing knowledge (mean = 3.35, SD = 1.39). However, the paired sample t-test indicates that this difference is not statistically significant ($t(68) = 0.312$, $p = 0.756$).

Progressing to the fourth sub-construct, the paired sample t-test gives a result about whether the entrepreneurs in Germany rather focus on competitive analysis than on commitment. The paired sample t-test revealed that novice entrepreneurs focus more on competitive analysis (mean = 4.74, SD = 1.46) than on commitment (mean = 3.74, SD = 1.69). This paired sample t-

test shows a statistically significant difference between the focus on competitive analysis and the focus on commitment ($t(68) = -3.514$, $p \leq 0.001$).

The fifth and last sub-construct of effectuation and causation deals with the question whether novice entrepreneurs focus more on controlling the unpredictable future, rather than on predicting the uncertain future. The paired sample t-test revealed that novice entrepreneurs make more use of predicting the uncertain future (mean = 4.68, SD = 1.55), rather than of controlling the unpredictable future (mean = 3.09, SD = 1.69). This test shows a statistically significant difference between predicting the uncertain future and controlling the unpredictable future ($t(68) = -4.9$, $p \leq 0.001$).

4.4 Hypotheses testing

H1: *Novice entrepreneurs in Germany perceive their culture as rather tight.*

To test this hypothesis, the sum of the answers of each individual needed to be conducted. The maximum score, reachable for perceiving the culture as tight, equals to 6. Thus, an entrepreneur would perceive the culture as neutral, when the score lies between 3 and 4, and loose when the score equals 1. These sums were tested with a one-sample t-test.

The one-sample t-test revealed that the entrepreneurs perceive their culture as rather tight than loose (mean = 4.48, SD = 0.56). The t-test shows a statistically significant result concerning the perceived tightness-looseness ($t(69) = 64.68$, $p \leq 0.001$). Therefore, there is enough evidence to reject the Null-Hypotheses.

H2: *Novice entrepreneurs, who perceive their culture as tight, use the causal decision-making process, rather than the effectual approach.*

The OLS Linear regression analysis concerning the causal approach, indicates that there is no statistically significant relation between the perceived tightness of the societal culture and the decision-making approach ($F(1,69) = 2.693$, $p = 0.106$). Thus, there is no clear direction towards causation when the societal culture is perceived as tight. Therefore, there is not enough evidence to reject the Null-Hypothesis.

Besides, the OLS Linear regression analysis concerning the effectual approach, shows that there is no statistically significant relation between perceived tightness of the society and the effectual approach ($F(1,69) = 1.95$, $p = 0.167$). Thus, there is no clear direction towards the effectual approach, when the culture is perceived as tight.

H3: *Novice entrepreneurs, who perceive their culture as tight, use a goals-oriented approach rather than a means-oriented one.*

The OLS Linear regression analysis for the goal-oriented approach indicates that there is no statistically significant relation between the perceived tightness of the societal culture and the goals-oriented approach ($F(1, 69) = 1.967$, $p = 0.165$). Thus, there is no clear direction towards the goals-oriented approach when the societal culture is perceived as tight. Therefore, there is not enough evidence to reject the Null-Hypothesis.

Besides, the OLS Linear regression for the means-oriented approach shows that there is no statistically significant relation between the perceived tightness of a culture and the means-oriented decision-making approach ($F(1,69) = 0.215$, $p = 0.644$). Thus, there is no clear direction towards the means-oriented approach when the culture is perceived as tight.

H4: *Novice entrepreneurs, who perceive their culture as tight, focus on expected returns rather than on affordable loss.*

The OLS linear regression analysis for the expected indicates that there is no statistically significant relation between the perceived tightness of the culture and the focus on expected returns ($F(1,69) = 3.044$, $p = 0.086$). Thus, there is no clear direction towards the focus on expected returns, when the culture is perceived as tight. Thus, there is not enough evidence to reject the Null-Hypothesis.

Next to that, the OLS linear regression for the affordable loss shows that there is no statistically significant relation between the perceived tightness and the focus on affordable loss ($F(1,69) = 0.651$, $p = 0.423$). Thus, there is no clear direction towards the focus on affordable loss when a culture is perceived as tight. Thus, there is no clear direction towards the focus on affordable loss when the culture is perceived as tight.

H5: *Novice entrepreneurs, who perceive their culture as tight, focus on more use of existing knowledge rather than exploiting contingencies.*

The OLS linear regression analysis concerning the pre-existing knowledge indicates that there is no statistically significant relation between the perceived tightness of a societal culture and the use of pre-existing knowledge ($F(1,69) = 0.002$, $p = 0.963$). Thus, there is no clear direction towards the use of existing knowledge when the culture is perceived as tight. Therefore, there is not enough evidence to reject the Null-Hypothesis.

Besides, the OLS linear regression for commitment shows that there is no statistically significant relation between the perceived tightness and the focus on commitment ($F(1,69) = 0.78$, $p = 0.38$). Thus, there is no clear direction towards the focus on commitment when the culture is perceived as tight.

H6: *Novice entrepreneurs, who perceive their culture as tight, focus on emphasizing competitive analysis rather than on strategic alliances.*

The OLS linear regression analysis concerning the emphasis of competitive analysis indicates that there is no statistically significant relation between the perceived tightness of a societal culture and the focus on the emphasis of competitive analysis ($F(1,69) = 2.312$, $p = 0.133$). Thus, there is no clear direction towards emphasizing competitive analysis when the culture is perceived as tight. Therefore, there is not enough evidence to reject the Null-Hypothesis.

Next to that, the OLS linear regression analysis of exploiting contingencies shows that there is no statistically significant relation between the perceived tightness and the exploiting of contingencies ($F(1,69) = 2.722$, $p = 0.104$). Thus, there is no clear direction towards exploiting contingencies when the culture is perceived as tight.

H7: *Novice entrepreneurs, who perceive their culture as tight, try to predict the uncertain future rather than to control the unpredictable future.*

The OLS linear regression analysis for predicting the uncertain future indicates that there is no statistically significant relation between the perceived tightness of a society and the prediction

of the uncertain future ($F(1,69) = 1.197$, $p = 0.278$). Thus, there is no clear direction towards the predicting the uncertain future when the culture is perceived as tight. There is not enough evidence to reject the Null-Hypothesis.

However, the OLS linear regression analysis conducted for the control of the unpredictable future shows a statistically significant relation between the perceived tightness of the culture and controlling the unpredictable future ($F(1,69) = 6.508$, $p = 0.013$). Thus, there is a clear direction towards controlling the unpredictable future when the culture is perceived as tight. The correlation matrix indicates that there is a statistically significant, weak relation between perceived tightness and the tendency to control the unpredictable future ($r = 0.298$, $p = 0.013$).

5. DISCUSSION

Throughout this research, the understanding of how novice entrepreneurs' decision-making processes are influenced by their national culture arose. The analysis showed that the entrepreneurs perceive their national culture rather tight than loose. These result is in line with the findings of previous research (Gelfand et al., 2011). However, the result of the perceived culture shows no precise link to tightness; in fact it tends to the neutral perception. Nevertheless, seen from the middle point of the scale, a propensity towards the tightness can be detected. This could be due to a lack of understanding from the site of the respondents concerning the questions about Germany.

Moreover, the descriptive statistics showed that the German entrepreneurs within this research make more use of causation than effectuation, also underlined by the results of the paired sample t-tests. This result is supported by the research made by Gelfand (2011) and by Mrazek et al. (2013). Nevertheless, it stands in contrast to the research by Stienstra et al. (2012). Within this research, Germany is seen as a country in which its inhabitants use more effectuation protocols than causation protocols, as the result of the study of this research is in line with the majority of the literature about Germany and effectuation/causation. As stated within a news article, German has been rated the best entrepreneurial country ("U.S. News Unveils 2016 Best countries ranking," 2016). However, research revealed that people using a causation decision-making process tend to be less creative (Chua et al., 2015). Besides, the effectuation approach seems to foster the creativity of the individuals (Fisher, 2012). The result of this research and the literature seems to be contradicting with regard to the innovativeness. There could be aspects of the causation approach that drive the entrepreneurs to success and innovativeness. Therefore, it would be interesting to analyze which of the five principles of causation leads to innovativeness, and what in general about the causation approach brings entrepreneurs to success.

Furthermore, the results of the t-tests analyzed for the sub-constructs revealed that the respondents make more use of goal-orientation, expected returns, competitive analysis and they rather try to predict the uncertain future instead of controlling the unpredictable. Therefore, four out of five sub-constructs support the result of the overall construct of using the causation process. Nevertheless, the tendency to try to exploit contingencies indicates the use of the effectuation approach. The definition of an entrepreneur supports these results by stating that an entrepreneur turns opportunities into a business (Baron, 2006).

The following describes the relation that the perceived culture has with the decision-making approach.

No relation between the tightness-looseness principle and the effectuation-causation construct could be detected. An exception stems from the last principle. The last principle is about whether an entrepreneur chooses to control the unpredictable future or to predict the uncertain future. This research identified a relation between the perceived tight culture and the desire to control the unpredictable future. This contrasts the fact that the German entrepreneurs choose the causation approach. Within this dimension, they tend to use the effectual approach, what could explain the different findings of different studies. In order to test the usage of causation or effectuation based on the perceived sample, a bigger sample should be used within future research. Thus, the perceived culture is not the reason why the majority of the respondents rather focus on exploiting contingencies.

Analyzing the control variables resulted in the conclusion that age, sex and industry do not influence entrepreneurs to choose either causation or effectuation. In contrast, the educational background, in fact following a business administration study, influences the decision-making process in a way that it leads to the effectuation approach. A reason for this influence could be that an individual who followed a business administration study developed entrepreneurial knowledge. "*Entrepreneurial expertise is nurtured through effectual reasoning*" (Read & Sarasvathy, 2005, p. 24). Including the educational background to the research of effectuation and causation strategies is therefore something, which should be further research, as suggested within existing literature about this topic (Mitchell et al., 2000).

6. CONCLUSION

This study aimed at answering the following research question: **To what extent do the cultural dimensions of tightness/looseness lead to an effectuation or causation decision-making process of novice entrepreneurs?**, with the use of effectuation and causation as description of decision-making process and the national culture construct of tightness-looseness.

The results show that perceived tightness has nearly no effect on the causal or effectual decision-making process in general. However, the mean-scores indicate a tendency to the causation process, independent of the perceived culture. In order to see whether the sub-construct of effectuation-causation is influenced by the national culture, these were analyzed separately.

Looking at the sub-constructs individually, there was no association found between the perceived culture and the goals-oriented or the means-oriented approach. Besides, no relation of the perceived culture with the focus on expected returns or on affordable loss (H4), pre-existing knowledge or exploiting contingencies (H5) and the emphasis on competitive analysis or the focus on strategic analysis (H6). In addition, no association of the perceived culture and the attempt to predict the uncertain future could be detected (H7). However, there is a relation between the perceived tightness and the attempt to control the unpredictable future (H7). Thus, the perceived culture seems to influence the last principle of effectuation and causation in a way that entrepreneurs in a tight culture tend to try to control the uncertain future, and thus it is related to the effectual construct. As a result, there is only a slight extent to which the perception of a tight or loose culture leads to a causation of

effectuation decision-making process of the novice entrepreneurs participated within this research.

Nevertheless, another factor seems to influence the way an entrepreneur makes decisions. The statistical test of the control variables indicates that the educational background of a completed business administration study influences the effectual decision-making process significantly. Therefore, further studies should include this aspect.

Additionally, the different scales belonging to each of the principles this research focuses on, have been tested on their reliability using Cronbach's alpha and an exploratory factor analysis. The reason for testing these scales is that they have been translated from English to German.

2009)

6.1 Contribution to the literature

Another goal of this research was to contribute to the existing literature about effectuation and causation.

Instead of focusing on Hofstede's cultural dimensions, this research relied on the principles of tightness-looseness developed by Gelfand (2006), which has been researched limitedly. In addition, the research has been conducted by searching for novice entrepreneurs as respondents instead of expert entrepreneurs, which cannot be seen as representative for all entrepreneurs (Perry et al., 2012; Read & Sarasvathy, 2005). By observing the constructs on novice entrepreneurs, this study helps to get an overall picture of how the decision-making process is influenced by the whole population of entrepreneurs.

Moreover, the study tested whether the type of the industry or the educational background have an influence on the decision-making process, which has not been included in prior research (Mitchell et al., 2000).

7. LIMITATIONS AND FURTHER RESEARCH

Since this research is part of a bigger project, the respondents had to answer more questions than referred within the appendix. In other words, they had to fill in answers to different items referring to constructs which were not related to tightness/looseness or causation/effectuation. As a result, there could be the possibility that the survey was too long, and the people might lose focus on the questions in the end. The length of the survey could explain the low response rate (Porter & Whitcomb, 2003; Sheehan, 2001). Therefore, a suggestion for further research is to conduct data using only the scales for effectuation/causation and tightness/looseness.

Besides the size of the survey, the low response rate could be explained by the way of how the data has been collected. In the first phase of the data collection, the entrepreneurs were contacted via email. These emails contained a standardized text, not really personalized along the image of the company, but including the name of the contact person. After experiencing no huge increase in the amount of respondents, a reminder email was sent out two weeks afterwards. Earlier research found that an email reminder increases the response rate by one-fourth (Sheehan, 2001). However, this was not the case for this survey, the amount of respondents increased only slightly and therefore it has been decided to contact the entrepreneurs individually, with company-oriented, personalized messages through different Social Networks. After a very short period of time, the response rate increased in smaller distances. Contacting the entrepreneurs on a more company-oriented basis, meaning by showing interest in the company, and doing so via Social Networks seemed to increase the response rate drastically in comparison to the email version. The impact of using Social Networks like Facebook on the response rate is an important aspect future research should focus on.

Diving into the culture questionnaire, the tendency to a rather neutral perception of culture could be explained by the fact that the concepts were misunderstood, due to a lack of examples. One of the respondents indicated that the questions concerning the culture could be answered in either way, agreeing or disagreeing, depending on the situation and the context. Thus, examples relating to each of the cultural items might help to overcome misunderstandings. As a consequence, the tendency towards either tightness or looseness might be reflected more obviously.

Besides, the tendency towards exploiting contingencies, an thus the tendency to the effectuation approach, is not influenced by the perceived national culture. The reasons for leading to such an result should be included in further research, by testing more aspects on the relation to causation and effectuation. Such aspects could be the venture type, the industry type and the cognitive thinking style of the entrepreneur.

Nevertheless, the tendency to try to exploit contingencies indicates the use of the effectuation approach. The definition of an entrepreneur supports these results by stating that an entrepreneur turns opportunities into a business (Baron, 2006).

As the analysis of the control variable results in the fact that a business administration background leads to a causation decision-making process, further research should focus on how and whether other educational backgrounds lead to either causation or effectuation.

Even though, the research included the educational background as proposed by Mitchell et al. (2000), the study neglected to include the industry type. Nevertheless, the educational background served as control variable, and has therefore not been analyzed thoroughly.

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9. APPENDIX

9.1 Survey Items

9.1.1 Items for Effectuation and Causation

Table 1: Items for effectuation/causation

Approach	Item	Aspect
Causation	1.	Goal-oriented
	2.	Focusing on Expected Returns
	3.	Focusing on Pre-existing Knowledge
	4.	Focusing on Competitive Analysis
	5.	Predicting the Uncertain Future
Effectuation	6.	Means-oriented
	7.	Focusing on Affordable Loss
	8.	Focusing on Exploiting Contingencies
	9.	Focusing on Commitment
	10.	Controlling the Unpredictable Future

9.1.2 Items for cultural dimensions

Table 2: Items for culture

Approach	Item	Coding
Tight or Loose Culture	1.There are many social norms that people are supposed to abide in this country.	1 = very loose culture; 6= very tight culture
	2. In this country, there are very clear expectations for how people should act in most situations.	1 = very loose culture; 6= very tight culture
	3. People agree upon what behaviors are appropriate versus inappropriate in most situations in this country.	1 = very loose culture; 6= very tight culture
	4. People in this country have a great deal of freedom in deciding how they want to behave in most situations	1 = very tight culture; 6= very loose culture **(reverse coded)**
	5. In this country, if someone acts in an inappropriate way, others will strongly disapprove.	1 = very loose culture; 6= very tight culture
	6. People in this country almost always comply with social norms.	1 = very loose culture; 6= very tight culture

9.2 SPSS Outputs

9.2.1 Cronbach's alpha

9.2.1.1 Cronbach's alpha for Causation items

Case Processing Summary

		N	%
Cases	Valid	69	100,0
	Excluded[a]	0	,0
	Total	69	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,744	,743	5

Item Statistics

	Mean	Std. Deviation	N
C1_Goal-oriented	5,130	1,3923	69
C2_ExpectedReturns	4,884	1,4505	69
C3_Pre-existingKnow	3,348	1,3914	69
C4_Comp_Analysis	4,739	1,4618	69
C5_UncertainFuture	4,681	1,5482	69

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
C1_Goal-oriented	17,652	18,083	,502	,296	,701
C2_ExpectedReturns	17,899	17,916	,484	,281	,708
C3_Pre-existingKnow	19,435	19,426	,375	,199	,745
C4_Comp_Analysis	18,043	16,219	,646	,446	,645
C5_UncertainFuture	18,101	16,769	,536	,397	,688

9.2.1.2 Cronbach's alpha for Effectuation items

Case Processing Summary

		N	%
Cases	Valid	69	100,0
	Excluded[a]	0	,0
	Total	69	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,808	,809	5

Item Statistics

	Mean	Std. Deviation	N
E1_Means-oriented	3,478	1,8599	69
E2_AffordableLoss	4,101	1,6903	69
E3_Contingencies	3,435	1,8746	69
E4_Commitment	3,739	1,6947	69
E5_UnpredictableFuture	3,087	1,6868	69

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
E1_Means-oriented	14,362	30,176	,504	,357	,799
E2_AffordableLoss	13,739	29,490	,631	,441	,760
E3_Contingencies	14,406	27,627	,649	,452	,753
E4_Commitment	14,101	31,357	,511	,347	,794
E5_UnpredictableFuture	14,754	28,688	,686	,506	,743

9.2.1.3 Cronbach's alpha for Perceived culture

Case Processing Summary

		N	%
Cases	Valid	69	100,0
	Excluded[a]	0	,0
	Total	69	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,701	,709	6

Item Statistics

	Mean	Std. Deviation	N
Q1_Gelfand	4,6087	1,06021	69
Q2_Gelfand	4,6087	1,01775	69
Q3_Gelfand	4,3188	,97758	69
Q4_Gelfand	2,5362	1,14506	69
Q5_Gelfand	4,5652	,96220	69
Q6_Gelfand	4,3043	,89614	69

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1_Gelfand	20,3333	10,490	,463	,351	,650
Q2_Gelfand	20,3333	9,461	,686	,649	,574
Q3_Gelfand	20,6232	10,415	,542	,515	,626
Q4_Gelfand	22,4058	12,039	,181	,055	,747
Q5_Gelfand	20,3768	11,385	,382	,255	,676
Q6_Gelfand	20,6377	11,529	,404	,219	,670

9.2.2 Factor analysis for effectuation and causation

Correlation Matrix[a]

		C1_Goal-oriented	C2_Expected Returns	C3_Pre-existingKnow	C4_Comp_Analysis	C5_Uncertain Future	E1_Means-oriented	E2_Affordable Loss	E3_Contingencies	E4_Commitment	E5_UnpredictableFuture
Correlation	C1_Goal-oriented	1,000	,328	,401	,458	,279	-,269	-,162	-,264	-,291	-,318
	C2_ExpectedReturns	,328	1,000	,181	,409	,481	-,186	-,265	-,095	-,156	-,248
	C3_Pre-existingKnow	,401	,181	1,000	,356	,202	-,037	,016	,020	,039	-,120
	C4_Comp_Analysis	,458	,409	,356	1,000	,567	-,170	-,150	-,237	-,117	-,301
	C5_UncertainFuture	,279	,481	,202	,567	1,000	-,237	-,184	-,276	-,116	-,395
	E1_Means-oriented	-,269	-,186	-,037	-,170	-,237	1,000	,574	,391	,227	,404
	E2_AffordableLoss	-,162	-,265	,016	-,150	-,184	,574	1,000	,496	,358	,487
	E3_Contingencies	-,264	-,095	,020	-,237	-,276	,391	,496	1,000	,476	,616
	E4_Commitment	-,291	-,156	,039	-,117	-,116	,227	,358	,476	1,000	,558
	E5_UnpredictableFuture	-,318	-,248	-,120	-,301	-,395	,404	,487	,616	,558	1,000
Sig. (1-tailed)	C1_Goal-oriented		,003	,000	,000	,010	,013	,092	,014	,008	,004
	C2_ExpectedReturns	,003		,069	,000	,000	,063	,014	,219	,100	,020
	C3_Pre-existingKnow	,000	,069		,001	,048	,382	,448	,435	,375	,164
	C4_Comp_Analysis	,000	,000	,001		,000	,082	,110	,025	,169	,006
	C5_UncertainFuture	,010	,000	,048	,000		,025	,065	,011	,171	,000
	E1_Means-oriented	,013	,063	,382	,082	,025		,000	,000	,030	,000
	E2_AffordableLoss	,092	,014	,448	,110	,065	,000		,000	,001	,000
	E3_Contingencies	,014	,219	,435	,025	,011	,000	,000		,000	,000
	E4_Commitment	,008	,100	,375	,169	,171	,030	,001	,000		,000
	E5_UnpredictableFuture	,004	,020	,164	,006	,000	,000	,000	,000	,000	

a. Determinant = ,035

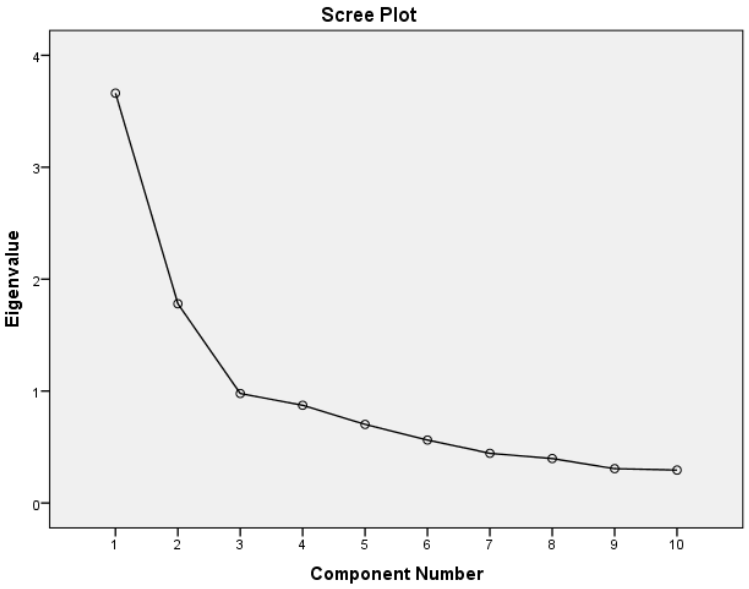
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,760
Bartlett's Test of Sphericity	Approx. Chi-Square	214,052
	df	45
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,662	36,617	36,617	3,662	36,617	36,617	2,928	29,276	29,276
2	1,780	17,803	54,420	1,780	17,803	54,420	2,514	25,144	54,420
3	,978	9,783	64,203						
4	,873	8,730	72,933						
5	,702	7,023	79,956						
6	,563	5,628	85,584						
7	,444	4,439	90,023						
8	,397	3,970	93,993						
9	,307	3,065	97,058						
10	,294	2,942	100,000						

Extraction Method: Principal Component Analysis.



Component Matrix[a]

	Component	
	1	2
C1_Goal-oriented	-,601	,355
C2_ExpectedReturns	-,535	,391
C3_Pre-existingKnow		,611
C4_Comp_Analysis	-,604	,547
C5_UncertainFuture	-,620	,396
E1_Means-oriented	,603	
E2_AffordableLoss	,643	,432
E3_Contingencies	,686	,413
E4_Commitment	,571	,401
E5_UnpredictableFuture	,782	

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Rotated Component Matrix[a]

	Component	
	1	2
C1_Goal-oriented		,653
C2_ExpectedReturns		,640
C3_Pre-existingKnow		,653
C4_Comp_Analysis		,805
C5_UncertainFuture		,696
E1_Means-oriented	,653	
E2_AffordableLoss	,772	
E3_Contingencies	,794	
E4_Commitment	,697	
E5_UnpredictableFuture	,773	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Component Transformation Matrix

Component	1	2
1	,781	-,625
2	,625	,781

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

9.2.3 Control variables

9.2.3.1 Correlations

Correlations

		Wie alt sind Sie?	Sind Sie einem betriebswirtschaftlichen Studium nachgegangen?	In welcher Branche ist Ihr Unternehmen tätig?	Causal_DM	Effectual_DM
Wie alt sind Sie?	Pearson Correlation	1	,269*	,014	-,038	-,014
	Sig. (2-tailed)		,025	,910	,757	,907
	N	69	69	69	69	69
Sind Sie einem betriebswirtschaftlichen Studium nachgegangen?	Pearson Correlation	,269*	1	,159	-,242*	,082
	Sig. (2-tailed)	,025		,191	,045	,501
	N	69	69	69	69	69
In welcher Branche ist Ihr Unternehmen tätig?	Pearson Correlation	,014	,159	1	-,078	,088
	Sig. (2-tailed)	,910	,191		,522	,470
	N	69	69	69	69	69
Causal_DM	Pearson Correlation	-,038	-,242*	-,078	1	-,344**
	Sig. (2-tailed)	,757	,045	,522		,004
	N	69	69	69	69	69
Effectual_DM	Pearson Correlation	-,014	,082	,088	-,344**	1
	Sig. (2-tailed)	,907	,501	,470	,004	
	N	69	69	69	69	69

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

9.2.4 Shapiro Wilk test of Normality

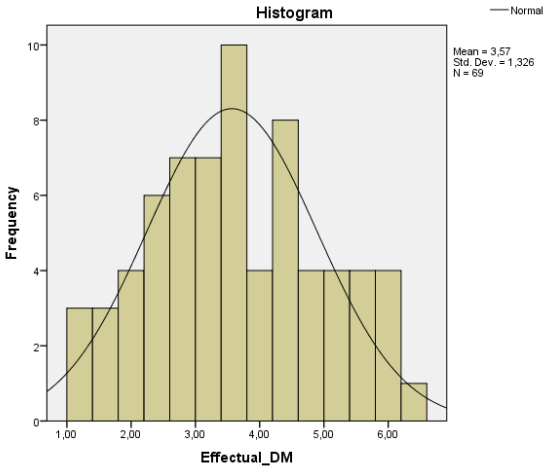
9.2.4.1 Shapiro Wilk test for Causation and Effectuation

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Causal_DM	69	100,0%	0	0,0%	69	100,0%
Effectual_DM	69	100,0%	0	0,0%	69	100,0%

Descriptives

			Statistic	Std. Error
Causal_DM	Mean		4,5565	,12269
	95% Confidence Interval for Mean	Lower Bound	4,3117	
		Upper Bound	4,8013	
	5% Trimmed Mean		4,6061	
	Median		4,6000	
	Variance		1,039	
	Std. Deviation		1,01915	
	Minimum		1,40	
	Maximum		6,40	
	Range		5,00	
	Interquartile Range		1,40	
	Skewness		-,717	,289
	Kurtosis		,517	,570
Effectual_DM	Mean		3,5681	,15958
	95% Confidence Interval for Mean	Lower Bound	3,2497	
		Upper Bound	3,8866	
	5% Trimmed Mean		3,5646	
	Median		3,6000	
	Variance		1,757	
	Std. Deviation		1,32560	
	Minimum		1,20	
	Maximum		6,20	
	Range		5,00	
	Interquartile Range		1,90	
	Skewness		,107	,289
	Kurtosis		-,800	,570



Extreme Values

			Case Number	Value
Causal_DM	Highest	1	31	6,40
		2	15	6,00
		3	20	6,00
		4	69	6,00
		5	21	5,80[a]
	Lowest	1	24	1,40
		2	30	1,80
		3	55	2,80
		4	42	2,80
		5	29	3,00
Effectual_DM	Highest	1	32	6,20
		2	38	6,00
		3	11	5,80
		4	30	5,80
		5	47	5,80
	Lowest	1	63	1,20
		2	49	1,20
		3	15	1,20
		4	35	1,40
		5	62	1,60[b]

a. Only a partial list of cases with the value 5,80 are shown in the table of upper extremes.

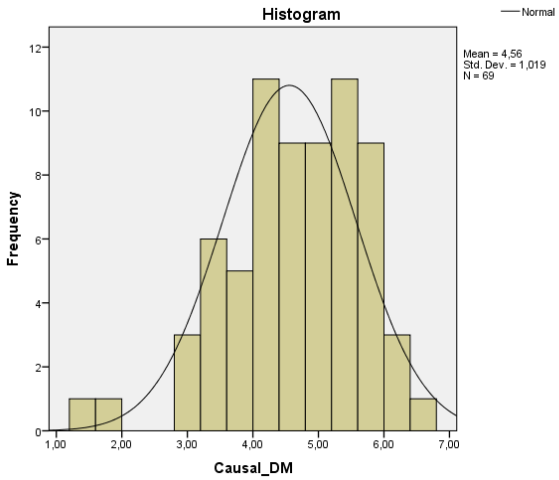
b. Only a partial list of cases with the value 1,60 are shown in

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Causal_DM	,103	69	,067	,960	69	,027
Effectual_DM	,070	69	,200*	,975	69	,171

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



9.2.4.2 Shapiro Wilk test for Causation and Effectuation Cultural Tightness-Looseness

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Perceived_Culture	69	100,0%	0	0,0%	69	100,0%

Descriptives

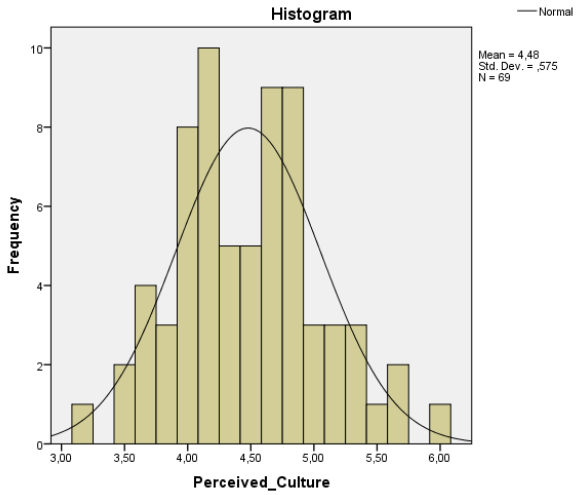
			Statistic	Std. Error
Perceived_Culture	Mean		4,4783	,06924
	95% Confidence Interval for Mean	Lower Bound	4,3401	
		Upper Bound	4,6164	
	5% Trimmed Mean		4,4666	
	Median		4,5000	
	Variance		,331	
	Std. Deviation		,57516	
	Minimum		3,17	
	Maximum		6,00	
	Range		2,83	
	Interquartile Range		,83	
	Skewness		,273	,289
	Kurtosis		-,105	,570

Extreme Values

			Case Number	Value
Perceived_Culture	Highest	1	31	6,00
		2	32	5,67
		3	60	5,67
		4	69	5,50
		5	23	5,33[a]
	Lowest	1	28	3,17
		2	52	3,50
		3	14	3,50
		4	42	3,67
		5	37	3,67[b]

a. Only a partial list of cases with the value 5,33 are shown in the table of upper extremes.

b. Only a partial list of cases with the value 3,67 are shown in the table of lower extremes.



Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Perceived_Culture	,112	69	,032	,983	69	,484

a. Lilliefors Significance Correction

9.2.5 Paired sample t-tests

9.2.5.1 Effectuation and Causation

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Effectual_DM	3,5681	69	1,32560	,15958
	Causal_DM	4,5565	69	1,01915	,12269

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Effectual_DM & Causal_DM	69	-,344	,004

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Effectual_DM - Causal_DM	-,98841	1,92991	,23233	-1,45202	-,52479	-4,254	68	,000

9.2.5.2 Goal-oriented and mean-oriented

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	E1_Means-oriented	3,478	69	1,8599	,2239
	C1_Goal-oriented	5,130	69	1,3923	,1676

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	E1_Means-oriented - C1_Goal-oriented	-1,6522	2,6056	,3137	-2,2781	-1,0262	-5,267	68	,000

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	E1_Means-oriented & C1_Goal-oriented	69	-,269	,026

9.2.5.3 Expected Returns and Affordable Loss

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	E2_AffordableLoss	4,101	69	1,6903	,2035
	C2_ExpectedReturns	4,884	69	1,4505	,1746

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	E2_AffordableLoss & C2_ExpectedReturns	69	-,265	,028

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	E2_AffordableLoss - C2_ExpectedReturns	-,7826	2,5022	,3012	-1,3837	-,1815	-2,598	68	,011

9.2.5.4 Pre-Existing Knowledge and Exploiting Contingencies

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	E3_Contingencies	3,435	69	1,8746	,2257
	C3_Pre-existingKnow	3,348	69	1,3914	,1675

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	E3_Contingencies & C3_Pre-existingKnow	69	,020	,870

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	E3_Contingencies - C3_Pre-existingKnow	,0870	2,3120	,2783	-,4684	,6424	,312	68	,756

9.2.5.5 Competitive Analysis and Commitment

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	E4_Commitment & C4_Comp_Analysis	69	-,117	,339

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	E4_Commitment	3,739	69	1,6947	,2040
	C4_Comp_Analysis	4,739	69	1,4618	,1760

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	E4_Commitment - C4_Comp_Analysis	-1,0000	2,3639	,2846	-1,5679	-,4321	-3,514	68	,001

9.2.5.6 Predicting the uncertain future and controlling the unpredictable future

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	E5_UnpredictableFuture	3,087	69	1,6868	,2031
	C5_UncertainFuture	4,681	69	1,5482	,1864

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	E5_UnpredictableFuture & C5_UncertainFuture	69	-,395	,001

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	E5_UnpredictableFuture - C5_UncertainFuture	-1,5942	2,7025	,3253	-2,2434	-,9450	-4,900	68	,000

9.2.6 Hypothesis testing

9.2.6.1 Hypothesis 1 – one-sample t-test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Perceived Culture	69	4,4783	,57516	,06924

One-Sample Test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Perceived Culture	64,676	68	,000	4,47826	4,3401	4,6164

9.2.6.2 Hypothesis 2 – Linear Regression

CAUSATION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,197[a]	,039	,024	1,00670

a. Predictors: (Constant), Perceived tightness (mean)

b. Dependent Variable: Causal_DM

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,729	1	2,729	2,693	,106[b]
	Residual	67,901	67	1,013		
	Total	70,630	68			

a. Dependent Variable: Causal_DM

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,997	,958		3,127	,003
	Perceived tightness (mean)	,348	,212	,197	1,641	,106

a. Dependent Variable: Causal_DM

EFFECTUATION

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,168[a]	,028	,014	1,31643

a. Predictors: (Constant), Perceived tightness (mean)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,379	1	3,379	1,950	,167[b]
	Residual	116,111	67	1,733		
	Total	119,490	68			

a. Dependent Variable: Effectual_DM

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,832	1,253		1,462	,148
	Perceived tightness (mean)	,388	,278	,168	1,396	,167

a. Dependent Variable: Effectual_DM

9.2.6.3 Hypothesis 3 – Linear Regression

CAUSATION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,169[a]	,029	,014	1,3826

a. Predictors: (Constant), Perceived tightness (mean)

b. Dependent Variable: C1_Goal-oriented

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,759	1	3,759	1,967	,165[b]
	Residual	128,067	67	1,911		
	Total	131,826	68			

a. Dependent Variable: C1_Goal-oriented

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,300	1,316		2,507	,015
	Perceived tightness (mean)	,409	,291	,169	1,402	,165

a. Dependent Variable: C1_Goal-oriented

EFFECTUATION

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,057[a]	,003	-,012	1,8707

a. Predictors: (Constant), Perceived tightness (mean)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,753	1	,753	,215	,644[b]
	Residual	234,464	67	3,499		
	Total	235,217	68			

a. Dependent Variable: E1_Means-oriented

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,298	1,781		2,414	,019
	Perceived tightness (mean)	-,183	,394	-,057	-,464	,644

a. Dependent Variable: E1_Means-oriented

9.2.6.4 Hypothesis 4 – Linear Regression

CAUSATION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,208[a]	,043	,029	1,4292

a. Predictors: (Constant), Perceived tightness (mean)

b. Dependent Variable: C2_ExpectedReturns

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,217	1	6,217	3,044	,086[b]
	Residual	136,855	67	2,043		
	Total	143,072	68			

a. Dependent Variable: C2_ExpectedReturns

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,530	1,360		1,860	,067
	Perceived tightness (mean)	,526	,301	,208	1,745	,086

a. Dependent Variable: C2_ExpectedReturns

EFFECTUATION

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,098[a]	,010	-,005	1,6947

a. Predictors: (Constant), Perceived tightness (mean)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,870	1	1,870	,651	,423[b]
	Residual	192,420	67	2,872		
	Total	194,290	68			

a. Dependent Variable: E2_AffordableLoss

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,810	1,613		1,742	,086
	Perceived tightness (mean)	,288	,357	,098	,807	,423

a. Dependent Variable: E2_AffordableLoss

9.2.6.5 Hypothesis 5 – Linear Regression

CAUSATION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,006[a]	,000	-,015	1,4017

a. Predictors: (Constant), Perceived tightness (mean)

b. Dependent Variable: C3_Pre-existingKnow

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,004	1	,004	,002	,963[b]
	Residual	131,648	67	1,965		
	Total	131,652	68			

a. Dependent Variable: C3_Pre-existingKnow

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,410	1,334		2,556	,013
	Perceived tightness (mean)	-,014	,296	-,006	-,047	,963

a. Dependent Variable: C3_Pre-existingKnow

EFFECTUATION

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,107[a]	,012	-,003	1,6975

a. Predictors: (Constant), Perceived tightness (mean)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,246	1	2,246	,780	,380[b]
	Residual	193,058	67	2,881		
	Total	195,304	68			

a. Dependent Variable: E4_Commitment

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,324	1,616		1,438	,155
	Perceived tightness (mean)	,316	,358	,107	,883	,380

a. Dependent Variable: E4_Commitment

9.2.6.6 Hypothesis 6 – Linear Regression

CAUSATION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,183[a]	,033	,019	1,4479

a. Predictors: (Constant), Perceived tightness (mean)

b. Dependent Variable: C4_Comp_Analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,847	1	4,847	2,312	,133[b]
	Residual	140,457	67	2,096		
	Total	145,304	68			

a. Dependent Variable: C4_Comp_Analysis

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,660	1,378		1,930	,058
	Perceived tightness (mean)	,464	,305	,183	1,521	,133

a. Dependent Variable: C4_Comp_Analysis

EFFECTUATION

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,198[a]	,039	,025	1,8513

a. Predictors: (Constant), Perceived tightness (mean)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9,328	1	9,328	2,722	,104[b]
	Residual	229,629	67	3,427		
	Total	238,957	68			

a. Dependent Variable: E3_Contingencies

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,551	1,762		,313	,755
	Perceived tightness (mean)	,644	,390	,198	1,650	,104

a. Dependent Variable: E3_Contingencies

9.2.6.7 Hypothesis 7 – Linear Regression

CAUSATION

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,132[a]	,018	,003	1,5459

a. Predictors: (Constant), Perceived tightness (mean)

b. Dependent Variable: C5_UncertainFuture

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,861	1	2,861	1,197	,278[b]
	Residual	160,125	67	2,390		
	Total	162,986	68			

a. Dependent Variable: C5_UncertainFuture

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,084	1,471		2,096	,040
	Perceived tightness (mean)	,357	,326	,132	1,094	,278

a. Dependent Variable: C5_UncertainFuture

EFFECTUATION

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,298[a]	,089	,075	1,6224

a. Predictors: (Constant), Perceived tightness (mean)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17,131	1	17,131	6,508	,013[b]
	Residual	176,348	67	2,632		
	Total	193,478	68			

a. Dependent Variable: E5_UnpredictableFuture

b. Predictors: (Constant), Perceived tightness (mean)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,821	1,544		-,532	,597
	Perceived tightness (mean)	,873	,342	,298	2,551	,013

a. Dependent Variable: E5_UnpredictableFuture

9.2.7 Correlations

Correlations

		Perceived Culture	Effectual_DM	Causal_DM	E1_Means-oriented	C1_Goal-oriented	E2_Affordable Loss	C2_Expected Returns	E3_Contingencies	C3_Pre-existingKnow	E4_Commitment	C4_Comp_Analysis	E5_UnpredictableFuture	C5_Uncertain Future
Perceived Culture	Pearson Correlation	1	,168	,197	-,057	,169	,098	,208	,198	-,006	,107	,183	,298	,132
	Sig. (2-tailed)		,167	,106	,644	,165	,423	,086	,104	,963	,380	,133	,013	,278
	N		69	69	69	69	69	69	69	69	69	69	69	69
Effectual_DM	Pearson Correlation		1	-,344	,698	-,347	,772	-,250	,797	-,021	,688	-,259	,809	-,322
	Sig. (2-tailed)			,004	,000	,004	,000	,038	,000	,864	,000	,031	,000	,007
	N			69	69	69	69	69	69	69	69	69	69	69
Causal_DM	Pearson Correlation			1	-,257	,692	-,214	,687	-,246	,598	-,182	,798	-,396	,735
	Sig. (2-tailed)				,033	,000	,077	,000	,042	,000	,134	,000	,001	,000
	N				69	69	69	69	69	69	69	69	69	69
E1_Means-oriented	Pearson Correlation				1	-,269	,574	-,186	,391	-,037	,227	-,170	,404	-,237
	Sig. (2-tailed)					,026	,000	,125	,001	,764	,061	,163	,001	,050
	N					69	69	69	69	69	69	69	69	69
C1_Goal-oriented	Pearson Correlation					1	-,162	,328	-,264	,401	-,291	,458	-,318	,279
	Sig. (2-tailed)						,184	,006	,028	,001	,015	,000	,008	,020
	N						69	69	69	69	69	69	69	69
E2_AffordableLoss	Pearson Correlation						1	-,265	,496	,016	,358	-,150	,487	-,184
	Sig. (2-tailed)							,028	,000	,896	,002	,219	,000	,130
	N							69	69	69	69	69	69	69
C2_ExpectedReturns	Pearson Correlation							1	-,095	,181	-,156	,409	-,248	,481
	Sig. (2-tailed)								,439	,138	,200	,000	,040	,000
	N								69	69	69	69	69	69
E3_Contingencies	Pearson Correlation								1	,020	,476	-,237	,616	-,276
	Sig. (2-tailed)									,870	,000	,050	,000	,022
	N									69	69	69	69	69
C3_Pre-existingKnow	Pearson Correlation									1	,039	,356	-,120	,202
	Sig. (2-tailed)										,750	,003	,328	,095
	N										69	69	69	69
E4_Commitment	Pearson Correlation										1	-,117	,558	-,116
	Sig. (2-tailed)											,339	,000	,342
	N											69	69	69
C4_Comp_Analysis	Pearson Correlation											1	-,301	,567
	Sig. (2-tailed)												,012	,000
	N												69	69
E5_UnpredictableFuture	Pearson Correlation												1	-,395
	Sig. (2-tailed)													,001
	N													69
C5_UncertainFuture	Pearson Correlation													1