MASTER THESIS

INFLUENCE OF CULTURAL TIGHTNESS-LOOSENESS ON CAUSAL AND EFFECTUAL DECISION-MAKING

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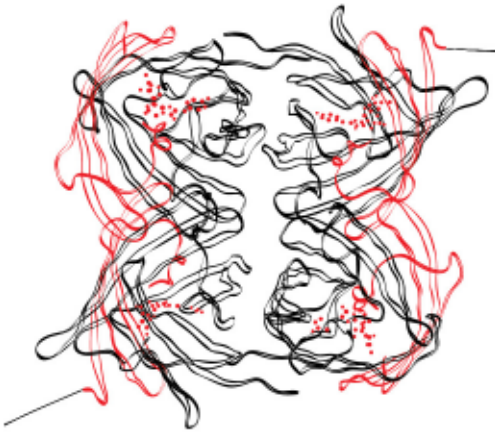

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Preface

This document is my final step before receiving my Master of Science degree in Business Administration at the University of Twente in The Netherlands. During my university career, I participated in the track Innovation & Entrepreneurship, which examined topics that always triggered my attention. In a lecture on international entrepreneurship, the entrepreneurial decision-making strategy 'effectuation' passed by. For me this was completely new, because prior education taught me to develop rational business plans before creating a new venture. However, the theory of effectuation realised me that a business market and an end product could get created through the venturing process itself in a future that is inherently unpredictable. Combining this topic with my great hobby, travelling the world, became the foundation for my research. My interest arose to how entrepreneurial decision-making is performed behind the boundaries of a single country.

A good motivation is the start, but retain this motivation and get through the timely process of writing a master thesis is quite challenging. The reward on the finish line is a good-looking Master of Science degree that kept me going during the personal struggles I had to deal with. The passing away of my beloved father was a drastic life-changer that took time and effort to coop with. Therefore, I pay my sincere gratitude to my family, in particular to my mother, who kept faith in me and provided unconditional support. Without their encouragement and trust I was not able to succeed. In additon, I would like to thank my friends being there for me and not asking too many questions about my study progress. Writing a thesis is sometimes a lonely endeavour and is not possible without others.

I would like to express special gratitude to my first supervisor Martin Stienstra for his guidance and support. He has been a great help throughout my course and kept his patience. My second supervisor Michel Ehrenhard reviewed and examined my work, which I also would like to kindly thank him for. Studying at The University of Twente gave me satisfaction and taught me to define and defend my choices throughout the process of developing confidence as an academic. Presenting this thesis feels like a personal achievement.

Ard Munster
Dronten, the Netherlands | February, 2016

Abstract

Effectuation is a non-predictive decision-making strategy for new venture creating effective in a future that is inherently unpredictable. This thinking logic is researched by Sarasvathy (2001) and emphasizes that the end product is unpredictable at the beginning of the process and the market and opportunity gets created though the process. This is contrary to the rational prediction-oriented business-planning strategy that Sarasvathy (2001) describe as causation. A new scale is developed to measure effectuation and causation in a quantitative way. This scale is used to measure to what extent the society influences entrepreneurs in using a causal or effectual decision-making approach. The cultural tightness-looseness construct (Gelfand et al, 2011) gained research attention in recent years and provides a new perspective on culture. This new perspective was desired because previous studies found unconvincing results with using the value perspective of Hofstede.

The hypotheses state the proposed relationships between cultural tightness-looseness and the principles of effectuation and causation. It is found that entrepreneurs, who are influenced by a loose society, apply a more causal logic than an effectual logic in the decision-making process. Entrepreneurs, who are influence by a tight society, also apply more causal reasoning than effectual reasoning. These findings indicate that tight and loose entrepreneurs use both types of reasoning, but mainly apply the causal logic. The results show that some principles of effectuation and causation are shared constructs of each other and that effectuation is a formative construct, which is similar to findings of Chandler et al. (2011). Future research should expand on how effectuation and causation could be measure as separate constructs and how the broad construct can be applied to multiple fields of research. Also, further research can be recommended to investigate if Gelfand's scale on cultural strength is valid and reliable enough to apply it in an entrepreneurial context.

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1. Introduction

1.1 General background

Entrepreneurship is a fast-growing field of research and is involved with taking risks (Drucker, 1970) and the creation of new organisations (Gartner, 1988). Venkataraman (1997) explains that entrepreneurship is concerned with understanding *"how opportunities to bring into existence 'future' goods and services are discovered, created, and exploited, by whom, and with what consequences"* (p. 120). However, *"new venture creation"* is commonly known as the definition for entrepreneurship (Gartner, 1985, p. 697). Because research attention has been directed to multiple areas of the rich domain, each definition probably do not state the entire phenomenon of entrepreneurship (Shane & Venkataraman, 2000). Nonetheless, it serves entrepreneurship scholars in multiple academic fields. Perhaps, the best known definition of the entrepreneur is by the economist Schumpeter, who defines entrepreneurs as individuals that *"reform or revolutionise the pattern of production by exploiting an invention [...] or untried technical possibility for producing a new commodity or producing an old one in a new way [...] this requires aptitudes that are present in only a small fraction of the population [...]"* (Schumpeter, 1934, p. 132). He sees the role of the entrepreneur as the catalyst of change.

Personal values, sequence of activities, decisions and actions are all related to the process of new venture creation (Gartner, 1985), which is known as the 'entrepreneurial process'. Bygrave & Hofer (1991) define the entrepreneurial process as *"involving all the functions, activities, and actions associated with perceiving opportunities and creating organisations to pursue them*" (p. 14). Most research on entrepreneurial processes is based on rational decision-making models employed by neoclassical economics. Most entrepreneurship researcher assumed that individuals engage in rational goal-driven behaviours when pursuing entrepreneurial opportunities (Perry, Chandler, & Markova, 2012). MBA students in many business schools are taught goal-driven entrepreneurial decision models.

In research, a debate emerged on the value of business planning for established small and especially new firms when facing high degrees of uncertainty (Brinckmann, Grichnik, & Kapsa, 2010). Wiltbank, Dew, Read, & Sarasvathy (2006) explain that there are two schools of thoughts on the topic of what firms should do next in uncertain situations: the planning approaches and the adaptive approaches. According to Wiltbank et al. (2006), the role of prediction is a central issue in the decision-making process. The planning approach is systematic and prediction-oriented and uses a formal approach that results in venture performance. This

approach focuses on 'trying harder to predict better' for future challenges (Sarasvathy, 2001). Sarasvathy (2001) described these rational business-planning strategies as 'causation'. Contrary, researchers belonging to the learning school argue the value of prediction-oriented strategy and advocate that the focus should be on strategic flexibility, learning and controlling resources (Wiltbank, Dew, Read, & Sarasvathy, 2006; Brinckmann, Grichnik, & Kapsa, 2010). These adaptive or emergent strategies focus on 'moving faster to adapt better' (Sarasvathy, 2001). In recent years, research is directed towards and adaptive strategy to describe the underlying nature of the entrepreneurial process, i.e. the theory of effectuation (Sarasvathy, 2001), entrepreneurial bricolage (Baker & Nelson, 2005) and the creation perspective (Alvarez & Barney, 2007).

Moroz & Hindle (2012) reviewed 32 process models of entrepreneurship, to determine which models are both generic (all processes that are entrepreneurial do this) and distinct (only entrepreneurial processes do this) about the process of entrepreneurship. In their peer-review four models are found that provide insight on both characteristics, works by Gartner (1985), Bruyat & Julien (2000), Sarasvathy (2001) and Shane (2003). These models show entrepreneurial process in multiple perspectives, but none of them is simultaneously both generic and distinct. Sarasvathy's model of effectuation is the only model that presented a direct practical focus and has a rapidly growing volume of scholarship devoted to it (Moroz & Hindle, 2012). Research to date shows that effectuation theory is applied in the realm of management (Augier & Sarasvathy, 2004), economics (Dew, Sarasvathy, & Venkataraman, 2004), finance (Wiltbank, Read, Dew, & Sarasvathy, 2009), marketing (Read, Dew, Sarasvathy, Song, & Wiltbank, 2009), and R&D management (Brettel, Mauer, Engelen, & Kupper, 2012).

Sarasvathy (2001) researched a thinking logic that serves entrepreneurs in starting a business and provides a way to control a future that is inherently unpredictable. Effectuation begins with a given set of means and allows goals to emerge contingently over time from the varied imagination and diverse aspirations of the founders and the people they interact with (Sarasvathy, 2001b). This non-predictive strategy emphasize that the end product is unpredictable at the beginning of the process and the market and opportunity gets created though the process itself by determine the affordable loss, forming strategic alliances and pre-commitments with stakeholders, exploiting contingencies and controlling an unpredictable future. In contrast, causation is consistent with planned strategy approaches and includes activities such as opportunity recognition and business plan development (Sarasvathy, 2001).

Formal and informal institutions influence the decision-making process and the performance of a company. Formal institutions are political, economic and contractual rules that regulate the behaviour of an individual (North, 1990). The informal institution is a system of shared values and collective understanding between individuals and is not coded in standards and rules. National culture is seen as an import reflection of an informal institution (North, 1990). Holmes, Miller, Hitt, & Salmador (2013) indicated the importance of informal institutions and explain that cultural dimensions shape the country's formal institutions. In 1956, Weber already stated the importance of informal institutions and pointed that entrepreneurship might be linked to cultural values and suggested that values and beliefs are factors that encourage entrepreneurship. Shane (1993; 1994) researched the association and effect between national culture and national rates of innovation and found positive correlations with the cultural values 'individualism' and 'power distance'. Research on the relationship between culture and entrepreneurship did not rapidly-develop after Shane.

A few years later, Mueller & Thomas (2000) explored if entrepreneurial traits (locus of control and innovativeness) varied across cultures and found that uncertainty avoiding and individualistic cultures are supporting entrepreneurship. Research slowly expanded on different entrepreneurial concepts related to culture. Hayton, George & Zahra (2002) reviewed and synthesized the findings of 21 empirical studies that examine the association of culture with entrepreneurship on national level. Multiple studies have concluded that entrepreneurs in different countries usually share some universal traits and they may also have other traits that are specific to their own culture. Most behavioural studies, which Hayton et al. (2002) reviewed, are skewed towards cultural values and entrepreneurial behaviour that stems from research of Hofstede.

Recent research described the cultural values extensively (Hofstede G. , 1980; Schwartz, 1994; Smith, 1996; House, Hanges, Javidan, Dorfman, & Vipin, 2004; Taras, Kirkman, & Steel, 2010) and shows that the cultural values are one of the more influential context variables regarding the influence on entrepreneurship (Morrison, 2000). Most research is under the umbrella of international business, which does not focus on the entrepreneurial process itself.

1.2 Research gap

It is unclear to what extend culture influences the entrepreneurial process. Schumpeter (1965) suggests that activity in entrepreneurship depends upon the availability of prospective entrepreneurs (i.e. individuals possessing personality traits combined with personal circumstances). This indicates that the entrepreneur, with

their own cultural set of beliefs and personal traits, has a key-role in the entrepreneurial process and could behave differently in other countries or societies.

In the field of International Entrepreneurship, no literature is found that goes into detail on cultural implications on entrepreneurial processes. In International Business literature Jones & Coviello (2005) view internationalisation as a ***"time-based process of entrepreneurial behaviour"*** (p. 284), where internal and external environmental changes lead to the entry mode choice and country selection. Even when Jones & Coviello (2005) highlight country diversity (geographic, economic and cultural distance), no detailed information is found on the (in)direct relationship of culture on entrepreneurial processes.

Also, Sarasvathy (2001) does not mention the implications of culture on new venture creation in an effectual way. Perry et al. (2012) reviewed the developments on the effectuation theory since the introduction of this topic. He states that empirical research on this topic is attempted by only a few researchers and is therefore lacking. He provides future research suggestions and argues that the relationship between established constructs and effectuation should be explored. The role of cultural values related to effectual decision-making is not mentioned, which could be valuable to the decision-making process.

The research project 'Entrepreneurial Processes in a Cultural Context' (EPICC), at the University of Twente, investigated the significance of the cultural context in the entrepreneurial decision-making processes. Previous studies of this project show mixed results of entrepreneurial decision-making in relationship to the cultural dimensions. For example, Krijgsman (2012) and Telman (2012) found evidence that uncertainty avoidance significantly correlates with effectuation. Mones (2012) explained that it was hard to find solid evidence of cultural influence on effectuation. Steentjes (2012) found that causal-oriented cultures are focused on internal control.

Due to the limited amount of published research on this subject and the unconvincing results of the EPICC project, it is unclear what influence culture has on the decision-making process in entrepreneurial processes. Also, it is questionable if the EPICC project used sufficient predictors to measure cultural influences on entrepreneurial decision-making. This triggers the search to find a cultural measurement that measures the cultural influence on the principles of effectuation. Gelfand's theory on societal tightness-looseness gained research attention in recent years and focused on the strength of social norms and the degree of sanctioning within societies (Gelfand, Raver, Nishii, Leslie, Lun, & Chong Lim, 2011). Taras et al. (2010) are the first researchers that introduced this theory related to Hofstede's cultural values and found that cultural values have significantly stronger effects in

culturally tighter, rather than looser, countries. Therefore, cultural tightness-looseness is an interesting construct to link to effectual decision-making.

1.3 Research question

As the research gap indicates, interest arises to what extent the principles of effectuation is influenced beyond the boundaries of a single country. In order to measure the cultural influences on the decision-making process in entrepreneurial processes, the following research question is formulated:

"To what extent does cultural tightness-looseness influences the way in which entrepreneurs use a causal or effectual logic in the decision-making process?"

1.4 Relevance of study

This research will make a contribution to existing literature on effectuation and cultural tightness-looseness. Perry et al. (2012) argue that current research on effectuation can be classified as nascent and encourage a development to an intermediate state. Relating established construct as cultural tightness-looseness to effectuation hopefully contributes to develop the research stream. It will shine a new light on relating culture with effectuation and causation. Hopefully understanding the influence of cultural strenght on effectuation will expand the knowledge on how socials norms and behaviour in a society influence entrepreneurial decision-making. Also, Sarasvathy (2001) gathered and analysed think-aloud verbal protocols for her research, which is a time-consuming process. This research applies a new quantitative measure that hopefully improves the method of data collection and processing in future research. (Chandler, DeTienne, McKelvie, & Mumford, 2011; Perry, Chandler, & Markova, 2012).

1.5 Research outline

This thesis is organised around several chapters to answer the stated research question. Currently you have read the introduction, which explains the relevant concepts and the research gap, question and relevance. The second chapter provides the theoretical framework. In chapter three the hypotheses are formulated in how effectuation is committed with cultural tightness-looseness. The fourth part presents the methodology, which explains the method of data collection, operationalisation of variables and method of analyses. Subsequently, the results and interpretations of analyses are presented in chapter five and discussed in chapter six. Chapter seven answers the research question accompanied with limitations and recommendations for future research.

2. Theoretical framework

2.1 Effectuation & causation

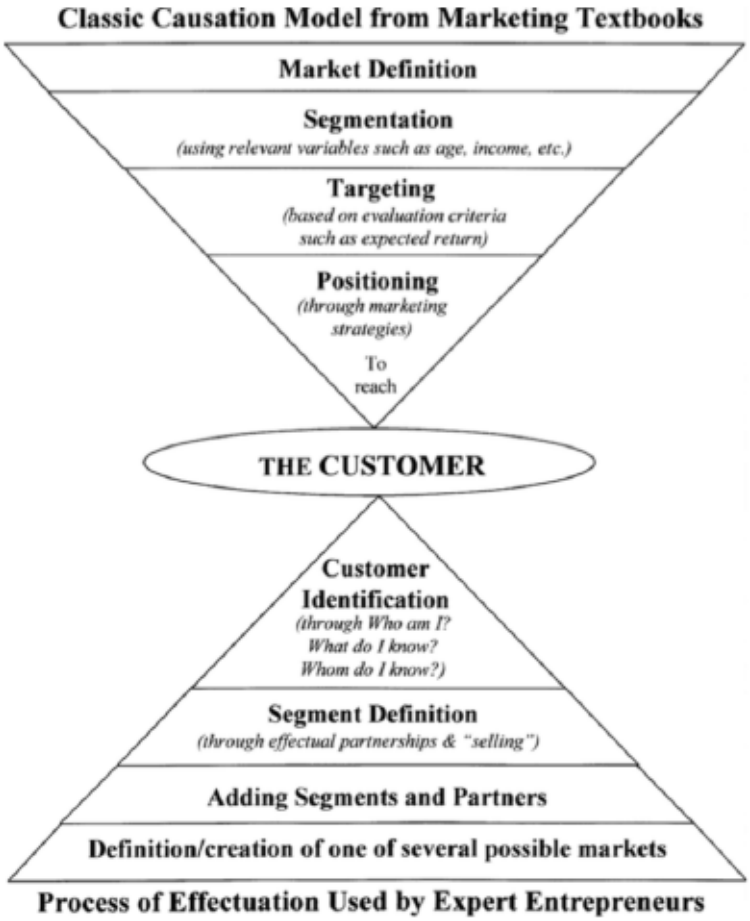
2.1.1 Problem space

Most research on entrepreneurial processes is based on rational decision-making models. These models are based on entrepreneurs that use a rational goal-driven behaviour, which focuses on predicting an uncertain future. Sarasvathy's research focused on entrepreneurship as a process and studied entrepreneurial activity with their limitations. During her studies she found that entrepreneurs face three types of uncertainty (Sarasvathy, 2008). She describes the first type as 'Knightian uncertainty', which means that it is impossible to calculate possibilities for future consequences. She named the second type 'goal ambiguity', which implies that there is a lack of assumed or structured preferences. The third type of uncertainty is named 'environmental isotropy', which illustrates that it is difficult for entrepreneurs to determine on which elements of an environment the attention should be focused on (Sarasvathy, 2008). Sarasvathy wondered how this would influence the entrepreneurial decision-making process and recognised a pattern about how entrepreneurs create new firms in new markets. This pattern contradicts the planning approach (Wiltbank et al., 2006), which is taught to students in MBA programs across the world and by Sarasvathy termed as 'causation' (Sarasvathy, 2001).

2.1.2 Contrasting effectuation and causation

Sarasvathy (2001) developed the effectuation theory, which values an adaptive approach to reasoning and inverses the term 'causation' (Wiltbank et al., 2006). Effectual reasoning begins with a *"given set of means and allows goals to emerge contingently over time from the varied imagination and diverse aspirations of the founders and the people they interact with"* (Sarasvathy, 2001b, p. 2). Causal reasoning begins with a *"pre-determined goal and given set of means, and seeks to identify the optimal, fastest, cheapest, most efficient alternative to achieve the given goal"* (Sarasvathy, 2001b, p. 2). The distinguishing characteristic between the two modes is the set of choices. Choosing between means to create a particular effect, versus choosing between many possible effects using a particular set of means. To illustrate the difference between the two modes, a simple practical example will clarify: imagine a carpenter who is asked to build a desk, versus one who is given a toolbox and some wood, and asked to build whatever he or she chooses to (Sarasvathy, 2001). Figure 1 graphically contrasts the causal and effectual decision-making process.

Figure 1, Causal and effectual marketing process (Sarasvathy, 2001b)

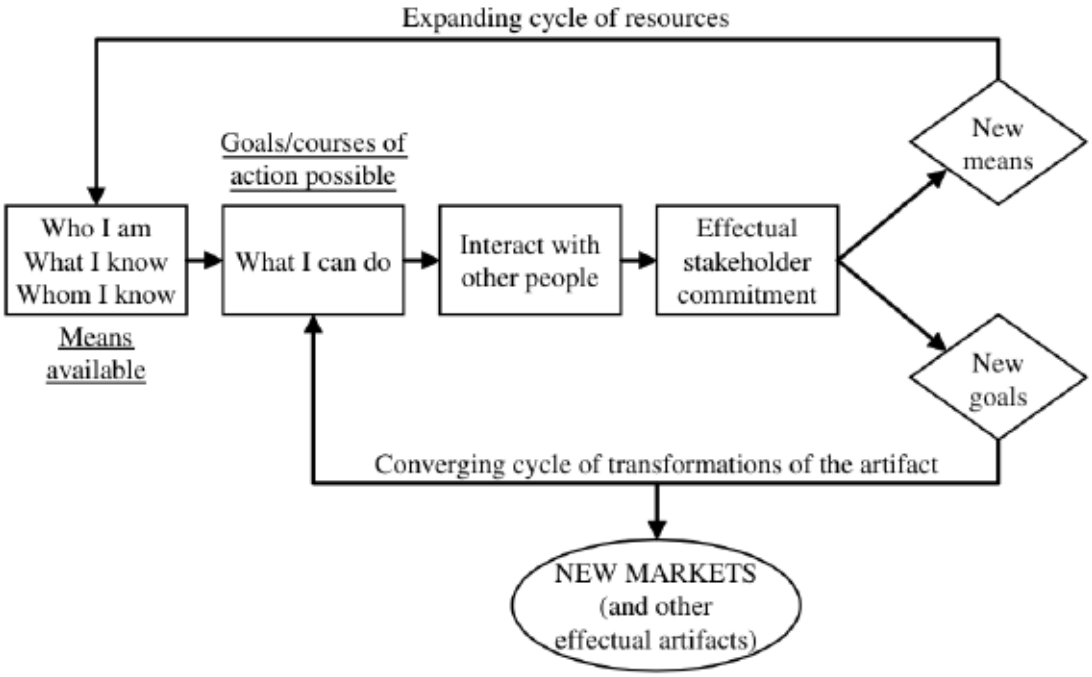


Sarasvathy (2001) defines causation as *"processes that take a particular effect as given and focus on selecting between means to create that effect"* (p. 245). This definition explains that the end product is determined by the initial opportunity and the adaptive changes over time to fit the pre-selected market and/or vision. This makes causation effect dependent and excellent at exploiting knowledge. Sarasvathy (2001) defines effectuation as *"processes that take a set of means as given and focus on selecting between possible effects that can be created with that set of means"* (p. 245). The end product in effectuation is unpredictable at the beginning of the process and both market and opportunity get created through the process itself. The end product is contingent on who comes on board and the actions and goals they enable and constrain. This makes effectuation actor dependent and excellent at exploiting contingencies.

It is necessary to notice that effectuation processes are not 'better' or 'more efficient' than causation processes in creating firms, markets and economies. This has implications for measuring effectuation and causation according to Perry et al. (2012). The two constructs looks like opposites end of a continuum, but entrepreneur can use both causal and effectual reasoning depending on what the

circumstances call for. However, effectual reasoning is preferred over causal reasoning in the early stages of a new venture and in later stages causal reasoning is more required. This makes the effectual logic particularly useful and effective during the introduction of new products in new markets, where Sarasvathy (2001b) and Wiltbank et al. (2006) referred to as the 'suicide quadrant'. Ansoff (1957) defined a product-market matrix to helps among others entrepreneurs to determine strategies for future growth. Ansoff recognised this area as 'diversification', where traditional marketing techniques are ineffective according to Sarasvathy (2001b). The effectual cycle (figure 2) represents the useful and effective thinking process in domains such as creating products, markets, and ventures (Sarasvathy, 2008).

Figure 2, Dynamic model of effectuation (Sarasvathy, 2008)



Sarasvathy (2001) pluralised the concept of effectuation and develop key-elements that embody the core of the theory. These key-elements are known as principles.

2.1.3 Principles

Sarasvathy (2001) use four principles to compares the two constructs, in the form of dichotomies: affordable loss vs. expected returns, strategic alliances vs. competitive analyses, exploiting contingencies vs. avoiding contingencies and control vs. prediction. However literature on the effectuation topic has expanded over the last decade and has been applied in fields such as management (Augier & Sarasvathy, 2004), economics (Dew et al., 2004), finance (Wiltbank et al., 2009), marketing (Read et al., 2009), and R&D management (Brettel et al., 2012). The four original principles are updated to a list of five principles (table 1) that make up the effectual logic

(Sarasvathy, 2008). The principle 'means-driven vs. goal-driven' is added to the original four principles. The principles will be shortly introduced and chapter 3 provides more detail.

Table 1, Principles of effectuation (Sarasvathy, 2001; 2008)

Causation	Effectuation
Goal-driven	Means-driven
Expected returns	Affordable loss
Competitive analyses	Strategic alliances
Avoiding contingencies	Exploiting contingencies
Predict uncertain future	Control unpredictable future

The first principle emphasizes to create something new with existing means rather than discovering new ways to achieve given goals. Causation is focus on goal-driven action and effectuation is focus on means-driven action. The second principle prescribes how much someone is willing to lose rather than maximizing the potential return. Knowing the affordable loss create more options in the future over those that maximize returns in the present and focuses on the downside risks. The third principle focuses on forming strategic alliances and pre-commitments with stakeholders who are willing to actual commitment to the project, without worrying about opportunity costs, or carrying out elaborate competitive analyses like the causal reasoning. Who comes on board determines the goals of the enterprise. The fourth principle focuses on exploiting contingencies that arose unexpectedly over time. Acknowledging and appropriating contingency by leveraging surprises rather than trying to avoid them, overcome them, or adapt to them. Causation models might be preferable when pre-existing knowledge forms the source of the competitive advantage (Sarasvathy, 2001). The fifth principle focuses on controlling an unpredictable future rather than predicting an uncertain future. Effectuation relies on working with human agency as the prime driver of opportunity rather than limiting entrepreneurial efforts to exploiting exogenous factors such as technological trajectories and socioeconomic trends.

2.1.4 Underlying logic and future research

Sarasvathy (2001) states that underlying all the principles of effectuation is a coherent logic that contains different assumptions about the future than causation. Causal reasoning is based on the logic *"to the extent that we can predict the future, we can control it"* (Sarasvathy, 2001, p. 252). Effectual reasoning is based on the logic *"to the extent that we can control the future, we do not need to predict it"* (Sarasvathy, 2001, p. 252).

Research on the effectuation topic expanded and effectuation is connected to constructs as for example new venture performance (Read & Sarasvathy, 2005) and trust (Goel & Karri, 2006; Karri & Goel, 2008). However, Perry et al. (2012) argues that the study can be classified as nascent and encourage a development to an intermediate state. He suggests implications for future research and mentions that researchers should relate the theory of effectuation to established constructs. Sarasvathy (2001) does not mention the role of culture in her adaptive decision-making strategy and neither does Perry et al. (2012). Therefore, the role of cultural values related to the effectual decision-making process will help the development process and could provide valuable information.

2.2 Culture

2.2.1 Definitions

The notion of 'culture' has multiple and variously inclusive definitions. Kroeber and Kluckhohn (1952) critically reviewed concepts and definitions of culture, and compiled a list of 164 different definitions. The review of Kroeber & Kluckhohn (1952) led to the following definition: *"culture consists of patterns, explicit and implicit, of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiment in artefacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, on the other, as conditional elements of future action"* (p. 181; as cited by Adler, 1997, p. 14). Hofstede (1980) followed up this definition of Kroeber & Kluckhohn and defines culture as *"the collective programming of the mind, which distinguishes the members of one group from another"* (p. 25). The set of shared values and beliefs, values and expected behaviours are described extensively, among others (Hofstede, 1980; Schwartz, 1994; Smith, 1996; House et al., 2004; Taras et al., 2010) and are useful to differentiate between cultures.

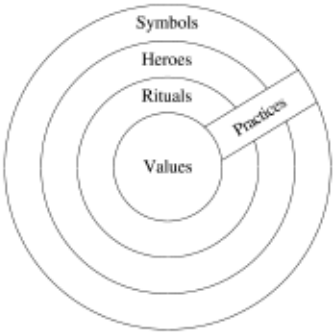
The term 'culture' is difficult to describe, because it exists at different levels, ranging from organisational, national, clan and individual (Mitchell, Smith, Seawright, & Morse, 2000). Nations are normally the best representatives of culture, because the nationality of a person can easily be established, whereas membership of a sub-culture is more difficult to establish.

2.2.2 Cultural values

Hofstede (2001) discusses the multilevel nature of culture and represents this in an onion diagram (figure 3). He argues that culture looks like an onion and can be

peeled, layer-by-layer, in order to reveal the content (Dahl, 2004). As the figure indicates, four terms describe the concept of culture: values, symbols, heroes and rituals describe the concept of culture. The values are the most hidden layer of culture and are acquired early in a person's live. Easier to observe are rituals, heroes and symbols. Rituals are considered as social essential, such as ways of greeting and paying respect to others (Dahl, 2004). Heroes are admired persons who serve as an example for behaviour. Symbols are the most superficial layer. People who share a specific culture recognize these symbols like words, colour or artefacts that carry a special meaning (Dahl, 2004).

Figure 3, The onion diagram (Hofstede, 2001)



The cultural values have been the focus of most cross-cultural research. Hofstede (1994) argues that cultural values represent the deepest level of a culture. They are *"broad feelings, often unconscious and not open to discussion, about what is good and what is bad, clean or dirty, beautiful or ugly, rational or irrational, normal or abnormal, natural or paradoxical, decent or indecent"* (Hofstede, 1994, p. 14).

2.2.3 Hofstede's framework

Hofstede (1990; 1994) provides a framework containing four dimensions that he believes can be used to differentiate between national cultures, including power distance (the degree of inequality among the people that the population of a country consider normal), Individualism-collectivism (the degree to which people in a country prefer to act as individuals rather than members of groups), masculinity-femininity (the degree to which such 'masculine' values, such as assertiveness, competition, and success are emphasised, as opposed to such 'feminine' values as quality of life, warm personal relationships, service, etc.) and uncertainty avoidance (the degree to which people in a country prefer structured over unstructured situations). Later Hofstede added the dimension long-term orientation (implies a stress on virtuous living in this world, with thrift and persistence as key virtues) as the fifth cultural dimension. These dimensions provide a useful tool, which has the potential to categorise certain important aspects of culture.

Hofstede's framework is used extensively in management and international business literature and is a dominant model for research on national culture. Hofstede's dimensions led to an explosion of cross-cultural research in business, psychology, and other disciplines that favour quantitative research methods. His original cultural indices have been used in thousands of studies and provided a foundation for cross-cultural corporate training and international management courses in business and executive education curricula (Taras, Steel, & Kirkman, 2012).

Despite the enormous popularity, Hofstede's cultural indices are not without limitations. Scholars argue the reliance and generalizability on Hofstede's indices (Shane, 1993; Thomas & Mueller, 2000; Mueller & Thomas, 2000; Mitchell, Smith, Seawright, & Morse, 2000; McSweeney, 2002). Hofstede's dimensions were originally developed in the context of formal organisations and the study was based on a sample of employees in a single American organisation, IBM. With research developments on culture, it is uncertain if Hofstede's 40-year-old data is still reliably in today's application. Taras et al. (2010) analysed the relationship between several organisationally relevant outcomes with the cultural value dimensions. They compared empirical research that used the Hofstede's indices and found that the cultural values framework is still relevant. Two years later they published an article that offered an updated set of national cultural scores along the dimensions of Hofstede's cultural framework. These indices are based on a larger and more representative sample and cultural change is addressed by offering separate sets of indices for three decades. The updated dataset is more accurate than that offered by Hofstede or other cross-cultural comparison studies (Taras et al., 2012).

More recent studies have offered new sets of cultural indices, but largely remain subject to limitations, namely the limited ability to represent their respective populations and containment of a specific time period. Even the larger studies (Schwartz, 1994; Smith et al., 1996; House et al., 2004) are represented by a few dozen individuals and the data represented a single point in time or a period too short to effectively preclude longitudinal analysis (Taras et al., 2012).

The previous EPPIC studies used mainly the value perspective of Hofstede, but also other studies, to determine the impact of culture on the entrepreneurial decision-making process and found unconvincing results. It is questionable if Hofstede's dimensions are sufficient predictors to measure cultural influences on entrepreneurial decision-making. Perry et al. (2012) encourages development in effectuation research and therefore other established constructs of culture should be related to it. Gelfand's theory on societal tightness-looseness gained research attention in recent years and focused on the strength of social norms and the degree of sanctioning within societies. Taras et al. (2010) are the first researchers that

introduced this theory related to cultural values and found that cultural values have significantly stronger effects in culturally tighter, rather than looser, countries. Gelfand, Nishii & Raver (2006) argues that the concept is unique and complementary to other cultural dimensions.

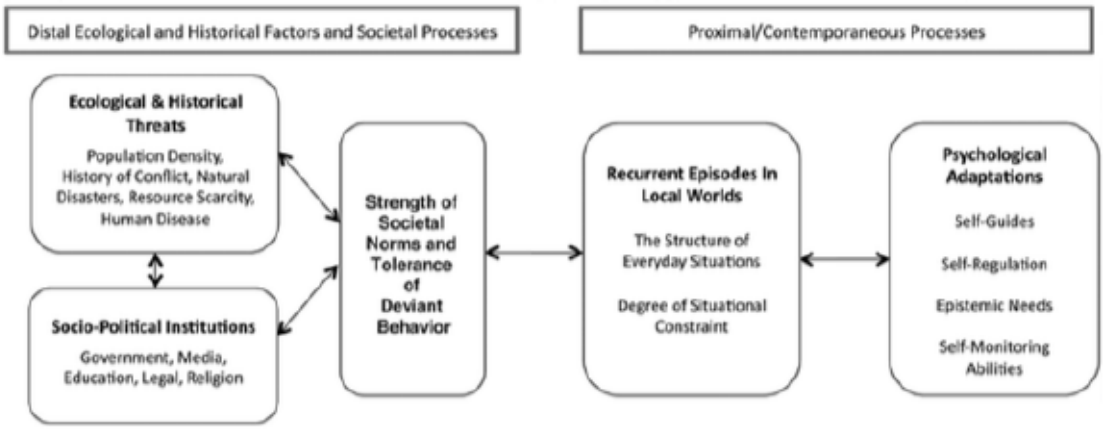
2.2.3 Tightness-Looseness

Early research in anthropology, sociology and psychology (Pelto, 1968; Triandis, 1989) showed the construct of tightness-looseness important in differentiating cultures and it can explain and predict cultural differences in many kinds of social behaviour. Pelto (1968) was the first on the development of a theory on tightness-looseness and argued that traditional societies varied in their expression of and adherence to social norms. Pelto described tight societies as *"those that were rigorously formal and disciplined, had clearly defined norms, and imposed severe sanctions on individuals who deviated from norms. By contrast, loose societies had a lack of formality and discipline, ill-defined norms, and a high tolerance for deviant behaviour"* (Gelfand, 2012, p. 420).

Pelto identified determinants of tightness-looseness including difference in kinship systems, population density and the dependence on food crops (economic system). In 1977, Triandis reintroduced the tight-loose construct and argued that it is an important dimension. Because the construct is different from other dimension of cultural variation (Triandis, 1989) there is the need to develop measures of tightness and looseness for cross-cultural research (Gelfand et al, 2006).

Gelfand et al. (2011) created a measure to provide insight into how tightness-looseness operates in modern societies. With data from 33 nations, the study illustrates the differences between cultures that are tight (have many strong norms and a low tolerance of deviant behaviour) versus loose (have weak social norms and a high tolerance of deviant behaviour). Results showed that tightness-looseness is part of a complex, loosely integrated multilevel system that comprises a broad array of ecological and historical societal threats (e.g. population density, resource scarcity, vulnerability to natural disasters, and prevalence of disease), broad versus narrow socialisation in societal institutions (e.g., autocracy, media regulations), the strength of everyday recurring situations, and micro-level psychological affordances (e.g., prevention self-guides, high regulatory strength, need for structure) that nations have (or have not) encountered (Gelfand et al., 2011).

Figure 4, A systems model of tightness-looseness (Gelfand et al., 2011)



The 'systems model of tightness-looseness' (figure 4) illustrates the general model of how differences in tightness emerges and indicates that tightness is related to high population density, low percentage of arable land and food supply, high degrees of environmental threats, high police per capita and strength of criminal justice systems, high degrees of autocracy, and low openness of the media. Therefore, tight societies value order, formality, discipline and conformity and in contrast, loose societies value innovation, openness to change, tolerance and variety (Gelfand et al., 2006).

Research show that tightness-looseness is related to but distinct from other cultural dimensions. Triandis and Gelfand (1998) shared research history together and performed research mainly on individualism-collectivism. Carpenter (2000) found that the correlation between cultural tightness and individualism-collectivism was only moderately correlated. Later, Triandis (2004) investigated the relationship of Hofstede's uncertainty avoidance to tightness. He found that in cultures high in uncertainty avoidance, people want to have structure, to know precisely how they are supposed to behave and what is going to happen next. Gelfand et al. (2011) argues that the dimension of uncertainty avoidance is not significantly related with tightness-looseness. Hofstede's dimension of power distance is also related to but distinct from tightness-looseness. Tight societies may be more hierarchical, which helps to reinforce order and coordination, but this is not always the case. Results also show that power distance is distinct and moderately and positively correlated with tightness-looseness (Gelfand et al., 2011).

The next chapter elaborates on how loose and tight societies and possibly relates to effectual and causal decision-making. Hypotheses are formulated in order to explore the research question formulated at the introduction (chapter 1).

3. Hypotheses

This chapter elaborates on the relationship of effectual and causal decision-making with cultural tightness-looseness. Sarasvathy (2001; 2008) formulated five principles that make up the effectual logic, which are discussed separately and are linked to characteristics of cultural tightness-looseness. Each principle is formulated in a group of two hypotheses. The last group of hypotheses is a combination of the five principles in order to measure the whole construct of effectuation and causation.

3.1 Means-driven vs. goal-driven

The starting point of the effectual decision-making process is based on the set of means. Each stakeholder asks himself questions of who I am (identity), what I know (knowledge) and whom I know (network) and interaction with stakeholders result in selecting possible effects and decisions that can be imagined with the existing means. The stakeholders should be open to change in order to create valuable new combinations. Gelfand et al. (2006) argues that individuals in a loose society are more open to change and show more innovative behaviour, which can be beneficial for creating new ends with existing means. Gelfand et al. (2006) also explains that there is more variability in behaviour in loose societies, which implies that less similarity will be found and more possible effects can be imagined.

Sarasvathy (2001) argues that the causation model starts with goals as a given and that the basic decision for that model is the decision on what means should be accumulated to achieve these goals. Less openness to change and creativity is needed, which are characteristics of individuals in a tight society. Tight individuals seek predictability and order and avoid ambiguous and novel situations (Gelfand et al., 2006). Also, societal-tight individuals show less variability in their behaviour, which probably results in similar goals and actions.

The following hypotheses are stated:

H1a: *A loose society influences entrepreneurs in emphasizing on means-based actions rather than goal-based action.*

H1b*: A tight society influences entrepreneurs in emphasizing on goal-based actions rather than means-based actions.*

3.2 Affordable loss vs. expected returns

The difference between affordable loss and expected returns is based on predisposition towards risk and resources (Kraaijenbrink, 2008). Effectual reasoning entrepreneurs focus on projects where the loss in a worst-case scenario is affordable

(Chandler et al., 2011). The entrepreneur tries to estimate the down side potential and examines what she is willing to loose (Sarasvathy, 2001; Dew et al., 2009). Societal-loose individuals are risk seeking and show flexibility and experimentation in their behaviours, which likely contribute to cooping with affordable loss.

Causal reasoning entrepreneurs focus on the upside potential and emphasize on maximizing the expected returns for a decision by selecting optimal strategies (Sarasvathy, 2001; Dew et al., 2009). The causal entrepreneur calculates up front how much money is required for the new venture and invests time, effort and energy in the process of collecting this money (Sarasvathy, 2001). Individuals in tight societies are prevention focused and thus will be more cautious and dutiful (Gelfand et al., 2011). They are searching for stability and are content with risk avoidance (Gelfand et al., 2006).

The following hypotheses are stated:

H2a: *A loose society influence entrepreneurs in emphasizing on affordable loss rather than expected returns.*

H2b: *A tight society influences entrepreneurs emphasizing on expected returns rather than affordable loss.*

3.3 Strategic alliances vs. competitive analyses

The difference between effectuation and causation is also characterized by the attitude towards outside firms (Kraaijenbrink, 2008). The effectual logic favours cooperation and is focused on building strategic alliances (partnerships) and bringing stakeholders on board to determine the new venture's direction. Establishing cooperative partnerships will help determine what goals to pursue and over time creating a market with customers, suppliers and even prospective competitors. Individuals in a loose society are flexible and show tolerance for organisational change (Gelfand et al., 2006). These characteristics are important for the recruitment and selection process of stakeholders and organisational changes during the venturing process.

The causal logic of reasoning favours competition over cooperation and emphasizes detailed competitive analyses and business planning (Kraaijenbrink, 2008). For example, causal entrepreneur should constrain task relationships with customers and suppliers to what is necessary to limit dilution of ownership as far as possible (Sarasvathy & Dew, 2005). The entrepreneur should be restraint with the venture's information and focus on competition instead of cooperation. Tight societies value structure, formality and control over the future, which contributes to causal characteristics.

The following hypotheses are stated:

H3a: *A loose society influence entrepreneurs in emphasizing on strategic alliances rather than competitive analyses.*

H3b: *A tight society influences entrepreneurs in emphasizing on competitive analyses rather than strategic alliances.*

3.4 Exploiting contingencies vs. avoiding contingencies

The effectual frame focuses on exploiting contingencies that arise unexpectedly over time (Sarasvathy, 2001). Effectual entrepreneurs have the ability to turn the unexpected into the profitable by leveraging the contingencies rather than avoid them, overcome them or adapt to them. Cultural-loose individuals adapt easier to environmental contingencies, because they are flexible and open to change (Gelfand et al, 2011). Also, they are responsive and improvisational, which has high value for firm survival and performance (Baker, Miner, & Eesley, 2001). Engaging in more risk-taking and innovative behaviour are main characteristics of cultural looseness, which are also important for exploiting these contingencies (Gelfand et al., 2006).

In causal reasoning, there is an explicit effort to avoid unpleasant surprises. It is preferable that expertise in a particular new technology forms the source of the competitive advantage in order to avoid contingencies (Sarasvathy, 2001). Individuals in tight societies are less flexible compared to loose societies and that influence to openness to contingencies. Contingencies are risky and challenging for organisations that value order, structure and formality. Therefore, individuals in tight societies will also avoid these contingencies to maintain their careful planning and focus on targets as causal entrepreneurs do (Dew et al., 2009).

The following hypotheses are stated:

H4a: *A loose society influences entrepreneurs in a emphasizing on exploiting contingencies rather than avoiding contingencies.*

H4b: *A tight society influences entrepreneurs in emphasizing on avoiding contingencies rather than exploiting contingencies.*

3.5 Control unpredictable future vs. predict uncertain future

The effectual and causal logic both seek control over the future, because this future is uncertain. The focus of effectuation is on the controllable aspects of an unpredictable future, based on the logic *"to the extent that we can control the future, we do not need to predict it"* (Sarasvathy, 2001, p. 252). The effectual logic frames the future as creating it with enlisted stakeholders who determine the venture creating process. Actions by the entrepreneur or stakeholders are the

predominant factor in shaping the future. The controllability of this non-predictive approach matches with a loose society, because flexibility and openness to change is required.

Causation focuses on the predictable aspects of an uncertain future and is based on the logic *"to the extent we can predict future, we can control it"* (Sarasvathy, 2001, p. 252). Decision maker chooses between alternative means based on forecasts about pre-selected favourable outcomes (Dew et al., 2009). Tight societies prevention focused likely show causal behaviour of preferring prediction-based actions to determine the course of the new venture (Gelfand et al., 2006).

The following hypotheses are stated:

H5a: *A loose society influences entrepreneurs in emphasizing on control rather than prediction.*

H5b: *A tight society influences entrepreneurs in emphasizing on prediction rather than control.*

3.6 Effectuation vs. causation

The five groups of hypotheses discuss the possible relationship with the principles of effectuation and causation with cultural tightness-looseness. These hypotheses assume that societal-loose individuals prefer an effectual decision-making process and societal-tight individuals prefer a causal decision-making process. Brinckmann et al. (2010) found that in countries with greater tolerance of uncertainty, like loose societies, entrepreneurs may feel more comfortable deviating from their plans. Flexibility, openness to change, improvisation, innovation and low need for structure are all characteristics that comply with a non-predictive approach of reasoning (Gelfand et al., 2006). The hypotheses regarding causation assume that causal entrepreneurs prefer a causal decision-making process. Tight societies have low tolerance of uncertainty and are therefore more goal driven and depending on prediction. Deviate from norms and business plans is expect to be avoided, which suggests that tight societies have a more causal focus.

The following hypotheses are stated:

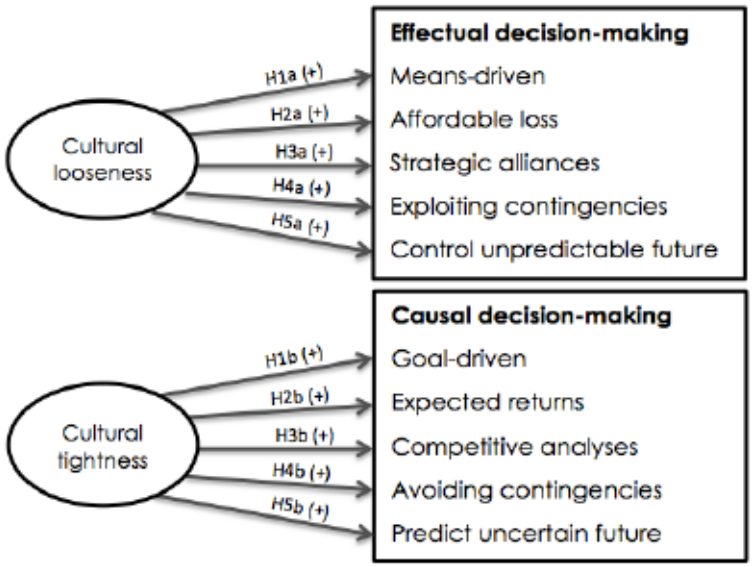
H6a: *A loose society influences entrepreneurs in emphasizing an effectual approach rather than a causal approach.*

H6b: *A tight society influences entrepreneurs in emphasizing a causal approach rather than an effectual approach.*

3.7 Conceptual model

Figure 5 illustrates the conceptual model of the proposed influences of cultural strength on the effectual and causal decision-making process.

Figure 5, The conceptual model



4. Methodology

In order to investigate to what extent culture influence the way in which entrepreneurs use a causal or effectual logic, a quantitative exploratory research will be performed. This empirical research will hold concepts of cultural tightness-looseness (Gelfand et al., 2011) and principles of the effectuation theory (Sarasvathy, 2001). This quantitative research tries to find reliable and objective relationships between variables to test the proposed hypotheses. This chapter provides insights on the method for scale development, data collection, control variables and data analyses.

4.1 Scale development

4.1.1 Research instrument

Sarasvathy gathered and analysed think-aloud verbal protocols of 27 entrepreneurs, in which the entrepreneurs talk aloud and describe what they are thinking. The process of transcribing and coding is necessary to make the data quantitative, but this is time-consuming. The EPICC project also used these methods of data collection and data processing. Chandler, DeTienne, McKelvie & Mumford (2011) argue that research on effectuation should be moved to an intermediate state and developing validated quantitative measures will contribute.

To measure the dimension of effectuation and cultural tightness-looseness for this research, a questionnaire is built around an entrepreneurial scenario. This questionnaire is purely quantitative with closed and Likert scale question. Choosing for data gathering by means of closed and Likert scale questions has several advantages and disadvantages. It is argued that it lacks validity, because there is no way to tell how truthful a respondent is and how much thought is put in an answer. Furthermore, questionnaires are argued to inadequately understand feelings and emotions (Popper, 1959; Ackroyd & Hughes, 1981). However, questionnaires are methods used to collect standardised data from large numbers of people in a statistical form. The researcher can carry out analyses with considerable affect to its validity and reliability, in a short period of time and in a relatively cost-effective way (Popper, 1959; Ackroyd & Hughes, 1981). Hence, standardised data and a large sample size in a short period of time are more appreciable than exactly understanding truthfulness, thought, emotions and feelings of the respondents.

In collaboration with colleague students at University of Twente, this questionnaire is constructed with multiple questions related to the effectuation process. Each colleague student is performing his own research on different concepts related to

the effectuation theory. Krebbers (2015) developed a new scale in order to measure causation and effectuation in a quantitative way. He inspired the new scale on the multi-factor measurement models of Wiltbank et al. (2009), Chandler et al. (2011) and Brettel et al. (2012), which are the three most adopted scales in effectuation research.

The new developed scale is build around an entrepreneurial context to measure effectuation (13 items), causation (12 items) and the degree of tightness-looseness (6 items). The questionnaire is created with an online survey-tool and distributed mainly electronically by email and via social media within our own network. It is also distributed hard copy and manually imported in the online survey-tool.

4.2.1 Dependent variable

Effectual and causal decision-making are the dependent variables for this research. In order to measure these variables a quantitative way, a new scale is developed by Krebbers (2015). Krebbers use mainly the items of Brettel et al. (2012) to measure 4 of the 5 principles of effectuation. Brettel et al. (2012) does not cover the prediction and control principles, therefore, items of Wiltbank et al. (2009) are used for this part. All the items are rewritten to fit them in a student context (section 4.2.1). A list of 25 items is created to measure causal and effectual decision-making (Appendix VII).

Wiltbank et al. (2009) uses a seven-point Likert scale and Brettel et al. (2012) uses a six-point Likert scale. Due to the novelty of the theory, Brettel et al. (2012) used effectuation and causation as a dichotomy and measured it as polar opposites. An even-number Likert scale forces the respondent to choose one side of the continuum. Perry et al. (2012) do not view the concepts as opposing constructs and advise future researches to develop effectuation not as a dichotomy. Therefore, Krebbers (2015) used a seven-point Likert scale, ranging from 'strongly disagree' to 'strongly agree'. The five principles of effectuation and causation are measured by calculating the mean over all the items related to that particular principle. Additionally, effectual and causal decision-making is measure by calculating the mean over all items related to the particular construct.

4.2.2 Independent variable

The overall strength of social norms and tolerance of deviant behaviour is measured by six items of Gelfand et al. (2011). This 'degree of tightness-looseness' is de independent variable for this research. These six items are measured with a six-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The items are presented in Appendix VII. The calculated final score is the mean standardized score

multiplied by 10 (Eun, Wang, & Xiao, 2012). A high average score means that the subject is tight and has many strong norms and a low tolerance of deviant behaviour. Logically, a low average score means that the subject is loose and has weak social norms and a high tolerance of deviant behaviour. Gelfand et al. (2011) provides evidence that this measure is reliable and valid.

4.2 Data collection

4.2.1 Sample selection

The unit of analyses in this research are students at universities and universities of professional education (in Dutch: HBO). Choosing students as a subject has several reasons. Multiple researchers in management and entrepreneurship have effectively utilized student samples (Isenberg, 1986; Mitchell, Smith, Seawright, & Morse, 2000). More specific on effectuation, Dew et al. (2009) investigated students to measure the decision-making process of novice entrepreneurs. They argue that the students' novice-ness can be used in a generic sense; it refers to non-experts due to less business knowledge and experience on entrepreneurship. Thomas & Mueller (2000) state *"today's university students represent a significant share of the pool of potential entrepreneurs in both the developed and developing countries"* (p. 291). Perry et al. (2012) suggest that more insights on the effectuation process by student should be collected.

Nielsen & Lassen (2012) report that *"student entrepreneurs are characterized as being individuals with little, if any, business knowledge, few relations and little experience in how to act and make sense of the entrepreneurial process [...] student entrepreneurs represent an optimal sample group for the study of how identity construction unfolds in the entrepreneurial effectuation process"* (p. 378). Additionally, Bae, Qian, Miao and Fiet (2014) research the impact of entrepreneurship education on the intention to start an own business and found that entrepreneurship education is positively associated with entrepreneurial intentions. This makes the role of universities become more important for educating and training entrepreneurship. Therefore, a sample of students in an entrepreneurial culture represents a wide variation of potential entrepreneurs possibly influenced by multiple characteristics.

The University of Twente is known as 'the entrepreneurial university' and developed an entrepreneurial culture, with successful academic spin-off companies as result (Lazzeretti & Tavoletti, 2005). Due to this familiarity to entrepreneurship, the sample mainly consists of students at this university. Additionally, they were easily accessible and it was possible to maintain some degree of control (i.e. familiar with terminology, age, gender, multiple nationalities). Control on nationality is important

in order to differentiate in the tightness of the society. At this university, many German students are studying and are gathered in the data sample. German students are seen as societal-tighter than Dutch students (Gelfand et al., 2011).

4.1.2 Sample size

Perry et al. (2012) reports that most effectuation research to date analysed think aloud protocols or field studies that gathered qualitative data. The sample sizes of these researches are small, but Nielsen (1994) suggests that a small sample size will provide rich and extensive data and Cohen (1988) explains that effect sizes are large. However, research on effectuation is in a nascent state and should be moved to an intermediate state by developing validated quantitative measures (Chandler et al., 2011).

Dew et al. (2009) advise that the unit of analysis have to be large to have decent statistical power and that external validity will be improved. Recent contributions of Wiltbank et al. (2009), Chandler et al. (2011) and Brettel et al. (2012) used multi-factor measurement models in order to realise a large sample size and reliable analyses. Chandler et al. (2011) discuss multiple recommendations regarding the minimum sample size and concludes that, according to Guadagnoli and Velicer (1988), a sample size of 100 to 200 is adequate. This means that Wiltbank et al. (2009), Chandler et al. (2011) and Brettel et al. (2012) all three meet the minimum requirements. Therefore, it is a good starting point to collect at least 100 participants for this research.

In total, 759 students from multiple universities and different countries filled in the questionnaire. Unfortunately, during the data gathering process something went wrong with questions about nationality, familiarity to effectuation and year of birth. These questions were accidentally removed from the questionnaire and before this was noticed the largest part of the respondents already filled in the questionnaire. The questionnaire has been adjusted to collect all the information of the remaining respondents. Hence, the dataset contains missing values, but luckily a useful dataset is still collected. Selecting only Dutch and German students, a useful dataset of 285 students (Dutch = 82.1 %; German = 19.9 %) is used. The Dutch female-to-male ratio is 1:3 and the German ratio is 2:1, which is both not ideal but representative.

4.3 Control variables

4.3.1 Published tightness-looseness score

In the article of Gelfand et al. (2011) an index table is showed with the sample characteristics of 33 nations. The societal tightness is the independent variable and will be measured according the six items. The tightness score of Gelfand et al. (2011)

will be used to check if the values for Germany and The Netherlands are the same in the research (table 2). The tightness score of Ukraine is the lowest (1.6), which means that this society is loose. The tightness score of Pakistan is the highest (12.3), which means that this society is tight.

Table 2, Published index scores on cultural tightness-looseness (Gelfand et al., 2011)

Nation	Number of participants	Mean age (±SD)	Percentage female	Percentage students	Tightness score
Netherlands	207	29.8 ± 11.9	55.6	53.1	3.3
Germany (former East)	201	31.6 ± 12.2	66.7	49.3	7.5
Germany (former West)	312	32.5 ± 14.5	63.8	51.6	6.5
Ukraine	184	30.8 ± 12.7	56.5	44.6	1.6
Pakistan	190	30.0 ± 9.8	51.1	52.6	12.3
[...]	[...]	[...]	[...]	[...]	[...]
Totals/means	**6823**	**30.1 ± 11.3**	**58.6**	**49.2**	**6.5**

In this research, Germans students and Dutch students will be compared. However, Gelfand et al. (2011) measured the societal tightness of Germany in two scores: former East and former West. The percentage of female and students are almost similar for these two samples, only the sample size differs. Therefore, a weighted average tightness score of 6.9 will be used to represented Germany in one single score.

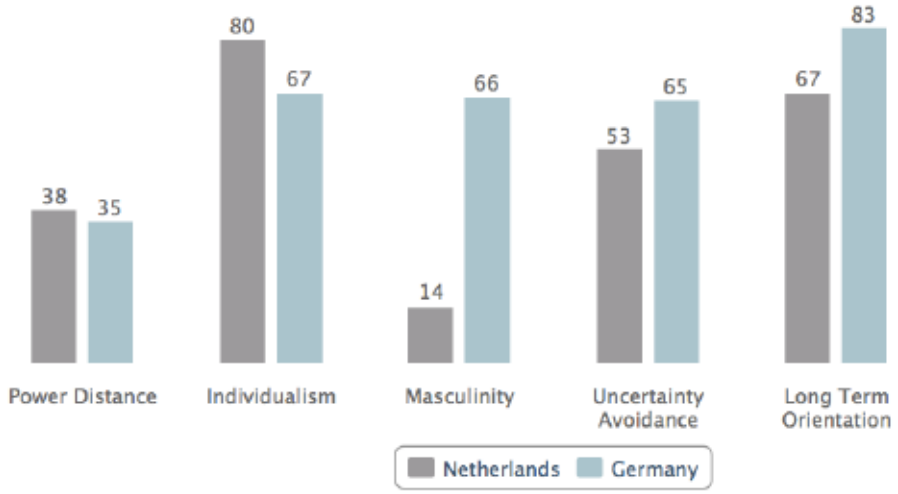
4.3.2 Masculinity - femininity

As discussed in section 2.2.3, Hofstede offers a framework containing five dimensions that are dominant for research on national culture. The masculinity–femininity dimensions explains the degree to which societies emphasize competition and materialism opposed to cooperation and fairness. Entrepreneurs usually score high on masculinity and, therefore, value success, assertiveness and competition (McGrath, MacMillan, Yang, & Tsai, 1992). Gelfand et al. (2011) did not expect any strong relationship with the cultural tightness-looseness construct and the masculinity-femininity dimension and shows that it is not significantly related.

This control variable is however useful as a reference to Hofstede work to see if the masculinity scores differs between Dutch and German students (figure 6). Germany has a score of 66 and is considered a masculine society. The Netherlands has a score of 14 on this dimension and is therefore a feminine society. Masculinity-Femininity is measured with four content questions according the Values Survey Module 2013

(VSM 2013). The VSM 2013 is a 30-item paper-and-pencil survey developed for comparing countries (Hofstede & Minkov, 2013). The four content questions for measuring the degree on masculinity-femininity are used as a control variable to evaluate the data sample (Appendix VII-D).

Figure 6, Masculinity comparison (Geert-hofstede.com, 2015)



4.3.3 Familiarity with effectuation

In order to find out if familiarity with the effectuation theory is of influence, the respondents answered the question if they are familiar with the effectuation theory. Familiarity with the theory could possibly influence the respondent's choice between causation and effectuation and is therefore used as a control variable.

4.3.4 Expert entrepreneurs

Dew et al. (2009) studied the difference between expert and novice entrepreneurs in the entrepreneurial decision-making process. They found that expert entrepreneurs frame decisions using an effectual logic and novice entrepreneurs use more causal reasoning. Novice entrepreneurs have less business knowledge and experience on entrepreneurship and show less entrepreneurial behaviour than experienced entrepreneurs. Consequently, the respondents in the process of venture creation might behave different than respondents not in the process. It is also questionable which role the parents play. Parents could serve as a role model and influence theirs children's decisions (Hout & Rosen, 2000). So, family background could result in more affinity with entrepreneurship, which could lead to more effectual reasoning for the student.

4.5 Data analyses

Questionnaires can be easily, quickly and scientifically analysed by the use of software packages. For this research, a statistical analysis software package is applied named IBM SPSS Statistics version 23. Before any analyses can be performed, it is essential to known if the data is normally distributed. To test the normality of the data, histograms and Q-Q plots will be analysed, skewness and kurtosis values will be calculated, and Shapiro-Wilk tests for statistical support will be performed. The results of these tests can be found in section 5.1.3. The analyses found that the data is normally distributed and therefore parametric testing is applied in further analyses.

An exploratory factor analysis will be extracted to explore the underlying dimensionality of the 25 items in section 5.2.1. Afterwards, the internal consistency of the scale will be calculated with a Cronbach's alpha test in section 5.2.2. The hypotheses will be explored in paragraph 5.4. Two Pearson correlation matrixes will be created to visualise the correlation between the dependent and independent variables. Also, paired sample t-tests will be performed to test the significant difference between the mean of the effectual and causal principles. Linear regression analyses will be used to show the statistical relationship between the degree of tightness-looseness and causal and effectual decision-making.

5. Results

5.1 Data validation

5.1.1 Response bias

The dataset is composed in collaboration with colleague students of University of Twente. Krebbers (2015) constructed the items to measure effectual and causal decision-making and started with validating the multi-item tool. Therefore, he already deleted cases with repetition (students filled in twice) and deleted students that did not meet the education level. The database that Krebbers (2015) adjusted is used for this research.

5.1.2 Missing values

The dataset contains missing values, due to unanswered questions of the respondents and the mistake during the data collaboration process. To deal with this, Field (2009) suggest two options for excluding and one option for replacing these missing data points. By default, SPSS excludes cases listwise that means for an analysis the whole case will be deleted if a respondent has a missing variable. Due to the small sample size, this option is not chosen. The second option is excluding pairwise, which means that the missing score for a particular variable will be excluded from the analysis on the involving variable. This means that the sample size will not become smaller and will be the best options. The last option is replacing the missing value by an average value. However, this will standardise the score and the standard deviation will be suppressed.

5.1.3 Test of normality

5.1.3.1 Distribution of decision-making

To test if the data is normally distributed, histograms (frequency distributions) are analysed. Appendix I-A shows the distributions of causal and effectual decision-making and visualises that the data does not entirely deviates from a normal distribution. The descriptive table (Appendix I-A) focuses on the symmetry and pointiness of the distribution and provides insight on skewness and kurtosis. In a normal distribution, the values of skewness and kurtosis should be zero (Field, 2009). Effectual decision-making is negatively skewed with a value of -.088 (SE = .145), which indicates a small pile-up on the right (Field, 2009). This also applies to causal decision-making with a skewness value of -.139 (SE = .145). The kurtosis value of effectual and causal decision-making is respectively .634 (SE = .288) and .159 (SE = .288) and indicates that effectual decision-making distribution is pointy. The normal Q-Q Plot (Appendix I-A) is used to visualise the expected values against the observed values (Field, 2009). Both effectual and causal decision-making plots show a close S-

shaped curve around the diagonal line, which is caused by the negative skewness. Additionally, a Shapiro-Wilk test is performed to test the normality of the data. The test shows non-significance ($p > .05$) for effectual and causal decision-making (causation: $SW(284) = .995$; $p = .455$; effectuation: $SW(284) = .991$; $p = .063$), which means that the data is normally distributed. All this overwhelming results provides supporting evidence that parametric testing can be applied.

5.1.3.1 Distribution of principles

More specific, the principles of effectuation and causation will also be used for analyses. Even that it is assumed that the principles are normally distributed, because the upper-hand constructs are normally distributed, Shapiro-Wilk tests are analysed. Appendix I-B shows that all principles are significant, which implies that the distributions are significantly different from normal distributions. Testing normality with a Shapiro-Wilk test has limitations due to the sample size. Significant results do not necessarily means that the distributions deviates from a normal distribution and parametric tests still can be applied. However, parametric testing is not preferred for these non-normal data. The Q-Q plots presume a normal distribution and therefore the data will be treated as normally distributed even that there is no statistically support.

5.1.3.2 Distribution of cultural tightness-looseness

To test the normality on the degree of tightness-looseness, histograms are analysed. The histograms (Appendix I-C) for both Dutch and Germans students visualises a normal distribution. More in-depth, the distribution for Dutch students has a negative skewness value of -.028 (SE = .159) and a negative kurtosis value of -.014 (SE = .318). This means that frequent scores are slightly clustered to the right end of the scale and is slightly flatter that a normal distribution. The distribution for German students is negatively skewed with a value of -.229 (SE = .333) and has a negative kurtosis with a value of -.823 (SE = .656). The distribution looks similar to the Dutch distribution. The Q-Q plot shows a close S-shaped curve around the diagonal line, which is caused by the negative skewness. Additionally, a Shapiro-Wilk test is performed to test the normality (Appendix I-C). Contrary to the visual findings, this test shows non-significance ($p > .05$) for German students ($SW(51) = .969$; $p = .205$), which means that the distribution is not significantly different from a normal distribution. The distribution for Dutch students also show non-significance ($SW(233) = .990$; $p = .090$). Parametric testing can be applied.

5.2 Scale validation

5.2.1 Exploratory factor analysis

In order to validate the new developed measurement scale (Krebbers, 2015), an exploratory factor analysis is performed. This factor analysis examines inter-

relationships among the items and the common underlying dimensions. Before the underlying factor structure can be identified, assumption on correlations and sample adequacy are tested. Afterwards, a principal component analysis is used to determine the factor loading for each item. These factor loadings are necessary to consider removing items on the questionnaire based on the Cronbach's alpha scores in section (5.2.2).

5.2.1.1 Correlations and sample adequacy

The correlations matrix (Appendix II-A) is used to check the check the inter-correlation between the variables. By analysing this matrix, there is no reason to believe that there is multicollinearity in the data. However, because a principal component analysis is performed, multicollinearity is less important (Field, 2009).

The reliability of factor analysis is dependent on the sample size (Field, 2009). The sample size is described in section 4.1.2, and consists of 285 respondents. The common rule is that at least 10-15 respondents per item are necessary for factor analysis. Effectuation and causation is measured with 25 items, which means the sample should consists of at least 250-375 respondents and meets the requirement. An alternative is the use of Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) to see if factor analyses are appropriate. The KMO test results in a value of .737 (Appendix II-B), which can be accepted as a 'good value' (Hutcheson & Sofroniou, 1999, as cited by Field, 2009). A significant Bartlett's Test of Sphericity (Appendix II-B) indicated that the correlations between the items are sufficiently large (Chi-square (300) = 1351.804, p = .000).

After the overall KMO statistic is checked, Field (2009) discuss that it is import to examine the diagonal elements of the ant-image correlation matrix (Appendix II-C). On the diagonal line, the matrix shows that all KMO values for individual items are above the minimum of 0.5. None of the variables should be excluded form analyses.

Based on the correlations and the adequate sample size, using factor analysis is appropriate.

5.2.1.2 Principal component analysis

A principal component analysis (PCA) is conducted on 25 items with an orthogonal rotation. Field (2009) discusses three methods of orthogonal factor rotation (varimax, quartimax and equamax) and varimax attempts to maximise the dispersion of loadings within factors and is therefore used. Appendix II-D list the eigenvalues associated with each linear component/factor before extraction, after extraction and after rotation. The initial analysis shows that eight components had eigenvalues over Kaiser's criterion of 1 (Field, 2009) and the combination of these eight components

explains 57.896 % of the total variance. The first two components explain the most variance before rotations, with a cumulative percentage of 26.397 % (16.036 + 10.361).

Interpreting the scree plot (Appendix II-E), the curve tails off after three factors. Cartell (1966, as cited by Field, 2009) argues that the cut-off point for selecting factors is at the point of inflexion. This point is when two imaginary lines are drawn that summarise the horizontal and vertical part of the plot. The point of inflexion occurs at component number 4, and indicates that the first three components should be retained at the left side of this point.

Even that the scree plot suggests retaining three components and that there is a sample size greater than 200 (Stevens, 2002; as cited by Field, 2009), the Kaiser's criterion suggest that all eight components with an eigenvalue above 1 should be retained. However, the Kaiser's criterion is accurate when there are less than 30 variables, the sample size exceeds 250 participants, and the average communality is greater than or equal to 0.6. The first two requirements are met with 25 items and 285 respondents. Calculation the average of the communalities results in a score of .579 (14.473/25) (Appendix II-F). Therefore, it is advised to use the scree plot and three components are retained (Field, 2009).

The rotated component matrix (table 3 & Appendix II-G) provides the factor loading on the three components. For interpretative purposes, the cut-off point of 0.4 is used (Field, 2009). Sarasvathy (2001) proposes that causation and effectuation are two different approaches, which means that the causal items are expected to load on one component and the effectual items should load on another component. As the matrix indicates, the items of causation load mainly together on component 1 and therefore component 1 represents causational decision-making. The items of effectuation loads on component 1, component 2 and component 3. The most items loads on component 2 and therefore component 2 represents effectual decision-making. As the rotated component matrix (table 2) indicates, several items of causation have cross-loadings with effectuation (component 2). This means that the principles goal-driven, competitive analyses, and predict uncertain future, are shared sub-constructs with the effectual approach. Also, several items of effectuation have cross-loadings with causation (component 2) and component 3. Chandler et al. (2011) found comparable findings in his data analyses and concludes that effectuation is a multidimensional construct.

Table 3, Rotated component matrix (Varimax rotation)

	Component		
	1	2	3
Causation P1: I take a clearly pre-defined target as a starting point of the new venture.		.477	
Causation P1: Before starting my new venture, I will first acquire all resources needed to achieve my target.	.453		
Causation P2: Decisions will be primarily based on analysis of potential future returns.	.651		
Causation P2: Beforehand, I will calculate how many resources I need to achieve the expected returns.	.512		
Causation P3: I will focus on early identification of risks through market analysis.	.460		
Causation P3: I will try to identify markets by a thorough market analysis.	.519		
Causation P3: I will try to identify risks by a thorough competitors analysis.	.358	.457	
Causation P4: I will always pay attention that my initially defined target will be met.	.368		-.312
Causation P4: My first priority is reaching my pre-set target without any delay.			-.539
Causation P4: My planning will be set before I start the implementation process and cannot be [...].			-.583
Causation P5: I will try to control the future based on predictions of my previously obtained knowledge.		.573	
Causation P5: I will study expert predictions on the direction the market is "heading", to determine what [...].	.569		
Effectuation P1: The uncertainty of a market will not block me since I rely on my own experience to [...].		.324	.354
Effectuation P1: The decisions I make when starting my new venture will be based on the resources [...].	.508		
Effectuation P1: I start my new venture without defining a clear target.		-.305	
Effectuation P2: Decisions will be primarily based on minimization of risks and costs.	.489		
Effectuation P2: I only spend resources I have available and I am willing to lose.	.499		
Effectuation P3: I will ask my private network to help me out with starting my new venture.		.573	
Effectuation P3: I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.		.378	
Effectuation P3: Decisions will be made together with stakeholders based on our competences.	.336	.437	
Effectuation P4: I expect to change my original target when confronted with new findings.			.629
Effectuation P4: I allow changes in my planning if needed, even during the implementation process [...].			.647
Effectuation P4: I allow delays during the development of my new venture when new opportunities emerge.			.587
Effectuation P5: I will talk to people I know to enlist their support in making opportunities a reality.		.629	
Effectuation P5: I will try to control the future by creating it.		.455	

5.2.1.3 Effectuation as a formative construct

Based on the results obtained from the analysis and comparing them with the findings of Chandler et al. (2011), effectuation may be a formative construct. This means that higher-order constructs are formed by lower-order constructs (Chandler et al., 2011). They explain that the lower-order indicators are defining characteristics of the construct and may be independent of each other. This implies that sub-component should not be deleted or changed in order to modify the upper-level construct. By deleting items for this research effectuations would have a different meaning, because it is measured with multiple sub-constructs (principles).

The rotated component matrix shows that almost all sub-constructs of effectuation (means-driven, affordable loss, partnership, leveraging contingencies, control) tend to load together in clusters. This indicates that each sub-construct can be treated as a reflective construct, which implies that the lower-order items reflect the upper-

order items (Chandler et al., 2011). The means-driven principle is a shared sub-dimensions with causation and the partnership, leveraging contingencies and control principles are independent sub-dimensions of the formative construct effectuation. The affordable loss principle fully loads on the causation component. The scale reliability is calculated in the next section to see if the questionnaire is internally consistent.

5.2.2 Internal consistency

A Cronbach's alpha test is used to calculate the overall reliability of the questionnaire, which is the most common measure of scale reliability (Field, 2009). An alpha (α) score of .8 is generally accepted and a score of .7 is acceptable. Scores below .7 indicate that the scale is unreliable. However, the alpha score is dependent on the number of items that are measured, which means that an increase in items increases the score. Because effectuation and causation are measured as two different constructs, the scores on both constructs are measured separately.

As Appendix III-A shows, the Cronbach's alpha score on causal decision-making is .712, which is acceptable. This is above the 'rule of thumb' of .7 (Field, 2009). Deleting Q73 (My first priority is reaching my pre-set target without any delay) will result in a higher score of .721. Field (2009) explains that item should be deleted if it results in a substantially greater alpha value overall. This item does not load on component 1 as it should be, and it negatively loads on component 3 (table 3). Also, the sub-dimension is measure with 3 items and therefore deleting Q73 will not have statistical consequences. Q73 will be deleted and will not be used for further analysis on effectual decision-making. The Cronbach's alpha score will be increased to .721.

The Cronbach's alpha score on effectual decision-making is .520 (Appendix III-B), which is below the 'rule of thumb' of .7 (Field, 2009). Therefore, Q72 (I start my new venture without defining a clear target) can be deleted for a higher score of .551. However, this item is an indicator for the means-driven principle, which is a sub-dimension of the formative effectuation construct. Chandler et al. (2011) argued that it should not be deleted or changed in order to modify the upper-level construct. Table 2 explains that this item has a negative factor loading on component 2 (effectuation), which is not good. Field (2009) explains that a reverse-phrased item causes a negative factor loading for that item. However, Q72 is not reverse-phrased and therefore it will be deleted to gain a higher reliability score. Therefore, Q72 will not be used for further analysis on effectual decision-making. Unfortunately, the final score of .511 is still poor, but this can be devoted to measuring generic and broad constructs (Peters, 2014) and the low number of items measured (Field, 2009).

The Cronbach's alpha score on the degree of tightness-looseness is .686 (Appendix II-C), which is questionable but close to the 'rule of thumb' of .7 (Field, 2009). Deleting Q87 (People in my home country have a great deal of freedom in deciding how they want to behave in most situations (recoded)) will result in a higher alpha score of .713. However, Gelfand proved the validity and reliability of these items in her own research. Therefore, the Cronbach's alpha score will be accepted for this research and Q87 will not be excluded for further analysis.

5.3 Control variables

5.3.1 Published tightness-looseness score

Gelfand et al. (2011) published tightness index score for the Netherlands and Germany (table 2). In order to check if the dataset corresponds with the published scores, the tightness index score of the German and Dutch respondents should be calculated. Unfortunately, the 'Supporting Online Material' of Gelfand's article is not clear enough to understand the calculation method. Therefore, I will focus on the mean scores and compare these.

An independent sample test is used to check if the mean of degree of tightness-looseness is statistically different between German and Dutch students. The SPSS results (Appendix IV-A) show that the Levene's test for equality of variance is not significant ($p = .056$) and therefore it can be assumed that the variances are roughly equal between Dutch and Germans students. The t-test shows that there is no significant difference ($p = .073$) between the mean scores of the degree of tightness-looseness between Dutch and German students. This implies that German students do not represent the tight society and Dutch students do not represent the loose society as initially aimed for in this research. This data set is not representative for Gelfand's index scores, which can be caused by the low number of scale-items or the broad-measured items. With Gelfand's published index scores in mind, the two groups still will be separated based on the average means scores.

5.3.2 Masculinity - femininity

The VSM manual (Hofstede & Minkov, 2013) provides a formula to measure the index score of masculinity. Therefore it is necessary to calculate the means on questions 80-83 for both Dutch and German students, see appendix IV-B. The index can be calculated as follow: MAS = 35 (mQ81 – mQ80) + 35 (mQ82 – mQ83) + C(mf). The indexes are calculated: masculinity The Netherlands = 35 (1.87–2.24) + 35 (2.16–2.02) = - 8.05; masculinity Germany = 35 (1.69–1.88) + 35 (2.16–2.02) = - 1.75.

The constant C(mf) is normally used to shift the score to values between 0 and 100. For the comparison of the two nationalities, this is not necessary. The calculations

indicate that Germany is more masculine than The Netherlands, which is also found by Hofstede (figure 5). However, the range between the calculated scores is 6.3 (-1.75 - -8.05), which is lower that published scores with a range of 52 (66-14). This implies that the range differs and the calculated scores do not perfectly compares with Hofstede's published scores.

5.3.3 Familiarity with effectuation

As a control variable, the sample will be checked on familiarity with the literature on effectuation. The concepts of effectuation are taught at the University of Twente and might influence the decision-making process. On average, students familiar to the effectuation literature use more effectual decision-making than causal decision-making (Appendix IV-C). Statistical evidence of this difference is found with t-test (paired sample test = 2.503, df = 36, p = 0.017). Students, unfamiliar to the effectuation literature, use on average more effectual decision-making than causal decision-making (Appendix IV-D). This is with significant evidence proved with a t-test (paired sample test = 2.789, df = 221, p = 0.006). The analyses show that students familiar and unfamiliar with the concepts of effectuation both prefer effectual decision-making.

5.4.4 Familiarity with entrepreneurship

In order to see if expert and novice entrepreneurs behave differently in the entrepreneurial process, a paired sample t-test is performed on entrepreneurial students and non-entrepreneurial student. The test significantly shows (Appendix IV-E) that student entrepreneurs use more effectuation than causation in the decision-making process (Paired sample test = 4.149, df = 37, p = 0.000). In Appendix IV-F, the test significantly shows that non-entrepreneurial students also significantly use more effectuation than causation (Paired sample test = 2.462, df = 244, p = .015). For this research it implies that entrepreneurial students do not differ from non-entrepreneurial students in their decision-making process.

As discussed, the role of family background is questionable. The paired sample t-test (Appendix IV-G) statistically shows that students with self-employed entrepreneurial parent or legal guardians use more effectuation than causation (Paired sample test = 2.855, df = 87, p = 0.005). Also, students without entrepreneurial family background use more effectuation than causation (Paired sample test = 2.675, df = 194, p = .008). This implies that family background does not play a role fore this research.

5.4 Analyses of hypotheses

To find out whether the principles of effectuation and causation are associated with the degree of tightness-looseness, a Pearson correlation matrix is constructed for

German and Dutch students (Appendix V). For Dutch students, the matrix reveals significant correlations between the 'degree of tightness-looseness' and 'causal decision-making' as well as 'effectual decision-making'. Additionally, the 'degree of tightness-looseness' is significantly correlated with the principle 'means-driven approach', 'expected returns', 'affordable loss' and 'avoiding contingencies'. For German students, the matrix reveals a significant correlation between the 'degree of tightness-looseness' and 'effectual decision-making'. Also, the 'degree of tightness-looseness' is significantly associated with the principles 'goal-driven', 'means-driven' and 'affordable loss'. Paragraph 5.4 will provide more profound knowledge on the correlations and the parametric tests that are performed. The results on the parametric tests are summarised in Appendix VI and visualized in table 4 and 5.

Table 4, Parametric test results on Dutch entrepreneurs

	Mean	N	SD	SE	T-test (α)	R (α)
Goal-driven	5.1609	233	.94050	.06161	4.746 (.000)*	.057 (.384)
Means-driven	4.7511	233	.98165	.06431		.129 (.049)*
Expected returns	5.3584	233	.97341	.06377	6.568 (.000)*	.144 (.028)*
Affordable loss	4.8090	233	1.15641	.07576		.190 (.004)*
Competitive analysis	5.0136	233	.88783	.05816	-1.232 (.219)	.127 (.054)
Partnership	5.0930	233	.74112	.04855		.011 (.865)
Avoiding contingencies	4.1180	233	1.04429	.06841	-13.217 (.000)*	.131 (.046)*
Leveraging contingencies	5.4535	233	.87585	.05738		.016 (.813)
Prediction	5.0987	233	.80202	.05254	-4.495 (.000)*	.035 (.591)
Control	5.4013	233	.87279	.05718		.083 (.208)
Causation	5.1300	233	.51794	.03393	4.096 (.000)*	.157 (.016)*
Effectuation	4.9558	233	.61125	.04004		.146 (.026)*

Table 5, Parametric test results on German entrepreneurs

	Mean	N	SD	SE	T-test (α)	R (α)
Goal-driven	5.5882	51	.77270	.10820	3.071 (.003)*	.289 (.039)*
Means-driven	5.1275	51	.79902	.11189		.310 (.027)*
Expected returns	5.6471	51	.92895	.13008	4.043 (.000)*	.083 (.563)
Affordable loss	4.9608	51	1.06228	.14875		.311 (.026)*
Competitive analysis	5.2418	51	.84873	.11885	-.552 (.583)	.011 (.940)
Partnership	5.3203	51	.72099	.10096		.216 (.128)
Avoiding contingencies	4.5784	51	.98170	.13746	-3.221 (.002)*	.091 (.525)
Leveraging contingencies	5.2614	51	.88019	.12325		.025 (.860)
Prediction	5.1176	51	.82212	.11512	-3.165 (.003)*	.023 (.871)
Control	5.5098	51	.84552	.11840		.172 (.229)
Causation	5.2451	51	.50233	.07034	.106 (.916)	.119 (.404)
Effectuation	5.2353	51	.58583	.08203		.306 (.029)*

5.4.1 Means-driven vs. goal-driven

H1a: *A loose society influences entrepreneurs in emphasizing on means-based actions rather than goal-based action.*

Dutch students use on average a more goal-driven approach (mean = 5.1609, SE = .06161) than a means-driven approach (mean = 4.7511, SE = .06431). T-test shows significant difference between the two means (Paired sample test = 4.746, df = 232, p = 0.000). A linear regression is calculated to predict if the degree of tightness-looseness influences the goal-driven principle. The analyses show no statistically significant relationship (F (1,231) = .761, p = .384, r^2 = .003). However, a linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and the means-driven principle (F (1,231) = 3.923, p = .049, r^2 = .017). This implies that the society influences loose entrepreneurs in using a means-driven approach for decision-making. Hypothesis H1a is supported.

H1b: *A tight society influences entrepreneurs in emphasizing on goal-based actions rather than means-based actions.*

German entrepreneurs use on average a more goal-driven approach (mean = 5.5882, SE = .10820) than a means-driven approach (mean = 5.1275, SE = .11189). T-test shows significant difference between the two means (Paired sample test = 3.071, df = 50, p = 0.003). A linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and the goal-driven principle (F(1,49) = 4.475, p = .039, r^2 = 0.084). Also, linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and the mean-driven principle (F (1,49) = 3.064, p = .027, r^2 = .096). This implies that the society influences tight entrepreneurs in using both means-based and goal-based actions. Hypothesis H1b is not supported.

5.4.2 Affordable loss vs. expected returns

H2a: *A loose society influence entrepreneurs in emphasizing on affordable loss rather than expected returns.*

Dutch entrepreneurs focus on average more on expected returns (mean = 5.3584, SE = .06377) than on affordable loss (mean = 4.8090, SE = .07576). T-test shows significant difference between the two means (Paired sample test = 6.568, df = 232, p = .000). Linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and the expected returns principle (F (1,231) = 4.887, p = .028, r^2 = .021). Also, linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and the affordable loss principle (F (1,231) = 8.672, p = .004, r^2 = .036). This implies that

the society influences loose entrepreneurs in using both the expected returns and affordable loss approach. Hypothesis H2a is not supported.

H2b: *A tight society influences entrepreneurs emphasizing on expected returns rather than affordable loss*

German entrepreneurs focus on average more on expected returns (mean = 5.6471, SE = .130008) than on affordable loss (mean = 4.9608, SE = .14875). T-test shows significant difference between the two means (Paired sample test = 4.043, df = 50, p = .000). Linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the expected returns principle (F (1,49) = .340, p = .563, r^2 = .007). However, linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and the affordable loss principle (F (1,49) = 5.238, p = .026, r^2 = .097). This implies that the society influences tight entrepreneurs in using the affordable loss approach. Hypothesis H2b is not supported.

5.4.3 Strategic alliances vs. competitive analyses

H3a: *A loose society influence entrepreneurs in emphasizing on strategic alliances rather than competitive analyses*

Dutch entrepreneurs focus on average more on strategic alliances (mean = 5.0930, SE = .04855) than competitive analyses (mean = 5.0136, SE = .05816). However, t-test shows no significant difference between the two means (Paired sample test = -1.232, df = 232, p = .219). A linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the competitive analysis principle (F (1,231) = 3.764, p = .054, r^2 = .016). Also, a linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the strategic alliances principle (F (1,231) = .029, p = .865, r^2 = .000). The society does not influence the loose entrepreneurs in using a competitive analysis or strategic alliances approach. Hypothesis H3a is not supported.

H3b: *A tight society influences entrepreneurs in emphasizing on competitive analyses rather than strategic alliances.*

German entrepreneurs focus on average more on strategic alliances (mean = 5.3203, SE = .10096) than competitive analyses (mean = 5.2418, SE = .11885). T-test shows no significant difference between the two means (Paired sample test = -.552, df = 50, p = .583). The linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the competitive analysis principle (F (1,49) = .006, p = .940, r^2 = .000). Also, the linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and

the strategic alliances principle (F (1,49) = 2.396, p = .128, r^2 = .047). This implies that the society does not influence the tight entrepreneurs in using a competitive analysis or strategic alliances approach. Hypothesis H3b is not supported.

5.4.4 Exploiting contingencies vs. avoiding contingencies

H4a: *A loose society influences entrepreneurs in a emphasizing on exploiting contingencies rather than avoiding contingencies.*

Dutch entrepreneurs focus on average more on exploiting contingencies (mean = 5.4535, SE = .05738) than on avoiding contingencies (mean = 4.1180, SE = .06841). T-test shows significant difference between the two means (Paired sample test = -13.217, df = 232, p = .000). The linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and the avoiding contingencies principle (F (1,231) = 4.042, p = .046, r^2 = .017). However, the linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the exploiting contingencies principle (F (1,231) = .056, p = .813, r^2 = .000). This implies that the society influence the loose entrepreneurs in using an avoiding contingencies approach. Hypothesis H4a is not supported.

H4b: *A tight society influences entrepreneurs in emphasizing on avoiding contingencies rather than exploiting contingencies.*

German entrepreneurs focus on average more on exploiting contingencies (mean = 5.2614, SE = .12325) than on avoiding contingencies (mean = 4.5784, SE = .13746). T-test shows significant difference between the two means (Paired sample test = -3.221, df = 50, p = .002). The linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the avoiding contingencies principle (F (1,49) = .409, p = .525, r^2 = .008). Also, the linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the exploiting contingencies principle (F (1,49) = .032, p = .860, r^2 = .001). The society does not influence the tight entrepreneur in using a avoiding or exploiting contingencies approach. Hypothesis H4b is not supported.

5.4.5 Control unpredictable future vs. predict uncertain future

H5a: *A loose society influences entrepreneurs in emphasizing on control rather than prediction.*

Dutch entrepreneurs focus more on controlling an unpredictable future (mean = 5.4013, SE = .05718) than on predicting an uncertain future (mean = 5.0987, SE = .05254). The T-test shows significant difference between the two means (Paired sample test = -4.495, df = 232, p = .000). The linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and

the control principle (F (1,231) = 1.597, p = .208, r^2 = .007). Also, the linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the prediction principle (F (1,231) = .290, p = .591, r^2 = .001). This implies that the society does not influence the loose entrepreneur in using a prediction or control approach. Hypothesis H5a is not supported.

H5b: *A tight society influences entrepreneurs in emphasizing on prediction rather than control.*

German entrepreneurs focus more on controlling an unpredictable future (mean = 5.5098, SE = .11840) than on predicting an uncertain future (mean = 5.1176, SE = .11512). T-test shows significant difference between the two means (Paired sample test = -3.165, df = 50, p = .003). The linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the control principle (F (1,49) = 1.486, p = .229, r^2 = .029). Also, the linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and the prediction principle (F (1,49) = .027, p = .871, r^2 = .001). This implies that the society does not influence the tight entrepreneur is using a control or prediction approach. Hypothesis H5b is not supported.

5.4.6 Effectuation vs. causation

H6a: *A loose society influences entrepreneurs in emphasizing an effectual approach rather than a causal approach.*

Dutch entrepreneurs use on average more effectual decision-making (mean = 5.1300, SE = .03393) than causal decision-making (mean = 4.9558, SE = .04004). T-test shows significant difference between the two means (Paired sample test = 4.096, df = 232, p = .000). The linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and causal decision-making (F (1,231) = 5.844, p = .016, r^2 = .025). Also, the linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and effectual decision-making (F (1,231) = 5.011, p = .026, r^2 = .021). This implies that the society influence the loose entrepreneur in both an effectual and causal approach. Hypothesis H5a is not supported.

H6b: *A tight society influences entrepreneurs in emphasizing a causal approach rather than an effectual approach.*

German entrepreneurs use on average more effectual decision-making (mean = 5.2451, SE = .07034) than causal decision-making (mean = 5.2353, SE = .08203). However, the T-test shows no significant difference between the two means (Paired sample test = .106, df = 50, p = .916). The linear regression analysis shows no statistically significant relationship between the degree of tightness-looseness and

causal decision-making (F (1,49) = .708, p = .404, r^2 = .014). However, the linear regression analysis shows a statistically significant relationship between the degree of tightness-looseness and effectual decision-making (F (1,49) = 5.068, p = .029, r^2 = .094). This implies that the society influence the tight entrepreneur is using an effectual decision-making approach. Hypothesis H6b is not supported.

Table 6, Summary of results of hypotheses testing

Hypothesis	Result
> Means-driven vs. goal-driven	
H1a: A loose society influences entrepreneurs in emphasizing on means-based actions rather than goal-based action.	Supported
H1b: A tight society influences entrepreneurs in emphasizing on goal-based actions rather than means-based actions.	Not supported
> Affordable loss vs. expected returns	
H2a: A loose society influence entrepreneurs in emphasizing on affordable loss rather than expected returns.	Not supported
H2b: A tight society influences entrepreneurs emphasizing on expected returns rather than affordable loss	Not supported
> Strategic alliances vs. competitive analyses	
H3a: A loose society influence entrepreneurs in emphasizing on strategic alliances rather than competitive analyses.	Not supported
H3b: A tight society influences entrepreneurs in emphasizing on competitive analyses rather than strategic alliances.	Not supported
> Exploiting contingencies vs. avoiding contingencies	
H4a: A loose society influences entrepreneurs in a emphasizing on exploiting contingencies rather than avoiding contingencies.	Not supported
H4b: A tight society influences entrepreneurs in emphasizing on avoiding contingencies rather than exploiting contingencies.	Not supported
> Control unpredictable future vs. predict uncertain future	
H5a: A loose society influences entrepreneurs in emphasizing on control rather than prediction.	Not supported
H5b: A tight society influences entrepreneurs in emphasizing on prediction rather than control.	Not supported
> Effectuation vs. causation	
H6a: A loose society influences entrepreneurs in emphasizing an effectual approach rather than a causal approach.	Not supported
H6b: A tight society influences entrepreneurs in emphasizing a causal approach rather than an effectual approach.	Not supported

6. Discussion

6.1 Validity and reliability

This research tried to find out whether the society influences the entrepreneurial decision-making process. A new developed scale is developed to measure effectuation (13 items) and causation (12 items) on a quantitative way. Sarasvathy (2001) proposes that causation and effectuation are two different approaches. However, the rotated component matrix (table 3) showed that causation is a reflective construct and effectuation is a formative construct. This formative construct contains lower-levels represented in the principles of effectuation. In addition, the rotated component matrix also indicates that some principles are shared constructs. Paragraph 6.3 will elaborate on how this influences the results.

The society is measured by the construct of cultural tightness-looseness, which is developed by Gelfand et al. (2011). The proposed relationship between each principle of effectuation and the degree of tightness-looseness is stated in hypotheses. In these hypotheses, a division is made between Dutch and German entrepreneurs. According to Gelfand et al. (2011), the German society is tighter than the Dutch society. Six items measure the degree of tightness-looseness, which determines the overall strength of social norms and the tolerance of deviant behaviour. In this research, comparing means of German and Dutch entrepreneurs shows that Germans entrepreneurs are tighter. However, an independent sample test is drawn which indicates that there is no significant difference between the mean scores. This means that German entrepreneurs do not represent the tight society and Dutch students do not represent the loose society as initially aimed for in this research. It is questionable if Gelfand's six items are the correct indicators to measure cultural tightness-looseness in this research. With Gelfand's published index scores in mind, the two groups are still separated.

Statistical evidence is found that the distributing of causal and effectual decision-making is normally distributed. More specific, no statistical support is found that the principles of effectuation and causation are normally distributed. However, the Q-Q plots presume a normal distribution and therefore the data will be treated as normal. Also, the data of the cultural tightness-looseness construct for both German and Dutch entrepreneurs are normally distributed. This implies that parametric testing is applied.

6.2 Hypotheses outcomes

The first group of hypotheses focused on means-based and goal-based actions related to cultural tightness-looseness. It is significantly showed that Dutch entrepreneurs (loose) use more goal-driven actions than means-driven actions. However, a significant association is found between means-driven actions and the degree of tightness-looseness. This implies that the society influences loose entrepreneurs in using a means-driven approach for decision-making (H1a). Also, significant evidence is found that German students (tight) prefer goal-driven actions. However, significant relationships are found between the degree of tightness-looseness and both goal-driven and means-driven actions. This implies that the society influences both approaches and tight entrepreneurs do not necessarily emphasize on goal-based actions rather than means-based actions (H1b). As the rotated component matrix indicates, the means-driven principle is a shared sub-construct with causation and the goal-driven principle is a shared sub-construct with effectuation. Sarasvathy (2001) proposes that causation and effectuation are two different approaches, but the factor analysis shows a contradiction. Therefore, it is difficult to explain the influence of cultural tightness-looseness on an effectual or causal approach. At least statistical support is found that the society relates to goals and means.

The second group of hypotheses focused on maximizing the potential returns for a decision by selecting optimal strategies (causal) or focus on projects where the loss in a worst-case scenario is affordable (effectual). Statistical evidence shows that Dutch entrepreneurs (loose) on average focus more on expected returns than on affordable loss. The relationship between the degree of tightness and the potential returns principle is significant as well with the affordable loss principle. This means that the society influences loose entrepreneurs in using both the expected returns and affordable loss approach (H2a). However, the rotated component matrix (table 3) indicates that the affordable loss principle fully loads on the causation component. Therefore, the society influences the loose entrepreneurs in using a causal approach. Also, it is statistically proven that German entrepreneurs (tight) focus on average more on expected returns than on affordable loss. Only a significant relationship is found with the degree of tightness-looseness and the affordable loss principle. As the affordable loss principle fully loads on the causation component, it is arguable if the society influences tight entrepreneurs in using a causal or effectual approach based on affordable loss and expected returns (H2b). .

The third group of hypotheses focused on detailed competitive analyses and business planning (causal) and strategic alliance and pre-commitments with stakeholders (effectual). For both Dutch (loose) and German (tight) entrepreneurs no statistical evidence is found that they prefer one of the principles. Either no

significant relationship is found between the degree of tightness-looseness and competitive analyses (H3a) as well as strategic alliances (H3b). Therefore, it is unclear how cultural strength relates towards cooperation and competition.

The fourth group of hypotheses focused on the difference between the effort to avoid unpleasant surprises (causal) and exploiting contingencies that arise unexpectedly over time (effectual). Dutch entrepreneurs (loose) use on average a more effectual approach by focusing on exploiting contingencies. However, a statistical significant relationship is found between the degree of tightness-looseness and avoiding contingencies, which contradicts the hypothesis that state that the loose society influences entrepreneurs emphasizing on exploiting contingencies (H4a) rather than avoiding them. Analyses on German entrepreneurs (tight) indicate that they prefer exploiting contingencies more then avoiding them. However, there is no significant evidence found if cultural tightness relates to these principles.

The fifth group of hypotheses focused on how the view of the future related to cultural tightness-looseness. German and Dutch entrepreneurs both focus more on controlling an unpredictable future than predicting an uncertain future. For both nationalities, there is no significant relationship found if the degree of tightness-looseness influences the predictability (H5a) and controllability (H5b) of the future.

More general, the sixth group op hypotheses focused on the influence of cultural strength on a causal or effectual decision-making approach. This research provided significant evidence that Dutch entrepreneurs prefer effectual decision-making rather than causal decision-making. Statistically, both choices of decision-making significantly relates to the degree of tightness-looseness. This implies that the society influences loose entrepreneurs in emphasizing on effectual decision-making (H6a) as well as causal decision-making. Furthermore, significance evidence is found that the society influences tight entrepreneurs in emphasizing more on effectual decision-making, which contradicts the hypothesis (H6b).

6.3 Implications

In a research attempt to understand the influence of cultural tightness-looseness on entrepreneurial decision-making, this research found mixed results. It was expected that a loose society would entrepreneurs mainly in applying effectual reasoning in decision-making and a tight society would influence entrepreneurs mainly in applying causal reasoning. The outcomes of the analyses show that societal-tight and societal-loose entrepreneurs apply principles of both types of reasoning. Sarasvathy (2001) argues that causation and effectuation are two different approaches, but she also argues that entrepreneurs can use both together depending on what the circumstances call for. In earlier work, Brettel et al. (2012) measured effectuation

and causation as polar opposites. Perry et al. (2012) argued that it should not be seen as opposing constructs, which is in line with Sarasvathy (2001).

As discussed in the literature chapter, individuals in tight societies value order, formality, discipline, and conformity (Gelfand et al., 2006). Characteristics that could easily suit a causal approach based on a rational prediction-oriented business planning strategy. The results show that cultural tightness is statistically significant related to the principles goal-driven (causal, but shared sub-construct with effectuation), means-driven (effectual, but shared sub-construct with the causation component), and affordable-loss (effectual, but fully loads on the causation component). These relationships indicate that tight entrepreneurs apply principles of the effectual and causal approach of reasoning. However, the principle goal-driven is a shared construct with effectuation and the means-driven principle is a shared construct with causation. In addition, the effectual principle affordable-loss fully loads on the causation component. This raises question marks about the validity and reliability of the new developed scale, which does not explain a clear cut between effectuation and causation.

In contrast, individuals in loose societies value innovation, openness to change, tolerance and variety (Gelfand et al., 2006). It is hypothesised that these are characteristics that fit an effectual reasoning where a non-predictive decision-making strategy is applied. The analyses indicate that cultural looseness statistically relates to the principles means-driven (effectual, but shared sub-construct with the causation component), expected returns (causal), affordable loss (effectual, but fully loads on the causation component), and avoiding contingencies (causal). These relationships show that loose entrepreneurs also both apply effectual and causal approach of reasoning. As abovementioned, the effectual principle means-driven is a shared construct with causation and the principle affordable loss load on the causation component. Due to this multidimensionality, it is difficult to contrast effectual and causal decision-making and determine the influence of culture.

Chandler et al. (2011) found similar findings and proposed that effectuation is a formative construct composed of three independent sub-dimensions (experimentation, affordable loss, and flexibility) and one sub-dimension which is shared with causation (pre-commitments). For this research, the goal-driven and means-driven principles are the shared construct and play a role for both approaches. Because affordable-loss fully loads on the causation component, it is considered as a causal approach. This implies that entrepreneurs, who are influenced by a loose society, apply more causal reasoning than effectual reasoning. Entrepreneurs, who are influence by a tight society, also apply more causal reasoning than effectual reasoning.

7. Conclusion, limitations and future research

7.1 Conclusion

This research is performed in order to understand the influence of cultural tightness-looseness on entrepreneurial decision-making. A new develop scale is applied to measure effectuation and causation in a quantitative way. Cultural tightness-looseness is measured with a scale that is originally developed by Gelfand et al. (2011). The influence of cultural looseness and tightness on the principles of effectuation and causation is hypothesized, in order to answer the upper hand research question, formulated as:

"To what extent does cultural tightness-looseness influences the way in which entrepreneurs use a causal or effectual logic in the decision-making process?"

By analysing the hypotheses, it is found that entrepreneurs, who are influenced by a loose society, apply a more causal logic than an effectual logic in the decision-making process. Entrepreneurs, who are influence by a tight society, also apply more causal reasoning than effectual reasoning. These findings indicate that tight and loose entrepreneurs use both types of reasoning, but mainly apply the causal logic. It is difficult to explain the precise influence of cultural tightness-looseness on the decision-making process, because the results show that some principles of effectuation and causation are shared constructs of each other. Also, this research shows that effectuation is a formative construct, which is similar to findings of Chandler et al. (2011).

7.2 Limitations and future research

This master thesis is carefully prepared to strive for a degree in Business Administration. Confidence is found regarding the chosen academic literature for describing the research problem on the cultural influence on entrepreneurial processes. To my best knowledge, the key concepts of this thesis are properly described and the research design is well developed. However, the findings show mixed results. Therefore, the limitations and shortcoming of this research are of important value and implications for future research are recommended.

An important limitation in virtue of methodology is the new developed multi-item tool to measure the principles of effectuation and cultural tightness-looseness. The effectuation and causation construct is measured by 25 items inspired on multi-factor measurement models of Wiltbank et al. (2009), Chandler et al. (2011) and Brettel et al. (2012). The scale reliability is measured and the Cronbach's alpha

scores for effectual decision-making, for both German and Dutch students, is below the 'rule of thumb' of .7 (Field, 2009). I devoted this poor score to the reason that effectuation is measured as a generic and broad construct (Peters, 2014). Effectuation is measured in multiple fields where quantitative measurement-items are uniquely specified to these respondents. Therefore, it is questionable if the results on effectual decision-making come out well. Additionally, the amount of 13 items that measure effectuation is probably to low for a reliable scale (Field, 2009). As a recommendation for future research, the validity and reliability of the new develop scale should investigated to determine if the rewritten items fit a student context and how measuring effectuation as a broad construct can by applied to multiple fields of research.

The degree of tightness-looseness is measure by a six-items scale that is originally developed by Gelfand et al. (2011). Gelfand's published index scores on tightness indicate that The Netherlands is a looser society compared to Germany. However, this research found no significant support for this difference. The Cronbach's alpha score are also below the 'rule of thumb' (Field, 2009) and therefore the reliability of the scale is questionable. Further research can be recommended to investigate if an amount of six items is enough to determine the cultural strength for students and entrepreneurs.

A regular recurring limitation in quantitative research is the sample size. In the methodology I stated that collecting at least 100 participants is a good starting point. This is based on Chandler et al. (2011) who discuss multiple recommendations regarding the minimum sample size and concludes that a sample size of 100 to 200 is adequate. The Dutch sample contains 234 respondents, which is adequate. The German sample contains 51 respondents, which is lower than discussed by Chandler et al. (2011). Even if it is difficult to determine the correct sample size, more reliable analyses with decent statistical power can be performed with a larger sample sizes (Dew et al., 2009). This will also improve the external validity of the research.

More in general, the focus of this research was to elaborate on the cultural influence on entrepreneurial processes. Besides the degree of tightness-looseness, there are multiple other aspects that predict the type of entrepreneurial decision-making.

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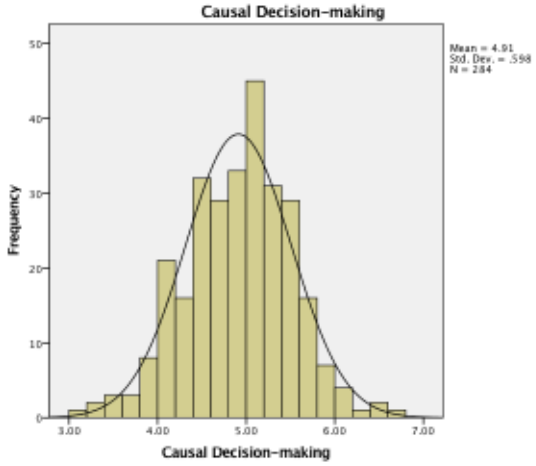
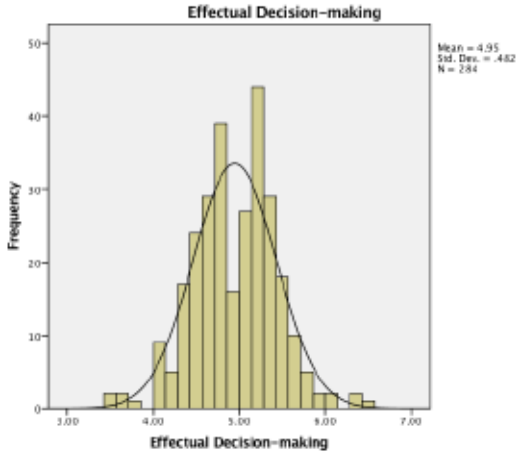
Appendix I: Test of normality

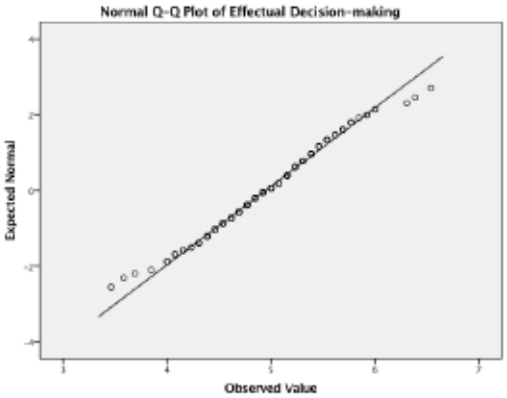
A. Test of normality – Causal and effectual decision-making

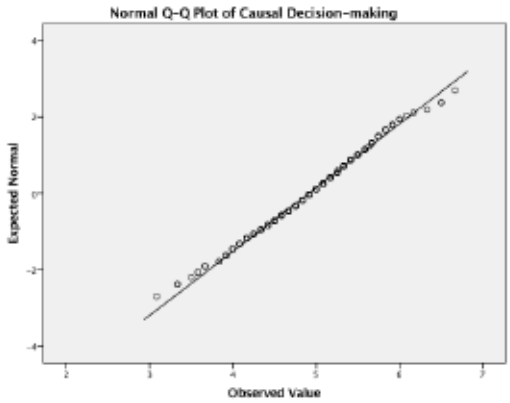




Descriptives

			Statistic	Std. Error
Effectual Decision-making	Mean		4.9476	.02862
	95% Confidence Interval for Mean	Lower Bound	4.8913	
		Upper Bound	5.0039	
	5% Trimmed Mean		4.9511	
	Median		4.9231	
	Variance		.233	
	Std. Deviation		.48233	
	Minimum		3.46	
	Maximum		6.54	
	Range		3.08	
	Interquartile Range		.60	
	Skewness		-.088	.145
	Kurtosis		.634	.288
Causal Decision-making	Mean		4.9119	.03548
	95% Confidence Interval for Mean	Lower Bound	4.8421	
		Upper Bound	4.9818	
	5% Trimmed Mean		4.9164	
	Median		4.9167	
	Variance		.358	
	Std. Deviation		.59800	
	Minimum		3.08	
	Maximum		6.67	
	Range		3.58	
	Interquartile Range		.83	
	Skewness		-.139	.145
	Kurtosis		.159	.288





Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Effectual Decision-making	.063	284	.008	.991	284	.063
Causal Decision-making	.055	284	.036	.995	284	.455

a. Lilliefors Significance Correction

B. Test of normality - Principles

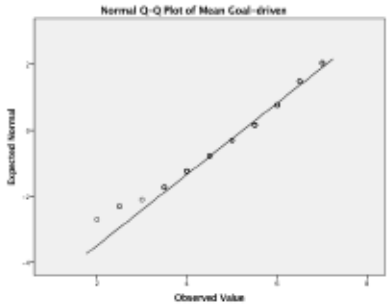
Tests of Normality

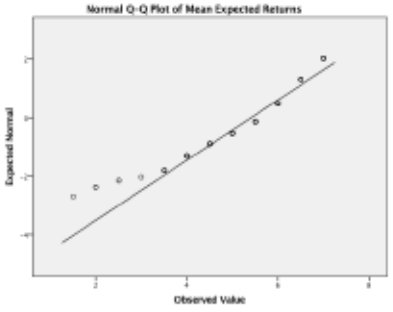
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Mean Goal-driven	.140	284	.000	.953	284	.000
Mean Expected Returns	.204	284	.000	.912	284	.000
Mean Competitive Analysis	.120	284	.000	.972	284	.000
Mean Avoiding contingencies	.128	284	.000	.972	284	.000
Mean Prediction	.140	284	.000	.958	284	.000
Mean Means driven	.106	284	.000	.965	284	.000
Mean Affordable Loss	.125	284	.000	.962	284	.000
Mean Partnership	.104	284	.000	.975	284	.000
Mean Leveraging Contigencies	.164	284	.000	.950	284	.000
Mean Control	.177	284	.000	.934	284	.000

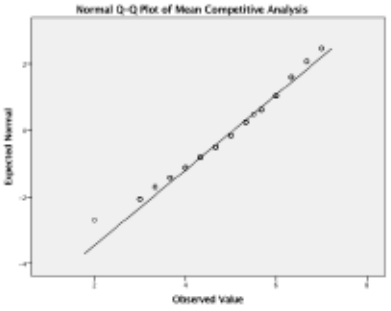
a. Lilliefors Significance Correction

Descriptives

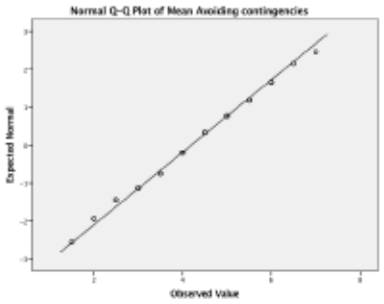
			Statistic	Std. Error
Mean Goal-driven	Mean		5.2377	.05495
	95% Confidence Interval for Mean	Lower Bound	5.1295	
		Upper Bound	5.3458	
	5% Trimmed Mean		5.2621	
	Median		5.5000	
	Variance		.858	
	Std. Deviation		.92608	
	Minimum		2.00	
	Maximum		7.00	
	Range		5.00	
	Interquartile Range		1.50	
	Skewness		-.502	.145
	Kurtosis		.212	.288
Mean Expected Returns	Mean		5.4102	.05758
	95% Confidence Interval for Mean	Lower Bound	5.2969	
		Upper Bound	5.5235	
	5% Trimmed Mean		5.4613	
	Median		5.5000	
	Variance		.942	
	Std. Deviation		.97034	
	Minimum		1.50	
	Maximum		7.00	
	Range		5.50	
	Interquartile Range		1.00	
	Skewness		-.963	.145
	Kurtosis		1.154	.288
Mean Competitive Analysis	Mean		5.0546	.05245
	95% Confidence Interval for Mean	Lower Bound	4.9513	
		Upper Bound	5.1578	
	5% Trimmed Mean		5.0818	
	Median		5.0000	
	Variance		.781	
	Std. Deviation		.88384	
	Minimum		2.00	
	Maximum		7.00	
	Range		5.00	
	Interquartile Range		1.33	
	Skewness		-.431	.145
	Kurtosis		-.023	.288

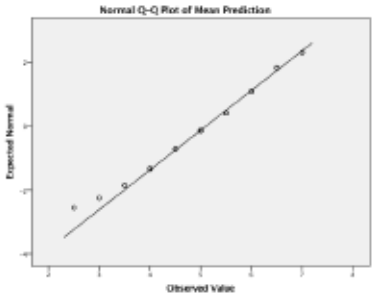


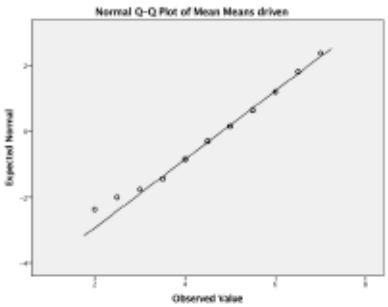




			Statistic	Std. Error
Mean Avoiding contingencies	Mean		4.2007	.06211
	95% Confidence Interval for Mean	Lower Bound	4.0784	
		Upper Bound	4.3230	
	5% Trimmed Mean		4.2070	
	Median		4.0000	
	Variance		1.096	
	Std. Deviation		1.04672	
	Minimum		1.50	
	Maximum		7.00	
	Range		5.50	
	Interquartile Range		1.50	
	Skewness		-.030	.145
	Kurtosis		.037	.288
Mean Prediction	Mean		5.1021	.04772
	95% Confidence Interval for Mean	Lower Bound	5.0082	
		Upper Bound	5.1960	
	5% Trimmed Mean		5.1154	
	Median		5.0000	
	Variance		.647	
	Std. Deviation		.80423	
	Minimum		2.50	
	Maximum		7.00	
	Range		4.50	
	Interquartile Range		1.00	
	Skewness		-.269	.145
	Kurtosis		.120	.288
Mean Means driven	Mean		4.8187	.05703
	95% Confidence Interval for Mean	Lower Bound	4.7064	
		Upper Bound	4.9309	
	5% Trimmed Mean		4.8396	
	Median		5.0000	
	Variance		.924	
	Std. Deviation		.96110	
	Minimum		2.00	
	Maximum		7.00	
	Range		5.00	
	Interquartile Range		1.50	
	Skewness		-.280	.145
	Kurtosis		.151	.288



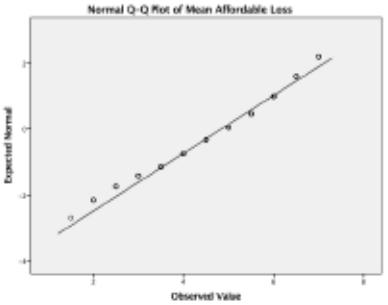


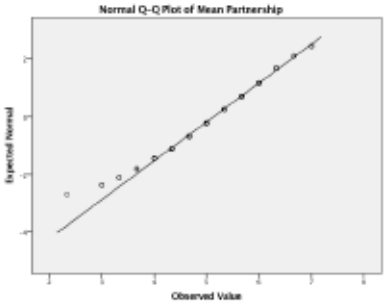


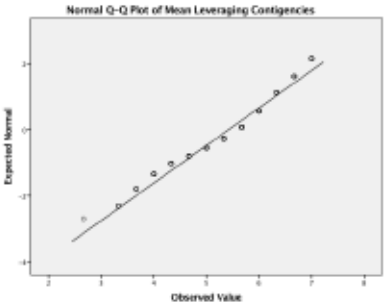
Descriptives

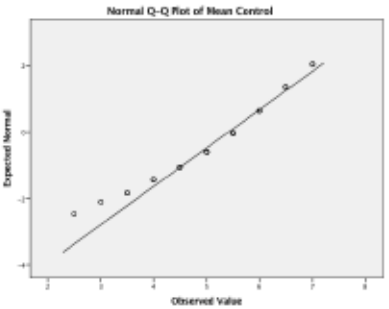
			Statistic	Std. Error
Mean Affordable Loss	Mean		4.8363	.06763
	95% Confidence Interval for Mean	Lower Bound	4.7031	
		Upper Bound	4.9694	
	5% Trimmed Mean		4.8756	
	Median		5.0000	
	Variance		1.299	
	Std. Deviation		1.13977	
	Minimum		1.50	
	Maximum		7.00	
	Range		5.50	
	Interquartile Range		1.50	
	Skewness		-.463	.145
	Kurtosis		-.168	.288
Mean Partnership	Mean		5.1338	.04400
	95% Confidence Interval for Mean	Lower Bound	5.0472	
		Upper Bound	5.2204	
	5% Trimmed Mean		5.1497	
	Median		5.0000	
	Variance		.550	
	Std. Deviation		.74146	
	Minimum		2.33	
	Maximum		7.00	
	Range		4.67	
	Interquartile Range		1.00	
	Skewness		-.340	.145
	Kurtosis		.569	.288
Mean Leveraging Contigencies	Mean		5.4190	.05211
	95% Confidence Interval for Mean	Lower Bound	5.3164	
		Upper Bound	5.5216	
	5% Trimmed Mean		5.4444	
	Median		5.6667	
	Variance		.771	
	Std. Deviation		.87818	
	Minimum		2.67	
	Maximum		7.00	
	Range		4.33	
	Interquartile Range		1.00	
	Skewness		-.549	.145
	Kurtosis		-.348	.288

			Statistic	Std. Error
Mean Control	Mean		5.4208	.05148
	95% Confidence Interval for Mean	Lower Bound	5.3195	
		Upper Bound	5.5221	
	5% Trimmed Mean		5.4593	
	Median		5.5000	
	Variance		.753	
	Std. Deviation		.86749	
	Minimum		2.50	
	Maximum		7.00	
	Range		4.50	
	Interquartile Range		1.00	
	Skewness		-.768	.145
	Kurtosis		.837	.288

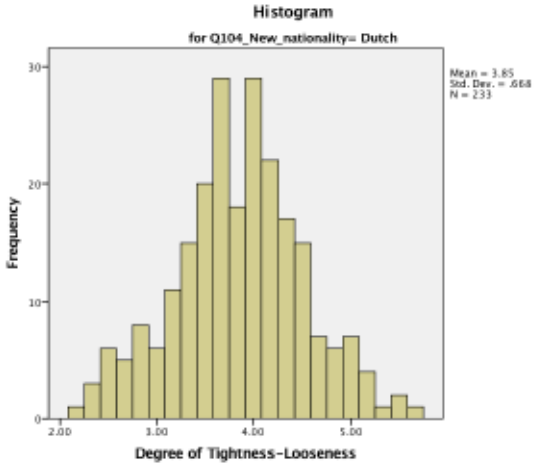


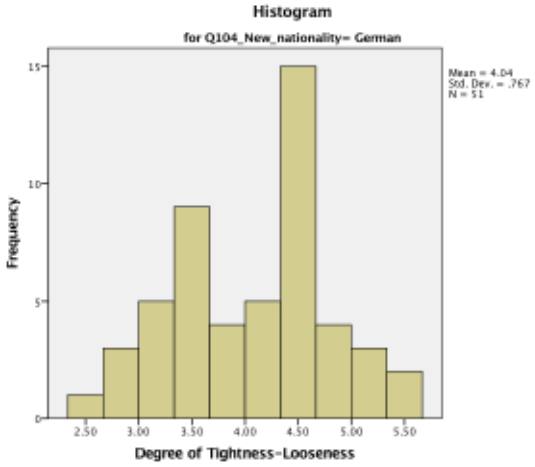






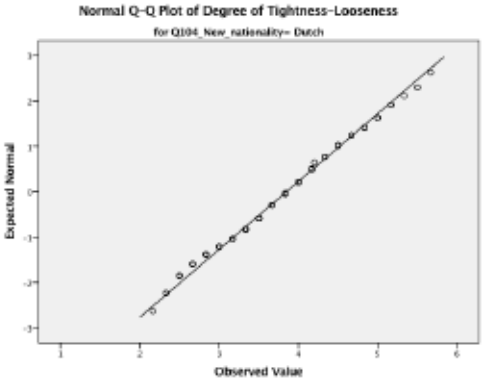
C. Test of normality – Degree of tightness-looseness

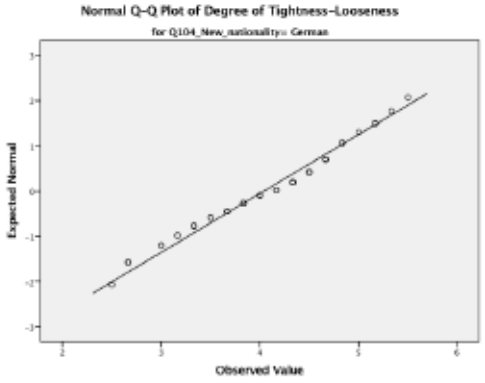




Descriptives

What is your nationality?				Statistic	Std. Error
Degree of Tightness-Looseness	Dutch	Mean		3.8478	.04379
		95% Confidence Interval for Mean	Lower Bound	3.7615	
			Upper Bound	3.9341	
		5% Trimmed Mean		3.8486	
		Median		3.8333	
		Variance		.447	
		Std. Deviation		.66838	
		Minimum		2.17	
		Maximum		5.67	
		Range		3.50	
		Interquartile Range		.83	
		Skewness		-.028	.159
		Kurtosis		-.014	.318
	German	Mean		4.0392	.10741
		95% Confidence Interval for Mean	Lower Bound	3.8235	
			Upper Bound	4.2550	
		5% Trimmed Mean		4.0456	
		Median		4.1667	
		Variance		.588	
		Std. Deviation		.76709	
		Minimum		2.50	
		Maximum		5.50	
		Range		3.00	
		Interquartile Range		1.33	
		Skewness		-.229	.333
		Kurtosis		-.823	.656





Tests of Normality

	What is your nationality?	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Degree of Tightness-Looseness	Dutch	.071	233	.006	.990	233	.090
	German	.120	51	.065	.969	51	.205

a. Lilliefors Significance Correction

Appendix II: Exploratory factor analysis

A. Correlation matrix

Correlation Matrix[a]

		Q66	Q59	Q55	Q60	Q74	Q57	Q77	Q56	Q73	Q76
Correlation	Q66	1.000	.242	.089	.219	.183	.152	.301	.276	.073	.140
	Q59	.242	1.000	.160	.308	.156	.170	.108	.337	.065	.129
	Q55	.089	.160	1.000	.289	.326	.320	.193	.181	.069	.049
	Q60	.219	.308	.289	1.000	.243	.281	.154	.249	-.029	.061
	Q74	.183	.156	.326	.243	1.000	.314	.473	.177	.167	.174
	Q57	.152	.170	.320	.281	.314	1.000	.342	.197	.078	.059
	Q77	.301	.108	.193	.154	.473	.342	1.000	.135	.113	.148
	Q56	.276	.337	.181	.249	.177	.197	.135	1.000	.233	.178
	Q73	.073	.065	.069	-.029	.167	.078	.113	.233	1.000	.218
	Q76	.140	.129	.049	.061	.174	.059	.148	.178	.218	1.000
	Q79	.150	.084	.026	.157	.177	.119	.290	.145	.008	.140
	Q71	.168	.081	.270	.199	.309	.298	.363	.150	-.019	.014
	Q62	.036	-.113	-.072	.038	-.064	.028	-.037	.047	-.123	-.010
	Q63	.103	.180	.194	.154	.046	.092	.060	.229	.029	-.062
	Q72	-.332	-.131	-.155	-.210	-.158	-.182	-.188	-.242	-.032	-.070
	Q68	.131	.261	.259	.144	.179	.138	.112	.194	.237	.205
	Q70	.045	.187	.175	.155	.048	.083	.039	.042	-.007	-.056
	Q75	.085	.052	-.005	.054	.025	-.005	.147	.031	.014	.044
	Q78	.105	.120	.029	.100	.155	.098	.212	.175	.049	.213
	Q65	.349	.180	.106	.233	.212	.176	.202	.112	.032	-.050
	Q61	-.067	-.056	.140	.121	-.112	.071	-.010	-.136	-.171	-.249
	Q58	.024	.013	.087	.168	-.003	.129	.035	-.047	-.275	-.319
	Q64	-.030	-.039	.014	-.049	-.128	-.031	-.045	-.097	-.302	-.148
	Q69	.177	.183	.083	.235	.081	.133	.250	.168	.014	-.023
	Q67	.218	-.013	-.064	.138	-.003	.050	.079	-.009	-.020	.001
Sig. (1-tailed)	Q66		.000	.068	.000	.001	.005	.000	.000	.110	.009
	Q59	.000		.004	.000	.004	.002	.036	.000	.139	.015
	Q55	.068	.004		.000	.000	.000	.001	.001	.123	.206
	Q60	.000	.000	.000		.000	.000	.005	.000	.314	.156
	Q74	.001	.004	.000	.000		.000	.000	.001	.003	.002
	Q57	.005	.002	.000	.000	.000		.000	.000	.097	.160
	Q77	.000	.036	.001	.005	.000	.000		.012	.029	.007
	Q56	.000	.000	.001	.000	.001	.000	.012		.000	.001
	Q73	.110	.139	.123	.314	.003	.097	.029	.000		.000
	Q76	.009	.015	.206	.156	.002	.160	.007	.001	.000	
	Q79	.006	.079	.334	.004	.001	.023	.000	.008	.445	.009
	Q71	.002	.088	.000	.000	.000	.000	.000	.006	.373	.408
	Q62	.271	.029	.115	.264	.141	.319	.266	.217	.020	.432
	Q63	.043	.001	.001	.005	.221	.061	.158	.000	.314	.149
	Q72	.000	.014	.005	.000	.004	.001	.001	.000	.299	.120
	Q68	.014	.000	.000	.008	.001	.010	.030	.001	.000	.000
	Q70	.229	.001	.002	.005	.212	.083	.257	.241	.453	.173
	Q75	.077	.192	.469	.182	.336	.468	.007	.300	.405	.230
	Q78	.040	.022	.316	.048	.005	.051	.000	.002	.208	.000
	Q65	.000	.001	.038	.000	.000	.002	.000	.030	.296	.201
	Q61	.131	.175	.009	.021	.031	.116	.435	.011	.002	.000
	Q58	.345	.411	.072	.002	.481	.015	.281	.214	.000	.000
	Q64	.309	.257	.407	.208	.016	.300	.225	.052	.000	.007
	Q69	.001	.001	.082	.000	.089	.013	.000	.002	.408	.149
	Q67	.000	.413	.142	.011	.478	.201	.093	.442	.367	.493

		Q79	Q71	Q62	Q63	Q72	Q68	Q70	Q75	Q78	Q65	Q61	Q58	Q64	Q69	Q67
Correlation	Q66	.150	.168	.036	.103	-.332	.131	.045	.085	.105	.349	-.067	.024	-.030	.177	.218
	Q59	.084	.081	-.113	.180	-.131	.261	.187	.052	.120	.180	-.056	.013	-.039	.183	-.013
	Q55	.026	.270	-.072	.194	-.155	.259	.175	-.005	.029	.106	.140	.087	.014	.083	-.064
	Q60	.157	.199	.038	.154	-.210	.144	.155	.054	.100	.233	.121	.168	-.049	.235	.138
	Q74	.177	.309	-.064	.046	-.158	.179	.048	.025	.155	.212	-.112	-.003	-.128	.081	-.003
	Q57	.119	.298	.028	.092	-.182	.138	.083	-.005	.098	.176	.071	.129	-.031	.133	.050
	Q77	.290	.363	-.037	.060	-.188	.112	.039	.147	.212	.202	-.010	.035	-.045	.250	.079
	Q56	.145	.150	.047	.229	-.242	.194	.042	.031	.175	.112	-.136	-.047	-.097	.168	-.009
	Q73	.008	-.019	-.123	.029	-.032	.237	-.007	.014	.049	.032	-.171	-.275	-.302	.014	-.020
	Q76	.140	.014	-.010	-.062	-.070	.205	-.056	.044	.213	-.050	-.249	-.319	-.148	-.023	.001
	Q79	1.000	.126	-.006	.070	-.119	.201	.003	.226	.329	.151	.131	.066	.077	.254	.275
	Q71	.126	1.000	-.087	.270	-.082	.144	.173	.048	.170	.193	.080	.027	.043	.227	-.056
	Q62	-.006	-.087	1.000	.019	.057	-.214	-.041	.167	-.097	.135	.093	.305	.135	.158	.136
	Q63	.070	.270	.019	1.000	-.036	.175	.221	.057	.038	.273	.204	.036	.071	.168	.007
	Q72	-.119	-.082	.057	-.036	1.000	-.048	.037	-.023	-.118	-.077	.114	.008	.151	-.157	-.034
	Q68	.201	.144	-.214	.175	-.048	1.000	.272	-.057	.220	.104	.010	-.186	-.090	.142	.082
	Q70	.003	.173	-.041	.221	.037	.272	1.000	-.114	.018	.045	.093	-.040	.002	.023	.050
	Q75	.226	.048	.167	.057	-.023	-.057	-.114	1.000	.117	.138	.028	.109	.116	.416	.087
	Q78	.329	.170	-.097	.038	-.118	.220	.018	.117	1.000	.125	-.032	-.054	-.014	.172	.037
	Q65	.151	.193	.135	.273	-.077	.104	.045	.138	.125	1.000	.185	.119	.068	.353	.162
	Q61	.131	.080	.093	.204	.114	.010	.093	.028	-.032	.185	1.000	.277	.308	.220	.111
	Q58	.066	.027	.305	.036	.008	-.186	-.040	.109	-.054	.119	.277	1.000	.338	.215	.179
	Q64	.077	.043	.135	.071	.151	-.090	.002	.116	-.014	.068	.308	.338	1.000	.122	.012
	Q69	.254	.227	.158	.168	-.157	.142	.023	.416	.172	.353	.220	.215	.122	1.000	.224
	Q67	.275	-.056	.136	.007	-.034	.082	.050	.087	.037	.162	.111	.179	.012	.224	1.000
Sig. (1-tailed)	Q66	.006	.002	.271	.043	.000	.014	.229	.077	.040	.000	.131	.345	.309	.001	.000
	Q59	.079	.088	.029	.001	.014	.000	.001	.192	.022	.001	.175	.411	.257	.001	.413
	Q55	.334	.000	.115	.001	.005	.000	.002	.469	.316	.038	.009	.072	.407	.082	.142
	Q60	.004	.000	.264	.005	.000	.008	.005	.182	.048	.000	.021	.002	.208	.000	.011
	Q74	.001	.000	.141	.221	.004	.001	.212	.336	.005	.000	.031	.481	.016	.089	.478
	Q57	.023	.000	.319	.061	.001	.010	.083	.468	.051	.002	.116	.015	.300	.013	.201
	Q77	.000	.000	.266	.158	.001	.030	.257	.007	.000	.000	.435	.281	.225	.000	.093
	Q56	.008	.006	.217	.000	.000	.001	.241	.300	.002	.030	.011	.214	.052	.002	.442
	Q73	.445	.373	.020	.314	.299	.000	.453	.405	.208	.296	.002	.000	.000	.408	.367
	Q76	.009	.408	.432	.149	.120	.000	.173	.230	.000	.201	.000	.000	.007	.349	.493
	Q79		.017	.460	.123	.023	.000	.477	.000	.000	.006	.014	.135	.100	.000	.000
	Q71	.017		.073	.000	.085	.008	.002	.211	.002	.001	.090	.327	.236	.000	.177
	Q62	.460	.073		.374	.172	.000	.244	.003	.052	.012	.060	.000	.012	.004	.011
	Q63	.123	.000	.374		.275	.002	.000	.169	.261	.000	.000	.273	.119	.002	.454
	Q72	.023	.085	.172	.275		.210	.271	.352	.024	.098	.028	.446	.006	.004	.286
	Q68	.000	.008	.000	.002	.210		.000	.171	.000	.040	.432	.001	.067	.009	.084
	Q70	.477	.002	.244	.000	.271	.000		.028	.383	.228	.059	.254	.489	.351	.200
	Q75	.000	.211	.003	.169	.352	.171	.028		.025	.010	.320	.034	.026	.000	.074
	Q78	.000	.002	.052	.261	.024	.000	.383	.025		.018	.295	.185	.407	.002	.267
	Q65	.006	.001	.012	.000	.098	.040	.228	.010	.018		.001	.023	.127	.000	.003
	Q61	.014	.090	.060	.000	.028	.432	.059	.320	.295	.001		.000	.000	.000	.032
	Q58	.135	.327	.000	.273	.446	.001	.254	.034	.185	.023	.000		.000	.000	.001
	Q64	.100	.236	.012	.119	.006	.067	.489	.026	.407	.127	.000	.000		.021	.423
	Q69	.000	.000	.004	.002	.004	.009	.351	.000	.002	.000	.000	.000	.021		.000
	Q67	.000	.177	.011	.454	.286	.084	.200	.074	.267	.003	.032	.001	.423	.000	

a. Determinant = .007

B. KMO Measure of Sampling Adequacy & Barlett's test of Sphericity

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.737
Bartlett's Test of Sphericity	Approx. Chi-Square	1351.804
	df	300
	Sig.	.000

D. Total explained variance

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	4.009	16.036	16.036	4.009	16.036	16.036	2.375	9.498	9.498
2	2.590	10.361	26.397	2.590	10.361	26.397	2.150	8.598	18.097
3	1.778	7.111	33.508	1.778	7.111	33.508	1.962	7.847	25.944
4	1.446	5.785	39.293	1.446	5.785	39.293	1.804	7.214	33.159
5	1.378	5.511	44.804	1.378	5.511	44.804	1.794	7.174	40.333
6	1.150	4.602	49.406	1.150	4.602	49.406	1.636	6.546	46.879
7	1.089	4.357	53.762	1.089	4.357	53.762	1.400	5.599	52.478
8	1.033	4.134	57.896	1.033	4.134	57.896	1.354	5.418	57.896
9	.934	3.736	61.632						
10	.867	3.469	65.101						
11	.839	3.356	68.457						
12	.794	3.178	71.635						
13	.768	3.073	74.708						
14	.703	2.812	77.519						
15	.680	2.721	80.241						
16	.633	2.534	82.775						
17	.603	2.412	85.187						
18	.570	2.281	87.468						
19	.540	2.160	89.628						
20	.518	2.073	91.701						
21	.486	1.945	93.646						
22	.451	1.802	95.448						
23	.417	1.668	97.116						
24	.388	1.553	98.670						
25	.333	1.330	100.000						

Extraction Method: Principal Component Analysis.

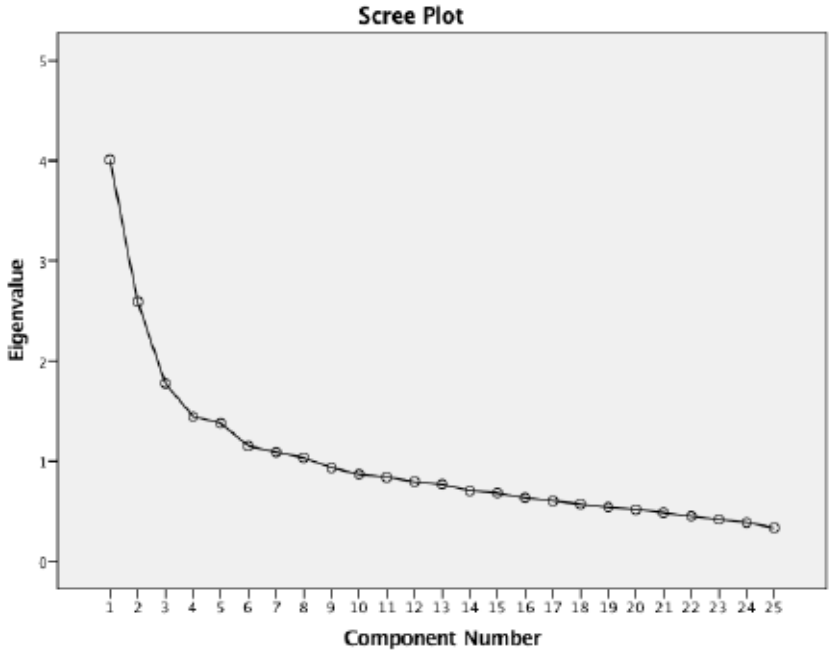
C. Anti-image correlation matrix

Anti-image Matrices

		Q66	Q59	Q55	Q60	Q74	Q57	Q77	Q56	Q73	Q76	Q79	Q71	Q62	Q63	Q72	Q68	Q70	Q75	Q78	Q65	Q61	Q58	Q64	Q69	Q67
Anti-image Covariance	Q66	.666	-.079	.023	-.024	.033	.037	-.120	-.096	-.002	-.055	.025	-.051	-.011	.027	.191	-.024	-.006	-.021	.036	-.192	.042	-.004	-.034	.055	-.141
	Q59	-.079	.724	.013	-.122	-.016	-.045	.017	-.146	.044	-.057	.019	.084	.123	-.048	-.026	-.082	-.105	-.025	.002	-.046	.055	-.051	.001	-.063	.079
	Q55	.023	.013	.703	-.093	-.131	-.105	-.003	-.044	-.014	-.032	.069	-.059	.040	-.048	.077	-.126	-.052	-.035	.055	.021	-.102	-.061	-.024	.036	.064
	Q60	-.024	-.122	-.093	.712	-.067	-.072	.051	-.070	.067	-.047	-.026	-.030	.001	.007	.064	.017	-.065	.002	.004	-.047	-.067	-.074	.085	-.043	-.057
	Q74	.033	-.016	-.131	-.067	.629	-.042	-.199	-.001	-.054	-.039	-.045	-.082	.004	.047	.006	-.023	.019	.014	-.002	-.103	.090	-.031	.041	.057	.022
	Q57	.037	-.045	-.105	-.072	-.042	.735	-.121	-.044	-.039	-.009	.007	-.104	-.044	.039	.064	-.018	.005	.039	.003	-.037	-.036	-.063	.017	.031	-.022
	Q77	-.120	.017	-.003	.051	-.199	-.121	.606	.039	-.034	-.034	-.101	-.113	.028	.019	.015	.047	-.016	-.029	-.018	.015	-.001	-.009	.017	-.076	.009
	Q56	-.096	-.146	-.044	-.070	-.001	-.044	.039	.686	-.138	-.014	-.061	-.021	-.104	-.134	.070	-.006	.048	.055	-.065	.061	.096	.018	-.007	-.051	.051
	Q73	-.002	.044	-.014	.067	-.054	-.039	-.034	-.138	.762	-.061	.036	.076	.052	-.012	-.056	-.106	.025	-.041	.017	-.030	.015	.081	.156	-.029	-.002
	Q76	-.055	-.057	-.032	-.047	-.039	-.009	-.034	-.014	-.061	.734	-.054	.020	-.119	.035	-.030	-.072	.084	-.016	-.107	.077	.094	.192	-.026	.023	-.014
	Q79	.025	.019	.069	-.026	-.045	.007	-.101	-.061	.036	-.054	.706	.005	.034	.001	.044	-.089	.025	-.113	-.162	.003	-.096	-.009	-.047	-.002	-.167
	Q71	-.051	.084	-.059	-.030	-.082	-.104	-.113	-.021	.076	.020	.005	.688	.075	-.140	-.053	.010	-.078	.023	-.058	-.002	.011	.024	-.024	-.099	.090
	Q62	-.011	.123	.040	.001	.004	-.044	.028	-.104	.052	-.119	.034	.075	.768	-.014	-.054	.105	-.055	-.078	.069	-.083	-.004	-.165	-.004	-.059	-.040
	Q63	.027	-.048	-.048	.007	.047	.039	.019	-.134	-.012	.035	.001	-.140	-.014	.762	.010	-.047	-.106	-.040	.033	-.141	-.104	.016	-.013	.018	.012
	Q72	.191	-.026	.077	.064	.006	.064	.015	.070	-.056	-.030	.044	-.053	-.054	.010	.775	-.048	-.050	-.044	.036	-.055	-.069	-.010	-.093	.098	-.039
	Q68	-.024	-.082	-.126	.017	-.023	-.018	.047	-.006	-.106	-.072	-.089	.010	.105	-.047	-.048	.679	-.148	.083	-.086	.003	-.007	.076	.000	-.085	-.054
	Q70	-.006	-.105	-.052	-.065	.019	.005	-.016	.048	.025	.084	.025	-.078	-.055	-.106	-.050	-.148	.817	.074	.000	.047	-.018	.061	-.005	.020	-.056
	Q75	-.021	-.025	-.035	.002	.014	.039	-.029	.055	-.041	-.016	-.113	.023	-.078	-.040	-.044	.083	.074	.748	-.032	.015	.071	.008	-.050	-.242	.029
	Q78	.036	.002	.055	.004	-.002	.003	-.038	-.065	.037	-.107	-.162	-.058	.069	.033	.036	-.086	.000	-.032	.798	-.057	.017	-.010	-.002	-.027	.036
	Q65	-.192	-.046	.021	-.047	-.103	-.037	.015	.061	-.030	.077	.003	-.002	-.083	-.141	-.055	.003	.047	.015	-.057	.683	-.068	.033	-.013	-.129	-.022
	Q61	.042	.055	-.102	-.067	.090	-.036	-.001	.096	.015	.094	-.096	.011	-.004	-.104	-.069	-.007	-.018	.071	.017	-.068	.700	-.051	-.131	-.094	-.014
	Q58	-.004	-.051	-.061	-.074	-.031	-.063	-.009	.018	.081	.192	-.009	.024	-.165	.016	-.010	.076	.061	.008	-.010	.033	-.051	.634	-.159	-.056	-.092
	Q64	-.034	.001	-.024	.085	.041	.017	.017	-.007	.156	-.026	-.047	-.024	-.004	-.013	-.093	.000	-.005	-.050	-.002	-.013	-.131	-.159	.749	-.019	.060
	Q69	.055	-.063	.036	-.043	.057	.031	-.076	-.051	-.029	.023	-.002	-.099	-.059	.018	.098	-.085	.020	-.242	-.027	-.129	-.094	-.056	-.019	.593	-.092
	Q67	-.141	.079	.064	-.057	.022	-.022	.009	.051	-.002	-.014	-.167	.090	-.040	.012	-.039	-.054	-.056	.029	.036	-.022	-.014	-.092	.060	-.092	.784
Anti-image Correlation	Q66	.722[a]	-.114	.034	-.035	.052	.054	-.188	-.142	-.003	-.079	.037	-.076	-.016	.039	.267	-.036	-.008	-.030	.049	-.285	.062	-.007	-.048	.088	-.196
	Q59	-.114	.749[a]	.018	-.169	-.024	-.062	.025	-.207	.060	-.078	.027	.120	.165	-.065	-.034	-.117	-.136	-.034	.002	-.066	.078	-.075	.001	-.097	.105
	Q55	.034	.018	.769[a]	-.131	-.197	-.146	-.004	-.063	-.019	-.045	.098	-.085	.054	-.066	.105	-.182	-.068	-.049	.073	.030	-.146	-.092	-.033	.056	.086
	Q60	-.035	-.169	-.131	.834[a]	-.101	-.100	.078	-.100	.091	-.065	-.037	-.043	.002	.009	.086	.024	-.085	.003	.005	-.068	-.094	-.110	.117	-.066	-.076
	Q74	.052	-.024	-.197	-.101	.785[a]	-.061	-.323	-.002	-.078	-.057	-.068	-.125	.006	.067	.009	-.036	.027	.020	-.003	-.157	.136	-.050	.059	.093	.031
	Q57	.054	-.062	-.146	-.100	-.061	.846[a]	-.181	-.062	-.052	-.013	.010	-.147	-.058	.052	.084	-.026	.007	.053	.004	-.052	-.050	-.092	.023	.048	-.030
	Q77	-.188	.025	-.004	.078	-.323	-.181	.786[a]	.060	-.050	-.051	-.155	-.175	.040	.028	.022	.073	-.023	-.043	-.054	.023	-.002	-.015	.025	-.127	.013
	Q56	-.142	-.207	-.063	-.100	-.002	-.062	.060	.751[a]	-.191	-.020	-.088	-.031	-.144	-.185	.096	-.009	.065	.077	-.087	.089	.138	.027	-.010	-.080	.070
	Q73	-.003	.060	-.019	.091	-.078	-.052	-.050	-.191	.711[a]	-.081	.049	.105	.069	-.016	-.073	-.147	.031	-.054	.047	-.041	.021	.116	.207	-.043	-.002
	Q76	-.079	-.078	-.045	-.065	-.057	-.013	-.051	-.020	-.081	.689[a]	-.075	.029	-.158	.047	-.039	-.102	.108	-.022	-.140	.109	.131	.282	-.035	.035	-.019
	Q79	.037	.027	.098	-.037	-.068	.010	-.155	-.088	.049	-.075	.742[a]	.008	.047	.001	.060	-.129	.034	-.155	-.216	.004	-.137	-.014	-.064	-.003	-.225
	Q71	-.076	.120	-.085	-.043	-.125	-.147	-.175	-.031	.105	.029	.008	.776[a]	.104	-.193	-.073	.014	-.103	.033	-.079	-.003	.016	.036	-.034	-.155	.122
	Q62	-.016	.165	.054	.002	.006	-.058	.040	-.144	.069	-.158	.047	.104	.586[a]	-.018	-.070	.146	-.069	-.102	.088	-.115	-.006	-.237	-.005	-.088	-.051
	Q63	.039	-.065	-.066	.009	.067	.052	.028	-.185	-.016	.047	.001	-.193	-.018	.731[a]	.013	-.066	-.134	-.053	.043	-.196	-.143	.023	-.017	.027	.016
	Q72	.267	-.034	.105	.086	.009	.084	.022	.096	-.073	-.039	.060	-.073	-.070	.013	.704[a]	-.067	-.063	-.057	.046	-.075	-.094	-.014	-.122	.144	-.050
	Q68	-.036	-.117	-.182	.024	-.036	-.026	.073	-.009	-.147	-.102	-.129	.014	.146	-.066	-.067	.751[a]	-.198	.117	-.117	.005	-.010	.115	.000	-.133	-.074
	Q70	-.008	-.136	-.068	-.085	.027	.007	-.023	.065	.031	.108	.034	-.103	-.069	-.134	-.063	-.198	.656[a]	.095	.000	.063	-.023	.084	-.007	.029	-.070
	Q75	-.030	-.034	-.049	.003	.020	.053	-.043	.077	-.054	-.022	-.155	.033	-.102	-.053	-.057	.117	.095	.620[a]	-.042	.021	.098	.012	-.067	-.363	.038
	Q78	.049	.002	.073	.005	-.003	.004	-.054	-.087	.047	-.140	-.216	-.079	.088	.043	.046	-.117	.000	-.042	.782[a]	-.077	.023	-.015	-.003	-.039	.045
	Q65	-.285	-.066	.030	-.068	-.157	-.052	.023	.089	-.041	.109	.004	-.003	-.115	-.196	-.075	.005	.063	.021	-.077	.744[a]	-.099	.049	-.018	-.202	-.030
	Q61	.062	.078	-.146	-.094	.136	-.050	-.002	.138	.021	.131	-.137	.016	-.006	-.143	-.094	-.010	-.023	.098	.023	-.099	.702[a]	-.076	-.181	-.147	-.019
	Q58	-.007	-.075	-.092	-.110	-.050	-.092	-.015	.027	.116	.282	-.014	.036	-.237	.023	-.014	.115	.084	.012	-.015	.049	-.076	.692[a]	-.230	-.091	-.131
	Q64	-.048	.001	-.033	.117	.059	.023	.025	-.010	.207	-.035	-.064	-.034	-.005	-.017	-.122	.000	-.007	-.067	-.003	-.018	-.181	-.230	.710[a]	-.029	.079
	Q69	.088	-.097	.056	-.066	.093	.048	-.127	-.080	-.043	.035	-.003	-.155	-.088	.027	.144	-.133	.029	-.363	-.039	-.202	-.147	-.091	-.029	.726[a]	-.136
	Q67	-.196	.105	.086	-.076	.031	-.030	.013	.070	-.002	-.019	-.225	.122	-.051	.016	-.050	-.074	-.070	.038	.045	-.030	-.019	-.131	.079	-.136	.617[a]

a. Measures of Sampling Adequacy(MSA)

E. Scree plot



F. Communalities

Communalities

	Initial	Extraction
Causation P1: Before starting my new venture, I will first acquire all resources needed to achieve my target.	1.000	.548
Causation P1: I take a clearly pre-defined target as a starting point of the new venture.	1.000	.618
Causation P2: Decisions will be primarily based on analysis of potential future returns.	1.000	.557
Causation P2: Beforehand, I will calculate how many resources I need to achieve the expected returns.	1.000	.521
Causation P3: I will try to identify markets by a thorough market analysis.	1.000	.522
Causation P3: I will focus on early identification of risks through market analysis.	1.000	.602
Causation P3: I will try to identify risks by a thorough competitors analysis.	1.000	.646
Causation P4: My first priority is reaching my pre-set target without any delay.	1.000	.615
Causation P4: My planning will be set before I start the implementation process and cannot be altered afterwards.	1.000	.522
Causation P4: I will always pay attention that my initially defined target will be met.	1.000	.575
Causation P5: I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.	1.000	.593
Causation P5: I will try to control the future based on predictions of my previously obtained knowledge.	1.000	.613
Effectuation P1: The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.	1.000	.597
Effectuation P1: The decisions I make when starting my new venture will be based on the resources I have available.	1.000	.586
Effectuation P1: I start my new venture without defining a clear target.	1.000	.565
Effectuation P2: Decisions will be primarily based on minimization of risks and costs.	1.000	.624
Effectuation P2: I only spend resources I have available and I am willing to lose.	1.000	.476
Effectuation P3: Decisions will be made together with stakeholders based on our competences.	1.000	.562
Effectuation P3: I will ask my private network to help me out with starting my new venture.	1.000	.586
Effectuation P3: I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.	1.000	.551
Effectuation P4: I allow changes in my planning if needed, even during the implementation process of my new venture.	1.000	.633
Effectuation P4: I expect to change my original target when confronted with new findings.	1.000	.534
Effectuation P4: I allow delays during the development of my new venture when new opportunities emerge.	1.000	.510
Effectuation P5: I will try to control the future by creating it.	1.000	.741
Effectuation P5: I will talk to people I know to enlist their support in making opportunities a reality.	1.000	.576

Extraction Method: Principal Component Analysis.

G. Rotated component matrix (factor loadings)

Rotated Component Matrix[a]

	Component		
	1	2	3
Causation P1: I take a clearly pre-defined target as a starting point of the new venture.		.477	
Causation P1: Before starting my new venture, I will first acquire all resources needed to achieve my target.	.453		
Causation P2: Decisions will be primarily based on analysis of potential future returns.	.651		
Causation P2: Beforehand, I will calculate how many resources I need to achieve the expected returns.	.512		
Causation P3: I will focus on early identification of risks through market analysis.	.460		
Causation P3: I will try to identify markets by a thorough market analysis.	.519		
Causation P3: I will try to identify risks by a thorough competitors analysis.	.358	.457	
Causation P4: I will always pay attention that my initially defined target will be met.	.368		-.312
Causation P4: My first priority is reaching my pre-set target without any delay.			-.539
Causation P4: My planning will be set before I start the implementation process and cannot be altered afterwards.			-.583
Causation P5: I will try to control the future based on predictions of my previously obtained knowledge.		.573	
Causation P5: I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.	.569		
Effectuation P1: The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.		.324	.354
Effectuation P1: The decisions I make when starting my new venture will be based on the resources I have available.	.508		
Effectuation P1: I start my new venture without defining a clear target.		-.305	
Effectuation P2: Decisions will be primarily based on minimization of risks and costs.	.489		
Effectuation P2: I only spend resources I have available and I am willing to lose.	.499		
Effectuation P3: I will ask my private network to help me out with starting my new venture.		.573	
Effectuation P3: I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.		.378	
Effectuation P3: Decisions will be made together with stakeholders based on our competences.	.336	.437	
Effectuation P4: I expect to change my original target when confronted with new findings.			.629
Effectuation P4: I allow changes in my planning if needed, even during the implementation process of my new venture.			.647
Effectuation P4: I allow delays during the development of my new venture when new opportunities emerge.			.587
Effectuation P5: I will talk to people I know to enlist their support in making opportunities a reality.		.629	
Effectuation P5: I will try to control the future by creating it.		.455	

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

a. Rotation converged in 7 iterations.

Appendix III: Internal consistency

A. Internal consistency - Causal decision-making

Case Processing Summary

		N	%
Cases	Valid	282	98.9
	Excluded[a]	3	1.1
	Total	285	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
.712	.723	12

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
Causation P1: Before starting my new venture, I will first acquire all resources needed to achieve my target.	53.71	44.440	.335	.194	.696
Causation P1: I take a clearly pre-defined target as a starting point of the new venture.	53.61	44.986	.355	.182	.693
Causation P2: Beforehand, I will calculate how many resources I need to achieve the expected returns.	53.22	44.642	.381	.230	.690
Causation P2: Decisions will be primarily based on analysis of potential future returns.	53.76	43.671	.355	.215	.693
Causation P3: I will try to identify markets by a thorough market analysis.	53.66	43.088	.417	.237	.684
Causation P3: I will try to identify risks by a thorough competitors analysis.	53.84	43.565	.464	.359	.679
Causation P3: I will focus on early identification of risks through market analysis.	54.04	42.739	.502	.323	.673
Causation P4: My first priority is reaching my pre-set target without any delay.	55.03	45.938	.184	.124	.721
Causation P4: I will always pay attention that my initially defined target will be met.	53.67	43.452	.423	.242	.683
Causation P4: My planning will be set before I start the implementation process and cannot be altered afterwards.	55.73	44.532	.230	.100	.716
Causation P5: I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.	53.79	44.913	.346	.219	.694
Causation P5: I will try to control the future based on predictions of my previously obtained knowledge.	53.81	47.145	.246	.120	.706

B. Internal consistency - Effectual decision-making

Case Processing Summary

		N	%
Cases	Valid	283	99.3
	Excluded[a]	2	.7
	Total	285	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
.520	.549	13

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
Effectuation P1: The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.	60.01	33.695	.153	.165	.513
Effectuation P1: The decisions I make when starting my new venture will be based on the resources I have available.	59.11	33.138	.260	.156	.485
Effectuation P1: I start my new venture without defining a clear target.	61.88	36.869	-.014	.084	.551
Effectuation P2: I only spend resources I have available and I am willing to lose.	59.43	34.232	.134	.127	.517
Effectuation P2: Decisions will be primarily based on minimization of risks and costs.	59.65	34.711	.085	.218	.532
Effectuation P3: I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.	59.69	35.684	.078	.098	.528
Effectuation P3: I will ask my private network to help me out with starting my new venture.	58.89	34.542	.193	.220	.501
Effectuation P3: Decisions will be made together with stakeholders based on our competences.	59.14	33.075	.338	.198	.471
Effectuation P4: I allow changes in my planning if needed, even during the implementation process of my new venture.	58.60	33.985	.264	.256	.487
Effectuation P4: I expect to change my original target when confronted with new findings.	58.87	32.138	.337	.208	.466
Effectuation P4: I allow delays during the development of my new venture when new opportunities emerge.	59.40	33.056	.249	.192	.487
Effectuation P5: I will try to control the future by creating it.	59.11	33.897	.207	.098	.498
Effectuation P5: I will talk to people I know to enlist their support in making opportunities a reality.	58.80	32.599	.431	.359	.456

C. Internal consistency – Degree of tightness-looseness

Case Processing Summary

		N	%
Cases	Valid	282	98.9
	Excluded[a]	3	1.1
	Total	285	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.686	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
There are many social norms that people are supposed to abide by in my home country.	19.1028	11.858	.473	.626
In my home country, there are very clear expectations for how people should act in most situations.	18.9681	11.575	.585	.587
People agree upon what behaviours are appropriate versus inappropriate in most situations in my home country.	18.7766	13.420	.426	.646
People in my home country have a great deal of freedom in deciding how they want to behave in most situations (recoded).	20.9043	14.087	.209	.713
In my home country, if someone acts in an inappropriate way, others will strongly disapprove.	19.2943	12.657	.393	.654
People in this country almost always comply with social norms.	19.3191	12.481	.444	.636

Appendix IV: Control variables

A. Levene's Test for Equality of Variances – Degree of Tightness-Looseness

Group Statistics

	What is your nationality?	N	Mean	Std. Deviation	Std. Error Mean
Degree of Tightness-Looseness	Dutch	233	3.8478	.66838	.04379
	German	51	4.0392	.76709	.10741

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Degree of Tightness-Looseness	Equal variances assumed	3.7	.056	-1.803	282	.073	-.19143	.10619	-.40047	.01760
	Equal variances not assumed			-1.650	67.596	.104	-.19143	.11600	-.42293	.04006

B. Mean scores for masculinity index

Dutch

	N	Mean
to get recognition for good performance.	233	2.24
to have pleasant people to work with.	233	1.87
to live in a desirable area.	233	2.51
to have chances for promotion.	233	2.46
Valid N (listwise)	233	

German

	N	Mean
to get recognition for good performance.	51	1.88
to have pleasant people to work with.	51	1.69
to live in a desirable area.	51	2.16
to have chances for promotion.	51	2.02
Valid N (listwise)	51	

C. Paired sample test – Familiarity with effectuation

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.3468	37	.60141	.09887
	Mean Causal Decision-making	5.0369	37	.61264	.10072

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	37	.230	.171

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	Mean Effectual Decision-making - Mean Causal Decision-making	.30999	.75339	.12386	.05880	.56118	2.503	36	.017

D. Paired sample test – Unfamiliarity with effectuation

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.1270	222	.49195	.03302
	Mean Causal Decision-making	5.0052	222	.61975	.04159

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	222	.332	.000

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	Mean Effectual Decision-making - Mean Causal Decision-making	.12185	.65090	.04369	.03576	.20795	2.789	221	.006

E. Paired sample test – entrepreneurial students

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.2346	38	.48237	.07825
	Mean Causal Decision-making	4.7656	38	.66591	.10802

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	38	.295	.072

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	Mean Effectual Decision-making - Mean Causal Decision-making	.46910	.69752	.11315	.23983	.69837	4.146	37	.000

F. Paired sample t-test – non-entrepreneurial student

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.1413	245	.51889	.03315
	Mean Causal Decision-making	5.0422	245	.60094	.03839

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	245	.374	.000

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	Mean Effectual Decision-making - Mean Causal Decision-making	.09913	.63028	.04027	.01981	.17844	2.462	244	.015

G. Test – entrepreneurial family background

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.1468	88	.57347	.06113
	Mean Causal Decision-making	4.9360	88	.65282	.06959

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	88	.367	.000

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	Mean Effectual Decision-making - Mean Causal Decision-making	.21083	.69283	.07386	.06403	.35763	2.855	87	.005

H. Test – non-entrepreneurial family background

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.1570	195	.48681	.03486
	Mean Causal Decision-making	5.0362	195	.59790	.04282

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	195	.338	.000

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	Mean Effectual Decision-making - Mean Causal Decision-making	.12082	.63076	.04517	.03173	.20990	2.675	194	.008

Appendix V: Correlation matrix

Correlations - Dutch students

		1	2	3	4	5	6	7	8	9	10	11	12	13
1. Degree of Tightness-Looseness	Pearson Correlation	1	.057	.129*	.144*	.190**	.127	.011	.131*	.016	.035	.083	.157*	.146*
	Sig. (2-tailed)		.384	.049	.028	.004	.054	.865	.046	.813	.591	.208	.016	.026
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
2. Mean Goal-driven	Pearson Correlation	.057	1	.060	.291**	.251**	.270**	.239**	.336**	-.076	.146*	.184**	.610**	.218**
	Sig. (2-tailed)	.384		.363	.000	.000	.000	.000	.000	.248	.026	.005	.000	.001
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
3. Mean Means driven	Pearson Correlation	.129*	.060	1	.143*	.058	.054	.190**	.062	.273**	.123	.237**	.128	.588**
	Sig. (2-tailed)	.049	.363		.029	.381	.410	.004	.343	.000	.061	.000	.050	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
4. Mean Expected Returns	Pearson Correlation	.144*	.291**	.143*	1	.291**	.397**	.144*	.198**	.187**	.286**	.165*	.658**	.331**
	Sig. (2-tailed)	.028	.000	.029		.000	.000	.028	.002	.004	.000	.012	.000	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
5. Mean Affordable Loss	Pearson Correlation	.190**	.251**	.058	.291**	1	.187**	.055	.139*	-.051	.219**	.144*	.324**	.429**
	Sig. (2-tailed)	.004	.000	.381	.000		.004	.402	.034	.438	.001	.028	.000	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
6. Mean Competitive Analysis	Pearson Correlation	.127	.270**	.054	.397**	.187**	1	.281**	.254**	.021	.481**	.157*	.780**	.240**
	Sig. (2-tailed)	.054	.000	.410	.000	.004		.000	.000	.754	.000	.017	.000	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
7. Mean Partnership	Pearson Correlation	.011	.239**	.190**	.144*	.055	.281**	1	.148*	.121	.386**	.365**	.358**	.593**
	Sig. (2-tailed)	.865	.000	.004	.028	.402	.000		.024	.066	.000	.000	.000	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
8. Mean Avoiding contingencies	Pearson Correlation	.131*	.336**	.062	.198**	.139*	.254**	.148*	1	-.285**	.156*	.029	.600**	.013
	Sig. (2-tailed)	.046	.000	.343	.002	.034	.000	.024		.000	.017	.655	.000	.849
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
9. Mean Leveraging Contigencies	Pearson Correlation	.016	-.076	.273**	.187**	-.051	.021	.121	-.285**	1	.136*	.267**	-.015	.609**
	Sig. (2-tailed)	.813	.248	.000	.004	.438	.754	.066	.000		.037	.000	.820	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
10. Mean Prediction	Pearson Correlation	.035	.146*	.123	.286**	.219**	.481**	.386**	.156*	.136*	1	.250**	.601**	.387**
	Sig. (2-tailed)	.591	.026	.061	.000	.001	.000	.000	.017	.037		.000	.000	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
11. Mean Control	Pearson Correlation	.083	.184**	.237**	.165*	.144*	.157*	.365**	.029	.267**	.250**	1	.230**	.653**
	Sig. (2-tailed)	.208	.005	.000	.012	.028	.017	.000	.655	.000	.000		.000	.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
12. Mean Causal Decision-making	Pearson Correlation	.157*	.610**	.128	.658**	.324**	.780**	.358**	.600**	-.015	.601**	.230**	1	.348**
	Sig. (2-tailed)	.016	.000	.050	.000	.000	.000	.000	.000	.820	.000	.000		.000
	N	233	233	233	233	233	233	233	233	233	233	233	233	233
13. Mean Effectual Decision-making	Pearson Correlation	.146*	.218**	.588**	.331**	.429**	.240**	.593**	.013	.609**	.387**	.653**	.348**	1
	Sig. (2-tailed)	.026	.001	.000	.000	.000	.000	.000	.849	.000	.000	.000	.000	
	N	233	233	233	233	233	233	233	233	233	233	233	233	233

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Correlations – German students

		1	2	3	4	5	6	7	8	9	10	11	12	13
1. Degree of Tightness–Looseness	Pearson Correlation	1	.289*	.310*	.083	.311*	.011	.216	.091	−.025	−.023	.172	.119	.306*
	Sig. (2-tailed)		.039	.027	.563	.026	.940	.128	.525	.860	.871	.229	.404	.029
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
2. Mean Goal-driven	Pearson Correlation	.289*	1	.071	.274	.278*	.353*	.475**	.248	.299*	.566**	.435**	.678**	.540**
	Sig. (2-tailed)	.039		.623	.052	.048	.011	.000	.080	.033	.000	.001	.000	.000
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
3. Mean Means driven	Pearson Correlation	.310*	.071	1	−.100	−.094	−.159	.194	−.077	.454**	.030	.065	−.091	.519**
	Sig. (2-tailed)	.027	.623		.486	.511	.264	.173	.592	.001	.834	.652	.527	.000
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
4. Mean Expected Returns	Pearson Correlation	.083	.274	−.100	1	.264	.508**	.162	.135	−.052	.252	−.021	.660**	.096
	Sig. (2-tailed)	.563	.052	.486		.061	.000	.256	.344	.717	.075	.884	.000	.502
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
5. Mean Affordable Loss	Pearson Correlation	.311*	.278*	−.094	.264	1	.037	.191	.176	.015	.263	.017	.278*	.407**
	Sig. (2-tailed)	.026	.048	.511	.061		.799	.180	.218	.918	.062	.905	.048	.003
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
6. Mean Competitive Analysis	Pearson Correlation	.011	.353*	−.159	.508**	.037	1	.172	.149	−.143	.350*	.136	.761**	.008
	Sig. (2-tailed)	.940	.011	.264	.000	.799		.227	.297	.317	.012	.341	.000	.955
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
7. Mean Partnership	Pearson Correlation	.216	.475**	.194	.162	.191	.172	1	.218	.261	.368**	.432**	.389**	.713**
	Sig. (2-tailed)	.128	.000	.173	.256	.180	.227		.124	.064	.008	.002	.005	.000
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
8. Mean Avoiding contingencies	Pearson Correlation	.091	.248	−.077	.135	.176	.149	.218	1	−.321*	.335*	.083	.547**	.002
	Sig. (2-tailed)	.525	.080	.592	.344	.218	.297	.124		.022	.016	.561	.000	.986
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
9. Mean Leveraging Contigencies	Pearson Correlation	−.025	.299*	.454**	−.052	.015	−.143	.261	−.321*	1	.150	.189	−.059	.710**
	Sig. (2-tailed)	.860	.033	.001	.717	.918	.317	.064	.022		.293	.184	.679	.000
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
10. Mean Prediction	Pearson Correlation	−.023	.566**	.030	.252	.263	.350*	.368**	.335*	.150	1	.437**	.704**	.421**
	Sig. (2-tailed)	.871	.000	.834	.075	.062	.012	.008	.016	.293		.001	.000	.002
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
11. Mean Control	Pearson Correlation	.172	.435**	.065	−.021	.017	.136	.432**	.083	.189	.437**	1	.289*	.542**
	Sig. (2-tailed)	.229	.001	.652	.884	.905	.341	.002	.561	.184	.001		.040	.000
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
12. Mean Causal Decision-making	Pearson Correlation	.119	.678**	−.091	.660**	.278*	.761**	.389**	.547**	−.059	.704**	.289*	1	.269
	Sig. (2-tailed)	.404	.000	.527	.000	.048	.000	.005	.000	.679	.000	.040		.057
	N	51	51	51	51	51	51	51	51	51	51	51	51	51
13. Mean Effectual Decision-making	Pearson Correlation	.306*	.540**	.519**	.096	.407**	.008	.713**	.002	.710**	.421**	.542**	.269	1
	Sig. (2-tailed)	.029	.000	.000	.502	.003	.955	.000	.986	.000	.002	.000	.057	
	N	51	51	51	51	51	51	51	51	51	51	51	51	51

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Appendix VI: Analyses on hypotheses

A. Hypothesis 1

Dutch students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Goal-driven	5.1609	233	.94050	.06161
	Mean Means driven	4.7511	233	.98165	.06431

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Goal-driven & Mean Means driven	233	.060	.363

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	Mean Goal-driven - Mean Means driven	.40987	1.31815	.08636	.23973	.58001	4.746	232	.000

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.057[a]	.003	-.001	.94099

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.674	1	.674	.761	.384[b]
	Residual	204.541	231	.885		
	Total	205.215	232			

a. Dependent Variable: Mean Goal-driven

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.851	.361		13.438	.000
	Degree of Tightness-Looseness	.081	.092	.057	.872	.384

a. Dependent Variable: Mean Goal-driven

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.129[a]	.017	.012	.97552

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.734	1	3.734	3.923	.049[b]
	Residual	219.829	231	.952		
	Total	223.562	232			

a. Dependent Variable: Mean Means driven

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.021	.374		10.745	.000
	Degree of Tightness-Looseness	.190	.096	.129	1.981	.049

a. Dependent Variable: Mean Means driven

German students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Goal-driven	5.5882	51	.77270	.10820
	Mean Means driven	5.1275	51	.79902	.11189

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Goal-driven & Mean Means driven	51	.071	.623

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	Mean Goal-driven – Mean Means driven	.46078	1.07165	.15006	.15938	.76219	3.071	50	.003

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.289[a]	.084	.065	.74717

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.498	1	2.498	4.475	.039[b]
	Residual	27.355	49	.558		
	Total	29.853	50			

a. Dependent Variable: Mean Goal-driven

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.411	.566		7.792	.000
	Degree of Tightness-Looseness	.291	.138	.289	2.115	.039

a. Dependent Variable: Mean Goal-driven

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.310[a]	.096	.078	.76741

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.064	1	3.064	5.203	.027[b]
	Residual	28.857	49	.589		
	Total	31.922	50			

a. Dependent Variable: Mean Means driven

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.824	.581		6.576	.000
	Degree of Tightness-Looseness	.323	.141	.310	2.281	.027

a. Dependent Variable: Mean Means driven

B. Hypothesis 2

Dutch students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Expected Returns	5.3584	233	.97341	.06377
	Mean Affordable Loss	4.8090	233	1.15641	.07576

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Expected Returns & Mean Affordable Loss	233	.291	.000

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	Mean Expected Returns - Mean Affordable Loss	.54936	1.27675	.08364	.38456	.71415	6.568	232	.000

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.144[a]	.021	.016	.96536

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.555	1	4.555	4.887	.028[b]
	Residual	215.271	231	.932		
	Total	219.826	232			

a. Dependent Variable: Mean Expected Returns

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.552	.370		12.292	.000
	Degree of Tightness-Looseness	.210	.095	.144	2.211	.028

a. Dependent Variable: Mean Expected Returns

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.190[a]	.036	.032	1.13775

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.226	1	11.226	8.672	.004[b]
	Residual	299.025	231	1.294		
	Total	310.251	232			

a. Dependent Variable: Mean Affordable Loss

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.543	.436		8.117	.000
	Degree of Tightness-Looseness	.329	.112	.190	2.945	.004

a. Dependent Variable: Mean Affordable Loss

German students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Expected Returns	5.6471	51	.92895	.13008
	Mean Affordable Loss	4.9608	51	1.06228	.14875

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Expected Returns & Mean Affordable Loss	51	.264	.061

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	Mean Expected Returns - Mean Affordable Loss	.68627	1.21227	.16975	.34532	1.02723	4.043	50	.000

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.083[a]	.007	-.013	.93514

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.297	1	.297	.340	.563[b]
	Residual	42.850	49	.874		
	Total	43.147	50			

a. Dependent Variable: Mean Expected Returns

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.241	.709		7.397	.000
	Degree of Tightness-Looseness	.100	.172	.083	.583	.563

a. Dependent Variable: Mean Expected Returns

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.311[a]	.097	.078	1.01993

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.449	1	5.449	5.238	.026[b]
	Residual	50.972	49	1.040		
	Total	56.422	50			

a. Dependent Variable: Mean Affordable Loss

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.222	.773		4.170	.000
	Degree of Tightness-Looseness	.430	.188	.311	2.289	.026

a. Dependent Variable: Mean Affordable Loss

C. Hypothesis 3

Dutch students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Competitive Analysis	5.0136	233	.88783	.05816
	Mean Partnership	5.0930	233	.74112	.04855

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Competitive Analysis & Mean Partnership	233	.281	.000

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	Mean Competitive Analysis - Mean Partnership	-.07940	.98359	.06444	-.20636	.04756	-1.232	232	.219

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.127[a]	.016	.012	.88259

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.932	1	2.932	3.764	.054[b]
	Residual	179.942	231	.779		
	Total	182.874	232			

a. Dependent Variable: Mean Competitive Analysis

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.366	.339		12.897	.000
	Degree of Tightness-Looseness	.168	.087	.127	1.940	.054

a. Dependent Variable: Mean Competitive Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.011[a]	.000	-.004	.74268

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.016	1	.016	.029	.865[b]
	Residual	127.414	231	.552		
	Total	127.430	232			

a. Dependent Variable: Mean Partnership

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.045	.285		17.709	.000
	Degree of Tightness-Looseness	.012	.073	.011	.170	.865

a. Dependent Variable: Mean Partnership

German students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Competitive Analysis	5.2418	51	.84873	.11885
	Mean Partnership	5.3203	51	.72099	.10096

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Competitive Analysis & Mean Partnership	51	.172	.227

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	Mean Competitive Analysis - Mean Partnership	-.07843	1.01453	.14206	-.36377	.20691	-.552	50	.583

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.011[a]	.000	-.020	.85730

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.004	1	.004	.006	.940[b]
	Residual	36.013	49	.735		
	Total	36.017	50			

a. Dependent Variable: Mean Competitive Analysis

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.194	.650		7.995	.000
	Degree of Tightness-Looseness	.012	.158	.011	.075	.940

a. Dependent Variable: Mean Competitive Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.216[a]	.047	.027	.71113

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.212	1	1.212	2.396	.128[b]
	Residual	24.780	49	.506		
	Total	25.991	50			

a. Dependent Variable: Mean Partnership

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.501	.539		8.352	.000
	Degree of Tightness-Looseness	.203	.131	.216	1.548	.128

a. Dependent Variable: Mean Partnership

D. Hypothesis 4

Dutch students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Avoiding contingencies	4.1180	233	1.04429	.06841
	Mean Leveraging Contigencies	5.4535	233	.87585	.05738

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Avoiding contingencies & Mean Leveraging Contigencies	233	-.285	.000

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	Mean Avoiding contingencies - Mean Leveraging Contigencies	-1.33548	1.54238	.10104	-1.53456	-1.13640	-13.217	232	.000

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.131[a]	.017	.013	1.03751

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.351	1	4.351	4.042	.046[b]
	Residual	248.653	231	1.076		
	Total	253.004	232			

a. Dependent Variable: Mean Avoiding contingencies

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.330	.398		8.366	.000
	Degree of Tightness-Looseness	.205	.102	.131	2.011	.046

a. Dependent Variable: Mean Avoiding contingencies

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.016[a]	.000	-.004	.87763

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.043	1	.043	.056	.813[b]
	Residual	177.925	231	.770		
	Total	177.969	232			

a. Dependent Variable: Mean Leveraging Contigencies

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.375	.337		15.966	.000
	Degree of Tightness-Looseness	.020	.086	.016	.237	.813

a. Dependent Variable: Mean Leveraging Contigencies

German students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Avoiding contingencies	4.5784	51	.98170	.13746
	Mean Leveraging Contigencies	5.2614	51	.88019	.12325

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Avoiding contingencies & Mean Leveraging Contigencies	51	-.321	.022

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	Mean Avoiding contingencies - Mean Leveraging Contigencies	-.68301	1.51447	.21207	-1.10896	-.25706	-3.221	50	.002

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.091[a]	.008	-.012	.98755

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.399	1	.399	.409	.525[b]
	Residual	47.787	49	.975		
	Total	48.186	50			

a. Dependent Variable: Mean Avoiding contingencies

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.108	.748		5.490	.000
	Degree of Tightness-Looseness	.116	.182	.091	.640	.525

a. Dependent Variable: Mean Avoiding contingencies

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.025[a]	.001	-.020	.88884

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.025	1	.025	.032	.860[b]
	Residual	38.711	49	.790		
	Total	38.736	50			

a. Dependent Variable: Mean Leveraging Contigencies

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.379	.673		7.987	.000
	Degree of Tightness-Looseness	-.029	.164	-.025	-.178	.860

a. Dependent Variable: Mean Leveraging Contigencies

E. Hypothesis 5

Dutch students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Prediction	5.0987	233	.80202	.05254
	Mean Control	5.4013	233	.87279	.05718

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Prediction & Mean Control	233	.250	.000

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	Mean Prediction - Mean Control	-.30258	1.02746	.06731	-.43519	-.16996	-4.495	232	.000

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.035[a]	.001	-.003	.80325

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.187	1	.187	.290	.591[b]
	Residual	149.043	231	.645		
	Total	149.230	232			

a. Dependent Variable: Mean Prediction

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.935	.308		16.017	.000
	Degree of Tightness-Looseness	.042	.079	.035	.538	.591

a. Dependent Variable: Mean Prediction

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.083[a]	.007	.003	.87167

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.214	1	1.214	1.597	.208[b]
	Residual	175.516	231	.760		
	Total	176.730	232			

a. Dependent Variable: Mean Control

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.985	.334		14.908	.000
	Degree of Tightness-Looseness	.108	.086	.083	1.264	.208

a. Dependent Variable: Mean Control

German students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Prediction	5.1176	51	.82212	.11512
	Mean Control	5.5098	51	.84552	.11840

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Prediction & Mean Control	51	.437	.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	Mean Prediction – Mean Control	-.39216	.88495	.12392	-.64105	-.14326	-3.165	50	.003

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.023[a]	.001	-.020	.83024

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.018	1	.018	.027	.871[b]
	Residual	33.776	49	.689		
	Total	33.794	50			

a. Dependent Variable: Mean Prediction

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	5.219	.629		8.295	.000
	Degree of Tightness-Looseness	-.025	.153	-.023	-.163	.871

a. Dependent Variable: Mean Prediction

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.172[a]	.029	.010	.84144

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.052	1	1.052	1.486	.229[b]
	Residual	34.693	49	.708		
	Total	35.745	50			

a. Dependent Variable: Mean Control

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.746	.638		7.444	.000
	Degree of Tightness-Looseness	.189	.155	.172	1.219	.229

a. Dependent Variable: Mean Control

F. Hypothesis 6

Dutch students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.1300	233	.51794	.03393
	Mean Causal Decision-making	4.9558	233	.61125	.04004

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	233	.348	.000

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	Mean Effectual Decision-making - Mean Causal Decision-making	.17420	.64927	.04254	.09040	.25801	4.096	232	.000

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.157[a]	.025	.020	.60496

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.139	1	2.139	5.844	.016[b]
	Residual	84.542	231	.366		
	Total	86.681	232			

a. Dependent Variable: Mean Causal Decision-making

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.403	.232		18.974	.000
	Degree of Tightness-Looseness	.144	.059	.157	2.417	.016

a. Dependent Variable: Mean Causal Decision-making

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.146[a]	.021	.017	.51352

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.321	1	1.321	5.011	.026[b]
	Residual	60.914	231	.264		
	Total	62.236	232			

a. Dependent Variable: Mean Effectual Decision-making

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.695	.197		23.837	.000
	Degree of Tightness-Looseness	.113	.050	.146	2.238	.026

a. Dependent Variable: Mean Effectual Decision-making

German students:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean Effectual Decision-making	5.2451	51	.50233	.07034
	Mean Causal Decision-making	5.2353	51	.58583	.08203

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Mean Effectual Decision-making & Mean Causal Decision-making	51	.269	.057

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	Mean Effectual Decision-making - Mean Causal Decision-making	.00980	.66138	.09261	-.17621	.19582	.106	50	.916

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.119[a]	.014	-.006	.58755

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.244	1	.244	.708	.404[b]
	Residual	16.916	49	.345		
	Total	17.160	50			

a. Dependent Variable: Mean Causal Decision-making

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.867	.445		10.933	.000
	Degree of Tightness-Looseness	.091	.108	.119	.841	.404

a. Dependent Variable: Mean Causal Decision-making

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.306[a]	.094	.075	.48306

a. Predictors: (Constant), Degree of Tightness-Looseness

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.183	1	1.183	5.068	.029[b]
	Residual	11.434	49	.233		
	Total	12.617	50			

a. Dependent Variable: Mean Effectual Decision-making

b. Predictors: (Constant), Degree of Tightness-Looseness

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.435	.366		12.117	.000
	Degree of Tightness-Looseness	.200	.089	.306	2.251	.029

a. Dependent Variable: Mean Effectual Decision-making

Appendix VII: Items on questionnaire

A: Questions on causal decision-making (12 items)

Entrepreneurial scenario:
For a while, I have been thinking of starting my own coffee-corner. When I looked at what existing franchising coffee-corners offered, I felt the price-quality ratio was unbalanced. I think, it should be possible to start my own successful coffee-corner with a better price-quality ratio. In several reports in newspapers and magazines I read that there is an increasing demand for drinking coffee in my home country.

The few resources or means that I have at my disposal are: limited financial capital, a few close business relations, and knowledge of the coffee industry, since I have been working at a coffee corner for five years.

Below you can find statements designed to identify your own approach in starting a coffee-corner. Please indicate to what extend you agree or disagree with each statement.

Goal:
Q59: Before starting my new venture, I will first acquire all resources needed to achieve my target.
Q66: I take a clearly pre-defined target as a starting point of the new venture.

Expected returns:
Q55: Decisions will be primarily based on analysis of potential future returns.
Q60: Beforehand, I will calculate how many resources I need to achieve the expected returns.

Competitive analysis:
Q57: I will try to identify markets by a thorough market analysis.
Q74: I will focus on early identification of risks through market analysis.
Q77: I will try to identify risks by a thorough competitors analysis.

Avoiding contingencies:
Q56: I will always pay attention that my initially defined target will be met.
Q73: My first priority is reaching my pre-set target without any delay.
Q76: My planning will be set before I start the implementation process and cannot be altered afterwards.

Prediction:

Q71: I will study expert predictions on the direction the market is "heading", to determine what course of action my new venture will follow.
Q79: I will try to control the future based on predictions of my previously obtained knowledge.

For each statement, the survey respondent chooses from the following symmetric seven-point Likert scale: 1. Strongly disagree; 2. Disagree; 3. Somewhat disagree; 4. Neither agree nor disagree; 5. Somewhat agree; 6. Agree; 7. Strongly agree.

B: Questions on effectual decision-making (13 items)

Means:
Q62: The uncertainty of a market will not block me since I rely on my own experience to imagine opportunities.
Q63: The decisions I make when starting my new venture will be based on the resources I have available.
Q72: I start my new venture without defining a clear target.

Affordable loss:
Q68: Decisions will be primarily based on minimization of risks and costs.
Q70: I only spend resources I have available and I am willing to lose.

Partnership:
Q65: Decisions will be made together with stakeholders based on our competences.
Q75: I will ask my private network to help me out with starting my new venture.
Q78: I will ask customers and suppliers to pre-commit to my new venture in order to reduce risks.

Leveraging contingencies:
Q58: I allow changes in my planning if needed, even during the implementation process of my new venture.
Q61: I expect to change my original target when confronted with new findings.
Q64: I allow delays during the development of my new venture when new opportunities emerge.

Control:
Q67: I will try to control the future by creating it.
Q69: I will talk to people I know to enlist their support in making opportunities a reality.

For each statement, the survey respondent chooses from the following symmetric seven-point Likert scale: 1. Strongly disagree; 2. Disagree; 3. Somewhat disagree; 4. Neither agree nor disagree; 5. Somewhat agree; 6. Agree; 7. Strongly agree.

C. Questions on the degree of tightness-looseness (6 items)

The next six questions are about social norms in your home country. Choose the answer that comes the closest to your opinion.

Q84: There are many social norms that people are supposed to abide by in this country.
Q85: In this country, there are very clear expectations for how people should act in most situations.
Q86: People agree upon what behaviours are appropriate versus inappropriate in most situations this country.
Q87: People in this country have a great deal of freedom in deciding how they want to behave in most situations. (Reverse coded)
Q88: In this country, if someone acts in an inappropriate way, others will strongly disapprove.
Q89: People in this country almost always comply with social norms.

For each statement, the survey respondent chooses from the following symmetric six-point Likert scale: 1. Strongly disagree; 2. Moderately disagree; 3. Slightly disagree; 4. Slightly agree; 5. Moderately disagree; 6. Strongly Agree.

D. Questions on masculinity-femininity (4 items)

This part contains questions regarding cultural values. For the next four questions please think of an ideal job, disregarding your present job, if you have one. In this section the scenario no longer applies.

Q80: How important would it be to you to get recognition for good performance?
Q81: How important would it be to you to have pleasant people to work with?
Q82: How important would it be to you to live in a desirable area?
Q83: How important would it be to you to have chances for promotion?

For each statement, the survey respondent chooses from the following symmetric five-point scale: 1. Utmost importance; 2. Very important; 3. Moderate importance; 4. Little importance; 5. Very little / no importance.