

Making strategic decisions:

***The effect of time pressure on a
manager's risk preference, mediated by
an intuitive decision making style***



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Abstract

This study aims to investigate the relationship between time pressure and risk preference when making strategic decisions. In addition, the mediating role of an intuitive decision making style is examined. Time pressure is an increasingly occurring phenomenon in strategic decision making situations. Managers nowadays more and more have to deal with time constraints when they have to make a decision or execute a task. The time pressure they experience as a result can have its effects on the decision making process and therefore on the decision that has to be made. This research specifies to the effects of time pressure on a manager's risk preference, as literature is divided about these effects. Next to that, to be able to explain these effects, a mediator variable, named intuitive decision making style, is introduced and included in the research. This follows from previous research where is suggested that people under time pressure rely more on their intuition, internal hunches and directly available knowledge due to a lack of time available to deliberate and think thoroughly, which translates to the use of an intuitive decision making style.

This study makes multiple assumptions. At first, the presence of time pressure during a decision making situation, would result in the decision maker using an intuitive decision making style. Second, this study assumes that if a manager uses an intuitive decision making style, this would lead to more risk-averse decisions. Lastly, it is suggested that an intuitive decision making style mediates the relationship between time pressure and risk preference, and can represent an explanation for this.

To examine the time pressure – risk preference relationship and check for a mediating effect, an experiment was conducted where 129 people with managerial job functions participated. Two forms of the experiment were distributed, where half of the respondents received the experiment **with** a time limit for certain questions, and the other half of the respondent did receive the experiment **without** a time limit for the same questions. Apart from the time limit, the two forms of the experiment were identical. Analyzing the results of the experiment led to the rejection of all of the above stated hypotheses. No significant effect between these variables was found and it was concluded that an intuitive decision making style does not mediate the relationship between time pressure and risk preference. However, some significant effects were found between the control variables and an intuitive decision making style and risk preference. Most interesting is the significant effect of gender on intuitive decision making style, indicating that men are more intuitive than women.

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Introduction

Strategic decisions are those choices made by managers that commit important resources, set important precedents, and/or direct important firm-level actions (Mintzberg, Raisinghani & Théorêt, 1976, p. 246). Previous research suggests that high quality strategic decision-making processes should be rooted in stable and consistent circumstances (March, 1982). However, such consistency is often not the case (Cohen, March & Olsen, 1972; March, 1982), as multiple factors affect each strategic decision making process, resulting in continuously differing decision making situations (Eisenhardt & Zbaracki, 1992). These factors, that affect the decision making process, are the most interesting to investigate as they make the decision more unpredictable because they differ within each specific decision making situation, especially in the current rapidly changing environments (Eisenhardt & Martin, 2000).

In an environment characterized by accelerating change such as technological or competitive shocks, managers are under unprecedented constraints to make strategic decisions in a limited time frame to respond to such dynamic conditions (Huy, 2001). By “strategic”, decisions on the organization level are meant that have a potentially important impact on overall organizational effectiveness or performance (Klarner & Raisch, 2013). Therefore, the goal of any decision maker is to make the most optimal decisions possible with a minimal amount of cognitive strain or effort. This may not be a very daunting task when given unlimited time to assess the decision problem, but as stated above, many situations exist that require individuals to make decisions under time pressure (Young, Goodie, Hall & Wu, 2012, p. 179). Hence, time pressure is common to many strategic decisions that have to be made by managers (Kocher, Pahlke & Trautmann, 2013), and can be seen as one of the factors that has a potential effect on the decision making process.

Conducting a research about the effect of time pressure when making strategic decisions is becoming increasingly more relevant to investigate deeply, because in a context in which markets, technology and the competitive environment are rapidly changing and organizational performance can rapidly decline, managers often feel pressure, for example from external stakeholders such as anxious investors or from internal groups, to make decisions quickly (Chattopadhyay, Glick & Huber, 2001; McKinley, Latham & Braun, 2014).

Next, one of the aspects that time pressure can have an effect on during a decision making process, is a decision maker's attitude towards risk (risk preference), which as a result may have a major impact upon the decisions (Eliashberg & Winkler, 1978). When making a decision, a person can either be risk-averse, where they don't like to take risk, risk-seeking, where they do like to take risk, or risk neutral, which is in between the former two (Goodwin & Wright, 2014) but will not be used in this

research. The aspect of 'risk' in decision making is investigated extensively within for example the expected utility theory by von Neumann & Morgenstern (1944) and the prospect theory by Tversky & Kahneman (1979). Nevertheless and despite its relevance, the effect of time pressure on a manager's risk preference has received very little attention in the decision making literature (Kocher et al., 2013), making it an interesting topic to investigate. Especially when considering the fact that strategic decisions often have to be made with a certain amount of risk and, as stated above, often happen under time pressure.

Furthermore, time pressure has been shown to have a number of consequences in strategic decision making processes of managers and seems to drive consistent changes in their cognitive patterns (Ben Zur & Breznitz, 1981). This implies that the cognitive process, or decision making style a manager adopts when making the decision, can differ under various amounts of time pressure. Therefore, a decision making style can be defined as a habitual response pattern shown by managers when confronted with a specific strategic decision situation (Thunholm, 2004).

The effect of time pressure on the decision making style a manager adopts when making a decision is a well-researched topic, for example by Eisenhardt (1989) and Elbanna & Child (2007). As the effect of time pressure on a manager's risk preference is an under-researched topic, it will be interesting to investigate whether the decision making style a manager adopts mediates this effect. To be more specific, this research will focus on one specific decision making style, namely the intuitive style. This follows from previous research which has shown that people in decision making situations often make intuitive and instinctive decisions under time pressure, rather than cognitively driven or deliberated, rational choices (Frey, Savage & Torgler, 2010). An intuitive decision making style refers to the process of making affectively charged judgments that arise through rapid, nonconscious, and holistic associations (Dane & Pratt, 2007, p. 40). So taking these three aspects together, this hypothetically means that a certain amount of time pressure leads to an intuitive decision making style which then leads to a certain risk preference when making a strategic decision. In other words, this research tries to examine whether an intuitive decision making style can explain the effect of time pressure on a manager's risk preference.

Looking at the practical relevance of combining and investigating these three aspects, the main purpose is to make managers more aware of how they make their decisions, which factors affect their decisions and in what way or to what extent. Following from this, two main practical points come forward to conduct this research. At first, by conducting this research the effect of contextual factors when making strategic decisions can be examined and what their actual effect includes. As the decision making process of a manager is affected by many factors, knowledge about what the

effects of these factors are, make it easier to control them. This implies that a manager is more aware of what affects his decision making process, and now can try to balance these effects, to come to a better and more objective decision. Contextual factors can create biases for a manager, that can result in the manager choosing a different option than without this bias. Therefore, being aware of the effects of these factors and the biases that they can create, make the manager able to reduce the bias and be as objective as possible. Second, a manager can grow and learn to become a better decision maker by controlling the contextual factors that could potentially affect his decision. A manager wants to make the best possible decision, but can be withheld from this as he is affected by other factors that create biases. Therefore this research examines the effects of time pressure, to be able to explain these effects which can help a manager during a decision making process, as he knows in what way time pressure can affect him. As a result, the manager can control these effects, make a better and more objective decision and therefore grows and gathers experience in dealing with these factors to become a better decision maker.

Furthermore, each of these three topics has been investigated very often and extensively. But, to the best of my knowledge, there is a research gap when looking at the combination of the three because this has never been investigated before, making it new, original and theoretically relevant. Especially within the management and decision making literature because these three topics are very common when making strategic decisions. Also because the relationship time pressure – risk preference is under-researched, it is interesting to examine whether the intuitive decision making style can be a mediator within this relationship and have a potential significant effect. This is relevant because with this study the reason behind a manager's strategic decisions and its risk preference for a specific decision can be explained in a better and more logical way, making the relationship between time pressure and risk preference more clear. Therefore, the central question within this research will be:

“What is the effect of time pressure on a manager's risk preference when making strategic decisions and does an intuitive decision making style mediate this relationship?”

By answering this question this research will contribute to the management and decision making literature by giving an insight in a manager's risk preference when making a strategic decision, and the possible reasons behind it. Hereby three very common variables within this literature are linked together and investigated, which is never done before, but nevertheless theoretically and practically relevant.

So, there are three aspects that will be examined in this research, namely time pressure, which acts as the independent variable, risk preference, which acts as the dependent variable, and decision making style, which acts as the mediator. The direct effect between the IV and the DV will be

explained extensively in the theory. The mediator effect will be examined by using quantitative research methods. Therefore, an experiment will be conducted, whereby a digital survey will be used to collect the data. The experiment will be based on multiple researches that have examined these aspects before, which will be explained in more detail in the methodology.

To conduct an answer to the research question and to check for the hypotheses, an extensive and detailed literature review will be given at first. Here the theoretical background of the variables will be discussed together with their interrelations, resulting into several hypotheses. Next, the methodology will be explained, to make clear how the study will be conducted to gather the needed data, which method of analysis will be used and the characteristics of the respondents will be explicated together with the research ethics. Hereafter, the research will be conducted leading to an analysis and explanation of the results. This also contains checking for the stated hypotheses whether to reject or accept them. Then there will be a discussion including contributions to the literature, followed by practical and theoretical implications, limitations and recommendations for future research. Lastly, all of the above will ultimately lead to a conclusion with an answer to the research question.

Theoretical background and hypotheses

The effects of time pressure on strategic decision making

Strategic decision making processes are key for managers because they involve those fundamental decisions that shape the course of a firm (Eisenhardt & Zbaracki, 1992). Eisenhardt & Zbaracki (1992) and Bell, Bromley & Bryson (1998) have demonstrated the effects of constraints caused by a decision making situation. One of those constraints is time pressure, as time pressure is common in many decision making situations (Kocher et al., 2013). Multiple definitions of time pressure can be found in the literature, for example, time pressure is defined as the perception that there is a scarcity of time available to complete a task or make a decision (Cooper, Dewe & O'Driscoll, 2001; Kelly & McGrath, 1985). Next to that, time pressure is defined as a constraint in time to complete the task or make the decision (Isenberg, 1984; Ordóñez, Benson & Pittarello, 2015). The definition of time pressure that will be used in this research is based on the various definitions from the literature and reads as follows; time pressure is the subjective feeling a person has as a result of a limited time that is available to complete a task or make a decision. Therefore, a time limit can either be present or absent, which is based on multiple studies as for example Verplanken (1993), and as a result, the feeling of time pressure can be indicated on a scale from high to none.

When examining the literature, two movements of the effects of time pressure on strategic decision making come forward. The first one indicates that time pressure and strategic decision making are positively related, which means that more time pressure leads to higher decision making quality, explicated by for example LePine et al. (2005) and Svenson & Benson (1993). Next to that, the second one indicates a negative relationship, which means that more time pressure leads to lower decision making quality, explicated by for example Payne, Bettman, & Luce (1996) and Schreuder & Mioch, (2011).

Looking at the positive relationship, LePine et al. (2005) suggest that time pressure has a positive effect on people's performance and decision making processes as this leads to higher motivation and increased effort caused by a persons' believe that if they complete their task successfully, they will receive formal recognition and experience a sense of personal accomplishment. Therefore, this will increase the likelihood of meeting the demands and reaching an outcome. Furthermore, Svenson & Benson (1993) found a weakened framing bias under time pressure indicating an increase in the quality of decision making. A framing bias occurs when two identical problems are presented in two different ways/frames (e.g. in gains or in losses) and because of this presentation result in two different outcomes. Svenson & Benson (1993) suggest that a decision maker differentiates between the different alternatives and that this process requires time. Therefore, as framing effects are the result of time-consuming elaborative differentiation processes, then time pressure weakens the

framing effect as there is less time available to differentiate, which results in more objective decisions (Svenson & Benson, 1993).

Regarding the negative relationship between time pressure and strategic decision making, studies show that the quality of a strategic decision making process deteriorates with time pressure (Payne, Bettman, & Luce, 1996). This is because of the engagement in superficial rather than thorough and systematic processing of information due to a lack of time available to do this (Schreuder & Mioch, 2011). Research suggests that individuals under time pressure speed up their information processing (Edland, 1994; Kerstholt, 1994), because they stop considering multiple alternatives and refraining from critical probing of all available solutions, as they see task completion as their main objective that has to be accomplished within the given time period instead of considering every alternative possible (Schreuder & Mioch, 2011). Next to that, some studies even suggest that in general the overall decision quality of individuals is significantly worse under time pressure (Young et al., 2012), as people under time pressure tend to sacrifice some aspects of the quality of a decision in order to obtain a solution (Kelly & McGrath, 1985). In other words, the decision is made, but without sufficient deliberation because the decision maker lacks the time to take every aspect into consideration (Svenson & Benson, 1993). Furthermore, researchers have also found an inverse relationship between the amount of time to deliberate on a decision and an individual's confidence in that decision, because the decision maker can't make use of various decision making strategies, thereby affecting the expected benefit associated with those strategies resulting in a decrease in confidence (Smith, Mitchell & Beach, 1982)

Next to the above there is a lot of work about how time pressure affects teams, the team members behavior and the decision making processes within teams, for example by Gersick (1988) and Perlow (1999). However, this study will examine the effect of time pressure on an individual level, namely a manager's decision making process.

Another aspect that affects a manager's decision making process, is the decision making style that is used. This research examines one specific decision making style, namely the intuitive style. This is based on factors like time pressure that have an effect on the decision making process, which will be explicated in the following paragraph.

A manager's decision making style

Decision making is a fundamental process in organizations and the quality of the decisions that managers make influences their effectiveness as managers. The effectiveness of managers, in turn, impacts the success or failure of the organization (Leonard, Scholl, Kowalski, 1999). Managers carry out decision making using distinctly different processes, which are named decision making styles

(Nutt, 1990). Decision making style is defined as a habitual response pattern shown by managers when confronted with a specific strategic decision situation (Thunholm, 2004). Observation of actual decision situations indicates that decision making behavior is characterized by differences in many areas, including the number of criteria used, the type of information search which is undertaken, sources of information used and the number of alternatives generated (Eisenhardt and Zbaracki, 1992). Therefore, Driver, Brousseau & Hunsaker (1990) suggest that the decision making style a manager uses can be determined by looking at these characteristics.

To distinguish between decision making styles, five decision styles are most commonly identified and noted in prior theorizing and empirical research and defined in behavioral terms. These decision making styles are brought together within the General Decision Making Style Inventory (GDMSI) of Scott & Bruce (1995). The five distinct styles are: 1) a rational decision making style which is characterized by a thorough search for and logical evaluation of alternatives, 2) an intuitive decision making style which is characterized by a reliance on hunches and feelings, 3) a dependent decision making style which is characterized by a search for advice and direction from others, 4) an avoidant decision making style which is characterized by attempts to avoid decision making, and 5) a spontaneous decision making style which is characterized by a tendency to make fast and speedy decisions (Scott & Bruce, 1995). From the result of the factor analyses and correlation analyses Scott & Bruce (1995) concluded that the decision making styles are independent but not mutually exclusive and that people seem to use a combination of decision making styles when making important decisions. This implies that most of the time there is one main decision making style, but other styles are used during the process when needed.

Within this research there will be focused on one specific decision making style, namely the intuitive style. The main reason for this is that this research focuses on the effects of time pressure on a decision making process, and that previous research suggests that people in decision making situations affected by time pressure, most of the time make intuitive and instinctive decisions (Frey, Savage & Torgler, 2010). The reasons behind this assumption will be explicated in the following paragraphs. Furthermore, this research tries to be specific in searching for an explanation for the effect of time pressure on a manager's risk preference. Taking all the above discussed decision making styles into consideration during the experiment won't give a clear explanation for this effect, and will be hard to measure and execute as well. Using only the intuitive decision making style will give a much more detailed insight and moreover is the most suitable under conditions of time pressure, as will be explained below. Next to that, most of the above discussed decision styles can't be measured on an individual level, which is particularly needed for the experiment. Lastly, the fact that these three aspects have never been investigated together, the time available for this research

and the size of this study make that examining one decision making style suits best regarding these boundaries.

[An intuitive decision making style and time pressure](#)

An intuitive decision making style refers to the process of making affectively charged judgments that arise through rapid, nonconscious, and holistic associations (Dane & Pratt, 2007, p. 40). A recent study by Stanczyk et al. (2015) suggests that intuitive decision makers also rely on gut-feelings, past experience, and information and knowledge that they have available immediately. Furthermore, the intuitive decision maker uses internal hunches and makes decisions relatively quickly, without the deliberation typical of a rational decision maker (Scott & Bruce, 1995). Therefore, the vast majority of researchers view the intuitive decision making style as quite fast (e.g. Kahneman, 2003; Myers, 2002). To summarize, an intuitive decision making style uses a non-sequential information processing mode, which comprises both cognitive and affective elements and results in direct knowing without any use of methods, conscious reasoning and structuring (e.g. Epstein et al., 1996; Shapiro & Spence, 1997).

Looking at the effect of time pressure on a manager's decision making style, the decision making literature generally acknowledges that the style an individual uses depends on the context and the situation in which the decision has to be made (Scott & Bruce, 1995). Within this study time pressure will be the factor that affects the decision making situation, which results in a certain decision making style.

Strategic decisions are mostly made after an extensive process of information gathering and processing, alternative generation, and analysis (Mazzolini, 1981). However, the deliberation needed to transform all the information into problems, options, and consequences suitable for analysis consumes scarce time, which can form a problem when strategic decisions have to be made under time pressure (Klein & Weick, 2000). As a result, managers are more likely to base their decisions on their intuition and internal hunches as time pressure increases, to still reach an outcome (De Dreu, 2003; Kruglanski & Freund, 1983). Kruglanski & Webster (1996) suggest that one of the reasons why managers will rely on their intuition is because of the need for cognitive closure, and that this need arises when time is limited. Cognitive closure refers to an individual's desire for a firm answer regarding a decision and the willingness to reach an outcome. This need arises specifically under time pressure because the individual is focused on reaching an outcome in time, contrary to when there is plenty of time available when the focus is primarily on the quality of the decision. Therefore, under time pressure people stop considering every alternative and deviation because they lack the time to do this, and start using their intuition to reach an outcome or reach cognitive closure (Kruglanski & Webster, 1996).

Furthermore, the intuitive decision making style is fast compared to other decision making styles (Dane & Pratt, 2007). The speed of the intuitive decision making style is not only taken for granted, but is often seen as desirable when the situation asks for quick decision making (Burke & Miller, 1999). Therefore, the intuitive decision making style is used under conditions as time pressure when fast-paced decision making is needed (Nutt, 1999). Also Sayegha et al. (2004) suggest that decision situations characterized by time pressure result in intuitive decision making processes because of its speed.

Next, another reason why time pressure leads to an intuitive decision making style is because the decision maker often does not have all of the information that is needed to make the decision, because there was not enough time to gather this information (Sinclair & Ashkanasy, 2002). Therefore, Agor (1984) and Parikh et al. (1994) suggest that because not all the needed information is available, managers need to rely on intuition, internal hunches and past experience to make their decision. As a result, managers use an intuitive decision making style under time pressure.

Following from the above, this paper assumes that when time pressure is present, managers will use an intuitive decision making style to make strategic decisions. Therefore, this results in the following hypothesis:

Hypothesis 1: The presence of time pressure when managers make a strategic decision leads to an intuitive decision making style

To summarize, a manager's decision making style is dependent on multiple aspects like context and circumstances. This results in various decision making styles that are described in the literature. From these different styles one of them will be examined in this study and used when conducting the experiment, namely the intuitive decision making style. This is mainly based on multiple researches where it is stated that time pressure results in an intuitive decision making style. Furthermore, this research tries to be specific in explaining the effect between time pressure and risk preference. Therefore, an intuitive decision making style will act as a mediator variable where it tries to explain this effect.

As stated, next to time pressure and the decision making style that is used, strategic decision making processes are also affected by other aspects. One of these aspects is a manager's risk preference, which will act as the dependent variable in this research. The next two paragraphs will explain what risk preference includes at first, and secondly explicate what the effect of time pressure is on a manager's risk preference. Following from this, an intuitive decision making style will try to explain the relationship between time pressure and risk preference.

A manager's risk preference

A decision maker's attitude towards risk (risk preference) may have a major impact upon the decisions that have to be made (Eliashberg & Winkler, 1978). This risk preference varies with contextual factors, which means that individuals can be risk-averse in certain circumstances and risk-seeking in other circumstances (Miller & Chen, 2004). Researchers have accumulated considerable evidence supporting variable risk preferences and specifying the relevant contingencies (Bromiley & Curley, 1992), as for example the prospect theory (Tversky & Kahneman, 1979). Therefore, risk preference can be defined on a continuum from risk-averse to risk-seeking (Weber & Milliman, 1997).

Other concepts have also been used to describe someone's risk-taking behavior, as for example risk-attitude and risk-propensity. However, the literature lacks a clear distinction between these concepts and as a result they are used interchangeably. This can also be seen in their definitions, where risk attitude is described as an individual's preference when choosing between risky choice alternatives (Smidts, 1997). Furthermore, risk-propensity is defined as the tendency of a decision maker either to take or to avoid risk and can change over time (Sitkin & Pablo, 1992; Sitkin & Weingart, 1995). This study will use the concept of risk preference, distinguishing between risk-averse and risk-seeking behavior, as this is the most commonly used in the decision making literature.

Numerous theories and experiments have attempted to describe people's risk-taking behavior in both simple and complex decision situations (Schoemaker, 1990). One of the most used models to examine risk in these studies, is the prospect theory from Tversky & Kahneman (1979), which is a descriptive model of decision making under risk (Barberis, Huang & Santos, 2001).

The prospect theory has been developed as a critique on the expected utility theory (EUT) (Wu & Gonzalez, 1996), which dominated the analysis of decision making under risk before the prospect theory. It was generally accepted as a normative model of rational choice (Keeney & Raiffa, 1976), and widely applied as a descriptive model of economic behavior (Arrow, 1971). However, within EUT several classes of choice problems emerged over the years in which risk preferences systematically violate the axioms of EUT. For example, one of the most known shortcomings of the EUT is demonstrated in the Allais Paradox (Wu & Gonzalez, 1996).

The main point of the prospect theory, described by Tversky and Kahneman (1979) is that how a decision problem is framed, affects a person's risk preference. They distinguish between two possible frames, namely gains and losses. Therefore, they suggest that people are risk-averse when a decision problem is framed in gains, and risk-seeking when a decision problem is framed in losses. These findings are confirmed by numerous other studies, as for example Miller & Chen (2004), Bromiley &

Curley (1992) and March & Shapira (1987). To be specific and clear in this study, only the aspect of 'gains' will be taken into account. This follows from the purpose of this study, which is to explain the relationship between time pressure and risk preference, and not to confirm the above claims regarding gains and losses. Furthermore, the experiment and total research would get too complicated when taken into account both gains and losses, neglecting the main purpose. Next to that, managers have to deal more often with the gain aspects when making strategic decisions, for example when making investments, than with the loss aspects.

The measurement that the prospect theory and various other studies use to examine risk, will also be used in this study. This includes that decision problems are presented as a decision between a certain and riskless outcome, and at least two probabilities, where one can win an amount or get nothing, which can be seen as a lottery. As a result, a person is risk-averse when he chooses the certain and riskless option, and he is risk-seeking when he chooses the lottery, because he does not know what the outcome will be beforehand (Tversky & Kahneman, 1979; Saqib & Chan, 2015).

[The effect of time pressure on a manager's risk preference](#)

Following from the fact that a manager's risk preference differs in various decision making situations and under varying circumstances (Miller & Chen, 2004), one circumstance of particular interest within this study is that of time pressure and how this affects a manager's risk preference when making strategic decisions. The general stream of findings regarding how time pressure impacts risk preferences suggests that people under time pressure become more risk-averse than usual (Saqib & Chan, 2015), and that it reduces the propensity to take risks (Ben-Zur & Breznitz, 1981). This can be explained because choosing under time pressure is difficult as people can't collect as much relevant information as they want to for the decision, because they lack the time to do so. This is contrary to a situation where there is no time pressure and people can collect as much relevant information as they feel they need to, to make a decision (Bettman et al., 1993). Therefore people choose a risk-averse option or defer making a choice at all because they want to avoid choosing something they would later regret (Dhar & Nowlis, 1999). Furthermore, people become less creative under time pressure as there is less time for interpersonal activity to discuss ideas and outcomes, including active agreement and disagreement, leading to less original outcomes (Kelly & McGrath, 1985; Hall & Watson, 1971). These findings are all consistent with the view that time pressure is a form of stress (Maule & Hockey, 1993), and people under stress prefer what is safe, familiar and obvious (Shors & Wood, 1995), they try to avoid negative outcomes (Tversky & Kahneman, 1979).

However, next to the above, other research suggests that the relationship between time pressure and an individual's risk preference when making a decision is different and more complex (Young et al., 2012). For example Busemeyer (1985), who found a significant relationship between time

pressure and risk preferences, that indicates that an increase in time pressure leads to greater risk taking for positive expected values (EV) (gains), because individuals may perceive the potential gains differently when presented under time pressure, caused by a feeling of stress. Also, an individual's abilities to differentiate among probabilities may change under time pressure, also caused by stress. As a result, a person may think that a certain outcome with a certain probability is attractive, when it is actually a great risk. Furthermore, Saqib & Chan (2015) also suggest that people under time pressure are more risk-seeking with gains, because people under time pressure tend to perceive only the maximum possible outcome. To clarify, when there is time pressure people will look mostly at the highest possible gain when the decision is framed in gains, making them risk-seeking. People under time pressure tend to look only at the maximum possible outcome because they lack the time to consider every option and alternative, and therefore only consider the most extreme outcomes. The distorted view that is created by this results in other decision making behavior than is expected without time pressure (Saqib & Chan, 2015). Lastly, Dror et al. (1999) suggest that people in general are more likely to take risk under time pressure when the level of risk is high, because most attention is given to the risky option causing that the other options are less examined, resulting in a decrease in the likeliness to choose them but an increase the likeliness to choose the risky option.

Following from the above, the literature is clearly divided about the effect of time pressure on a decision makers risk preference. The prospect theory (1979) and other studies suggest that people are risk-averse with gains, however, this is without any form of time pressure. When looking at the effect of time pressure on a decision makers risk preference these findings are confirmed by for example Ben Zur & Breznitz (1981), Dhar & Nowlis (1999), Payne et al. (1993) and many more. On the contrary, Busemeyer (1985), Dror et al. (1999), Saqib & Chan (2015) and more, claim that time pressure reverses a decision makers risk preference, meaning that people become risk-seeking with gains.

To summarize, a manager's risk preference has an impact on the decision that has to be made, but is dependent on the context, which in this study contains the presence of time pressure. As the effects of time pressure on a manager's risk preference are not straightforward, it is relevant to examine this effect more deeply by conducting an experiment. In the following paragraph the mediating role of an intuitive decision making style will be discussed, which will try to clarify and explain the effect between time pressure and risk preference.

[The mediating role of an intuitive decision making style](#)

Empirical tests support the proposition that a manager's decision making style influences their decision behavior, as each style conducts a different decision making process (Nutt, 1993). Therefore,

this research will examine whether the intuitive decision making style can be an explanation for a certain risk preference a manager has when making strategic decisions under time pressure.

In general, most research suggest that people become risk-averse under time pressure, because they don't have much time to think about the decision thoroughly and can't collect much relevant information (Bettman et al., 1993), and therefore they want to avoid negative outcomes or something they would later regret as a result of a thoughtless decision (Dhar & Nowlis, 1999; Tversky & Kahneman, 1979).

However, when examining the literature regarding what the assumptions of a person's risk preference are under time pressure, compared to the assumptions of a person's risk preference without time pressure, two views can be distinguished. The first one claims that the assumptions without time pressure still hold under time pressure (e.g. Ben Zur & Breznitz, 1981; Payne et al. 1993), meaning that people are risk-averse when the decision problem is framed in gains. Researches from the other point of view however claim that these assumptions are reversed under time pressure, where people will become risk-seeking when the problem is framed in gains (e.g. Busemeyer, 1985; Saqib & Chan, 2015). To clarify these contradictions, this research will introduce a mediator variable to examine the relationship between time pressure and risk preference, using an intuitive decision making style as the mediator variable.

The most common assumption is that people become more risk-averse under time pressure, as they want to avoid choosing the wrong option. Next to that, people under time pressure have less time to gather the needed information, and as a result would choose the less risky option to prevent themselves from making mistakes. Therefore, by taking into account the assumption that time pressure leads to an intuitive decision making style, the following hypothesis is formed:

Hypothesis 2: An intuitive decision making style leads to a more risk-averse decision

The general assumption in this research is that an intuitive decision making style mediates the relationship between time pressure and risk preference when making strategic decisions. Following from this, time pressure can be divided in the aspects 'presence' and 'absence' and risk preference in the aspects 'risk-averse' and 'risk-seeking'. A visual overview of these concepts can be seen below:

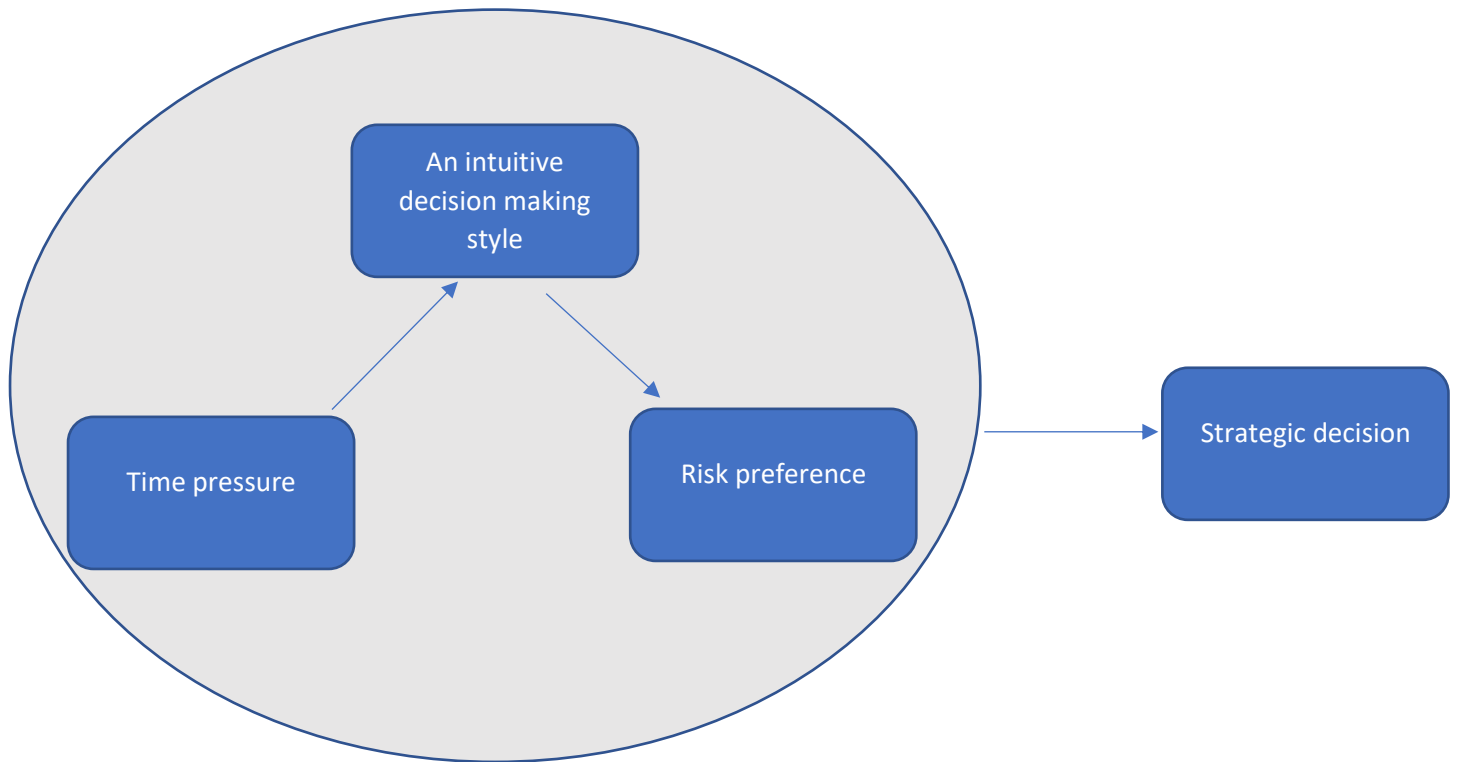


Figure 1: Conceptual framework

The relationship between time pressure and risk preference is not a well-researched topic within the management and decision making literature. However, the researchers that did investigate this relationship found contrary results and effects. On the one hand researchers claimed that the assumptions of a person's risk preference without time pressure, are the same under time pressure, but on the other hand researchers claimed that these assumptions will reverse under time pressure. This study will examine the effect of a mediator variable to explain the relationship between time pressure and risk preference. An intuitive decision making style will act as the mediator variable. One of the main reasons for this is that the studies that examined the effect of time pressure, concluded that a person adopts an intuitive decision making style when they are dealing with time pressure. Next to that, studies have shown that the decision making style a person adopts, affects the overall decision and also the risk preference of a person (e.g. Scott & Bruce, 1995). Therefore, the assumption is that because an intuitive decision making style is adopted as a result of the presence of time pressure, this results in a certain risk preference. Therefore, this study proposes that an intuitive decision making style has a mediating role in the relationship between time pressure and risk preference when making strategic decisions, leading to the following hypothesis:

Hypothesis 3: An intuitive decision making style mediates the effect between time pressure and risk preference, when a managers makes a strategic decision

Methodology

Sample

The sample of this study contains data from 129 people who fulfill managerial functions at their job.

A managerial function can be described as a person who contributes to the workforce production with a focus on planning, monitoring and controlling, and at the same time fulfills a role as coach, motivator and facilitator for the employees by using interpersonal skills (Cascio, 1995; Hogan, Curphy & Hogan, 1994). The reason why only people with managerial functions participate in the experiment is because they are in a certain position within the organization where is dealt with strategic decisions or where they at least can relate to it more, compared to employees at the operational level.

These managers are not chosen totally random, as I made use of my own network of family, friends, colleagues and business contacts, who at their turn spread my request of participating in the experiment to their network. As a result, the sampling method that was used to gather the respondents is named snowball sampling, which is a method where referrals are made among people who share or know other people who possess some characteristics that are of research interest (Biernacki & Waldorf, 1981). When gathering the respondents I made use of several communication methods, namely Facebook, E-mail, WhatsApp, LinkedIn and word of mouth. Because of this, it is hard to determine a response rate, as a message was send to as much contacts as possible, and the experiment is anonymous, making it impossible to check who reacted. The actual message that was send to the potential respondents can be found in appendix 1. Because the respondents are not chosen totally random, control variables will be included in the analysis to check for interrelationships, biases related to background, and other factors that could possibly distort the outcome (Spector & Brannick, 2011). To keep the reliability and representativeness as high as possible, respondents from every subgroup of each control variable did participate in the experiment. These control variables will be explicated in one of the following paragraphs.

The total sample of 129 people contains data from 113 men (87.6%) and 16 women (12.4%), with an average age between 40 and 49. Next to that, the average years of experience in a managerial function is between 6 and 10 years. Furthermore, the most common industries the respondents are from are the financial sector, governmental institutions, the construction sector and manufacturing. Lastly, regarding the management level of the respondent, 52 respondents have a function within the strategic management level, 35 in the tactical management level, and 42 in the operational management level.

Research method

Within this research, an experiment will be conducted to collect the needed data. The main reason to conduct an experiment is that in this way the independent variable, time pressure, can be controlled. This is crucial within this research as the cause-effect relationship of this variable needs to be measured. When conducting the experiment, two groups of respondents will be created, the experimental group and the control group, containing each half of the respondents. The respondents in the experimental group will be exposed to this variable (manipulated) and the respondents in the control group will not. As a result, the effect of this variable can be examined by comparing the results and differences of the two experiments, and check whether the included manipulation leads to significant effects. Next to that, an experiment is the most commonly used method in the literature to measure time pressure, as for example by De Dreu (2003) and Ben Zur & Breznitz (1981). The reason for this is that within an experiment the situation can be controlled and manipulated, where every respondent is exposed to the same conditions, which is more difficult when using other methods. Furthermore, strategic decision situations of organizations are hard to investigate as outsiders of that organization are not allowed to participate in such situations. Therefore, an experiment will be helpful to set up a simplification of a certain strategic decision making situation, to examine what the effects are on these situations. Next, an experiment is also commonly used in current literature to measure the dependent variable, risk preference, in for example Tversky & Kahneman (1979) and Saqib & Chan (2015). Especially because factors that affect this variable can be measured relatively easy when using an experiment, by manipulating the situation.

The experiment will be conducted in the form of a survey, because in this way the experiment can be set up relatively quick and respondents can be reached fast. Furthermore, the respondents do not have to put in much time and effort to participate, which can increase the response rate, and possibly could be a boundary when conducting a lab experiment for example. Furthermore, the current pandemic (COVID-19) prevents people from coming together or get in touch with lots of different people, making a survey a good alternative to gather the needed data without violating the restrictions.

To preserve the quality of the final experiment and make sure no unclear parts, mistakes and problems can occur when a respondent participates in the experiment, a test experiment will be conducted. Feedback generated from this test experiment will be used to improve the final experiment and make sure that the quality is assured to reduce the possibility of errors. How this test experiment was conducted will be explained in one of the following paragraphs.

Independent variable

The independent variable in this study is 'time pressure', which will be measured in two ways, in an objective- and a subjective way. The reason for this is that some people endure a time limit but do not feel time pressure. On the other hand people who did not endure a time limit can still feel time pressure caused by another factor. Therefore, the results of time pressure are given in an objective- and subjective way to see whether this results in different effects. At first in the objective way, time pressure acts as a categoric (nominal) variable consisting of two dimensions, namely 'absence' and 'presence', which is based on whether there is a time limit or not and follows from other research as for example Verplanken (1993). Therefore, time pressure will be measured by giving half of the respondents a time limit and the other half unlimited time, when answering the questions regarding the dependent variable (part two of the experiment). This means that the experimental group will endure a time limit, resulting in data for the dimension 'presence', and the control group will not endure a time limit, resulting in data for the dimension 'absence'. To be able to measure the effects of this time limit a dummy-variable will be created, named 'Objective Time Pressure'. Within this dummy-variable people who endured a time limit are indicated with a 1, and people who did not endure a time limit are indicated with a 0.

Second, time pressure is measured in a subjective way, which is based on the definition of time pressure, which is; time pressure is the subjective feeling a person has as a result of a limited time that is available to complete a task or make a decision. To measure this, two questions will be asked to the respondents to see whether they felt time pressure. These questions are also needed to execute the manipulation check, and will be explicated in the next paragraph. From these two questions, one variable 'Subjective Time Pressure' is created, which requires multiple steps to generate this variable, because the scales of these two questions differ. The scale of the first question, 0 to 100, will be used. Therefore, the answers of the second question, with a 1 to 5 scale, need to be indicated on this scale, which is done by transforming the scale to the following scale; 0,25,50,75 and 100. Next to that, the scores of the first question need to be reversed, because the highest score of 100 indicates no time pressure and the lowest score of 0 indicates very high time pressure. Beforehand, with question 2 the highest score of 5 indicated high time pressure and the lowest score of 1 indicated no time pressure. Therefore the scores of question one need to be reversed to equalize the scales, and because this study assumes that higher time pressure leads to higher X, meaning that it makes most sense that a higher score indicates higher time pressure. As a result, time pressure acts as a metric variable where 0 indicates no feeling of time pressure and 100 indicates a high feeling of time pressure.

To expose the people in the experimental group to time pressure a clock/timer will be visible with the maximum time for each specific question, which is based on former research where time pressure was measured, as for example by Maule et al. (2000). The time limit set per question, will be 10 seconds total, which is based on former research from Svenson & Benson (1993) & Saqib & Chan (2015), and on feedback that was generated from the test experiment. The time limit will be set in the form of a timer, that will count down from 10 to 0, indicating the maximum time the respondents have to answer the question. To see whether the respondents in the experimental group experienced more time pressure than the respondent in the control group, a manipulation check will be executed which will be explained in the following paragraph.

Manipulation check

A manipulation check is a test that is used to determine the effectiveness of a manipulation in an experiment (Hoewe, 2017). Within this research the manipulation is a time limit given to the respondents in the experimental group, in a certain part of the experiment. The respondents in the control group do not have a time limit in the same part of the experiment. This time limit represents the independent variable time pressure. To determine whether the respondents in the experimental group experienced relatively more time pressure than the respondents in the control group, two questions will be asked directly after the part with the time limit. These questions are based on several other studies who used a manipulation check to measure time pressure, as for example Svenson & Benson (1993), De Paolo & Gioia (2016), Saqib & Chan (2015) and Dhar & Nowlis (1999).

The first question the respondent had to answer was how much time they felt they had to answer the questions, on a scale from 0 to 100 (indication: 0: not enough time, 60: just enough time, 100: more than enough time). At the second question the respondents had to answer whether they experienced time pressure when answering the questions, on a scale from totally disagree (1) to totally agree (5). The manipulation has succeeded when the respondents in the experimental group felt they had significantly less time to answer the questions, and experienced significantly more time pressure than the respondents in the control group.

Dependent variable

The dependent variable in this research is a manager's 'risk preference'. Risk preference is defined in this research as a managers attitude towards risk when making strategic decisions (Eliashberg & Winkler, 1978). This attitude can either be risk-averse or risk-seeking, which are the two dimensions of the dependent variable. Therefore, the dependent variable is categorical (nominal) consisting of two dimensions that can be seen in table 1.

Risk preference will be measured in the experiment based on multiple researches, as for example Tversky & Kahneman (1979), Saqib & Chan (2015) and Levy (1992). In the experiment two options are presented to the respondent, namely a certain option and a lottery between a certain gain and zero. A person is risk-averse when they choose the certain option, and risk-seeking when they choose the lottery since here the risk is higher because the person does not know the outcome beforehand in contrast to the certain option. A simple example of such a question is given below:

A: You get €50 for sure

B: You have a 50% chance to get €100, and a 50% chance to get €0

As stated in the theory, this research will only be based on potential gains. In total there will be five questions like the example, that the respondents have to answer. This is based on the studies that can be seen in table 1 and on the test experiment. To measure the overall risk preference of the people in the experimental- and the control group and create one variable, the average of all the respondents will be calculated at first. Therefore A, the risk-averse option, will have the value 1 and B, the risk-seeking option, the value 2, which for example can result in an average of 1.2, indicating that the people in the group are very risk-averse. Second, following from the MEAN, a DUMMY-variable, named 'Risk Preference', will be created to indicate which respondents were risk-averse and which respondents were risk-seeking. Respondents with a mean above 1.50 are indicated as risk-seeking using a 1, and respondents with a mean below 1.50 are indicated as risk-averse using a 0. A mean of 1.50 is not possible when using five questions.

Dimension	Measurement	Authors
Risk-averse	Respondent chooses certain option	Tversky & Kahneman (1979); Miller & Chen (2004); Bromiley & Curley (1992); March & Shapira (1987); Eliashberg & Winkler (1978); Goodwin & Wright (2014); Levy (1992)
Risk-seeking	Respondent chooses the lottery	Tversky & Kahneman (1979); Miller & Chen (2004); Bromiley & Curley (1992); March & Shapira (1987); Eliashberg & Winkler (1978); Goodwin & Wright (2014); Levy (1992)

Table 1: Dimensions of a manager's risk preference

Mediator variable

Within this research the intuitive decision making style will act as the mediator variable where it tries to explain the relationship between time pressure and risk preference. The intuitive decision making style is defined in this study as a process of making affectively charged judgments that arise through rapid, nonconscious, and holistic associations (Dane & Pratt, 2007, p. 40). The mediator variable is a categoric variable (nominal). This variable will be measured by giving the respondents six statements in total about the questions in part two and how they answered these questions. The respondent can answer the statements on a Likert-scale from totally disagree (1) to totally agree (5). Literature does not provide an exact point when a person can be called intuitive. Mostly, the scale itself is used to point out how intuitive a person is. Therefore, this research will also use the scale to point out how intuitive the respondents in a certain group are. This means that, to create this variable, the average answer of the six questions on a scale from 1 to 5 is calculated, then, when the average of the six statements for example is; partly agree (4), the respondents are fairly intuitive. When the average is partly disagree (2), the respondents are not very intuitive.

The six statements are presented in the last part of the experiment, directly after the manipulation check. The statements are based on four studies, where a factor analysis is conducted to determine which statements can be assigned to an intuitive decision making style. Based on the amount of statements used in these studies, the definition and description of an intuitive decision making style, and a comparison between these studies, six statements were selected to measure an intuitive decision making style, that can be seen in table 2 below.

Variable	Measurement	Authors
Intuitive decision making style	A scale from totally disagree (1) to totally agree (5)	Scott & Bruce (1995); Pacini & Epstein (1999); Hamilton & Mohammed (2016); Girard, Reeve & Bonaccio (2016)
Statement	Measurement	Author(s)
I based my choice on intuition	A scale from totally disagree (1) to totally agree (5)	Scott & Bruce (1995); Pacini & Epstein (1999); Hamilton & Mohammed (2016); Girard, Reeve & Bonaccio (2016)
I made a certain choice because it felt right	A scale from totally disagree (1) to totally agree (5)	Scott & Bruce (1995); Girard, Reeve & Bonaccio (2016)
When making the choice I trusted my instincts and hunches	A scale from totally disagree (1) to totally agree (5)	Scott & Bruce (1995); Pacini & Epstein (1999); Girard, Reeve & Bonaccio (2016)

I chose the option that looked best to me	A scale from totally disagree (1) to totally agree (5)	Scott & Bruce (1995); Hamilton & Mohammed (2016); Girard, Reeve & Bonaccio (2016)
I based my choice on my first impression	A scale from totally disagree (1) to totally agree (5)	Pacini & Epstein (1999); Hamilton & Mohammed (2016)
I based my choice more on feeling than on analysis	A scale from totally disagree (1) to totally agree (5)	Scott & Bruce (1995); Hamilton & Mohammed (2016); Girard, Reeve & Bonaccio (2016)

Table 2: Measurement of the intuitive decision making style

Control variables

Within this research several control variables will be considered to keep the accuracy, validity and reliability as high as possible. Another reason to include these variables is because the respondents are not gathered totally random, meaning that biases can exist. To prevent these biases from affecting the outcome, control variables will be used during the analysis. The following five control variables will be used during the analysis: Industry, Gender, Age, Years of experience and Managerial level.

Industry: one of the most know studies that takes industry into account when making strategic decision is from Eisenhardt (1989). As is suggested in this study and others, the industry does affect decision making. Resulting from this, industry will be included as a control variable. There are 14 categories of different industries, based on a list from the Dutch central statistical office (CBS) regarding different types of industries (CBS, 2019), and can be seen in appendix 3.

Gender: various studies have taken gender into account when making strategic decisions and conclude that there can be a slight difference in outcomes depending on the circumstances, as for example Wingwon (2012). Therefore, following from multiple studies, this research will include gender as a control variable. It is measured by creating a dummy-variable for the two categories of 'male' and 'female' which respectively get a '0' and a '1' during the analysis, and therefore will be named 'Female'.

Age diversity: Age diversity is examined in other studies (Milliken & Martins, 1996) and could influence a manager's decision making process. Therefore, it is included as a control variable in this study. The age of the respondents is divided into five categories: < 30, 30 - 39, 40 - 49, 50 - 59, 60 >, which are respectively given a 1 to 5 score during the analysis.

Years of experience: Research, as for example Wright & Wright (1997), suggest that the experience a person has affects their decision making. Hence, according to other literature, studies on decision

making should include this as a control variable. Years of experience is measured by using seven categories: 0 - 5, 6 - 10, 11 – 15, 16 – 20, 21 – 25, 26 – 30, > 30, which are respectively given a 1 to 7 score during the analysis.

Managerial level: this control variable is based on feedback gathered from the test experiment, where two managers suggested that the hierarchical level of management a person has, can have an effect on the decision. This is also based on a study from Jones, Saunders & McLeod (1988), resulting in three levels of management that are included in this research: strategic management (top management), tactical management (middle management) and operational management (lower management). These are respectively given a 1 to 3 score during the analysis.

Test experiment

To make sure the experiment that was distributed to the respondents was of optimal quality, a test experiment was conducted beforehand. Therefore, the experiment with time limit was sent to five people with a managerial function and to eight fellow students. They were asked to give their critical opinion about the experiment and provide feedback. A summary of the most relevant feedback can be found in appendix 2. For example, the test respondents suggested that technical terms should be avoided as much as possible. Next to that, some questions and sentences should be stated slightly different to avoid ambiguity or misconception.

Furthermore, one specific question was asked to the respondents, namely what they thought about the set time limit. The test respondents stated that the time limit of 10 seconds was perfect, as it resulted in the feeling of time pressure but still gave them just enough time to answer. They said that this time limit did affect how they answered the questions.

The overall conclusion from the feedback from the test experiment was that the experiment was clear, structured, professional looking and pleasant to make. However, some small changes had to be made to make it a bit more simple and get rid of some unclear sentences and spelling mistakes. Most of the feedback was taken into consideration and the needed adjustments were made. Some feedback was not taken into consideration as it seemed very far-fetched, or was noted by only one test respondent. The feedback provided and the adjustments made resulted in the final experiment that was ready to be distributed.

The experiment

The experiment will be in the form of a digital survey, made by using specific software from Qualtrics. The total experiment can be found in appendix 3. The experiment will consist of three different parts, containing open and closed questions, which will be sent to the respondents by E-mail and WhatsApp, using an anonymized link to the experiment. In total there will be two different

experiments, one for the control group and one for the experimental group. The difference includes the independent variable time pressure, that will be present in the experiment of the experimental group, but won't be present in the experiment of the control group.

At the beginning of the experiment and before each part, a clear instruction will be given to the respondents regarding what the questions are about and how they should fill them in. Bourque & Fielder (2003) say that because no researcher or interviewer is present when the respondent fills in the experiment, a clear instruction beforehand is needed to make sure the respondent knows what he or she can expect and how the questions should be filled in. When looking at other studies in the decision making literature who conduct an experiment, like Saqib & Chan (2015), it is clear that they also give extensive instructions beforehand. The first instruction given will be a bit more extensive, also explaining some aspects regarding the research ethics. The purpose and topic of the research are given afterwards, because this could potentially affect the results when the respondents would know this beforehand. For example, the respondent could answer the questions differently knowing that an intuitive decision making style is measured.

Next, the experiment will start with two specific questions about whether the respondent gives approval to make their answers public, and if they want to receive the end result of the experiment and the total research. These questions are asked on an ethical basis. Furthermore, as the respondents are Dutch, the experiment that the respondents receive will also be in Dutch. The reason for this is that this will prevent translation mistakes or misunderstanding, and that it makes answering the questions easier. It will also contribute to the response rate, because an experiment in a foreign language can withheld people from participating (Bourque & Fielder, 2003).

Following from Fink (2003), where is stated that the experiment should start with easier questions and then moves on to more difficult questions, the first part of the experiment contains general questions about the respondents and their jobs. This is also based on other studies where is started with collecting general data about the respondents themselves. Furthermore, these questions are needed to measure and examine the control variables, which include general aspects like Age and Gender. The questions in the first part of the experiment are the same for every respondent.

Next, there will be two different forms of the second part of the experiment. Half of the respondents will answer the questions **with** a time limit (experimental group), and the other half will answer the questions **without** a time limit (control group). Part two of the experiment contains five questions, where the independent- and dependent variable are measured.

Lastly, the third part of the experiment starts with two questions regarding the manipulation check, to measure whether the respondents in the experimental group felt more time pressure than the

respondents in the control group. Then, there are six questions regarding the mediator variable, intuitive decision making style. The respondents have to base their answers on how they filled in part two of the experiment, trying to measure if the respondents used an intuitive decision making style while answering these questions.

After the third and last part of the experiment, the respondents are thanked for their time and effort invested, and told when they can expect the outcome of the experiment if they wanted to receive this. Furthermore, the purpose of the experiment is explained, including an explanation about the total research. Finally, the respondents are given an option to ask questions or make notes if they feel the need to. This is the end of the experiment where the respondents are thanked once again and told that their answers are saved.

Analysis

The gathered data will be analysed by using the statistical program SPSS. At first, the manipulation check will be executed to examine whether the respondents in the experimental group felt significantly more time pressure than the respondents in the control group. This is done by using an independent-samples T test for each of the two questions from the manipulation check. Beforehand, a dummy-variable will be created to indicate which part of the respondents endured a time limit and which part did not. Then, Levene's test is checked first, to examine whether equal variances can be assumed. Next, the means of both of the answers from the two groups are compared by looking at the significance, and thus checking whether one group felt significantly more time pressure than the other.

Next, the descriptive statistics and correlations (pearson correlation) of the three variables are analysed, which is executed by combining the answers from both groups. Next to that, a separate comparison for the experimental- and the control group will also be made, but will be placed in appendix 5. To make an analysis, the different questions from the each part of the experiment have to be brought together to create the three main variables. This is done by taking the average of the different questions. For example, the five questions from part two, regarding risk preference, are combined and an average is calculated. This is done by using the option 'compute variable' for the questions regarding the intuitive decision making style (part three) and risk preference (part two). However, the independent variable time pressure is measured in two ways, objective and subjective, as explained in one of the latter paragraphs. Therefore, a dummy-variable, DUMMYtp, is created for the objective way. For the subjective way the scores of question one are reversed and the scores of question two are transformed in a new scale, using the option 'recode into same variables'. After that the scores of both questions are combined and the mean is calculated, using the option

'compute variable', and will form the subjective measure of the independent variable, named 'Time Pressure'.

Next, hypothesis 1 and 2 are analysed by conducting a multiple regression analysis, to examine the linear effect between the independent variables and the dependent variable. This follows from the hypotheses that indicate that more of the IV, results in more of the dependent variable, which hypothetically results in a linear effect. Next to that, multiple regression is used because more than one independent variable has to be included in the analysis, as the control variables are also taken into account. When conducting the multiple regression analysis, the assumptions of linearity, normality and homoscedasticity are checked for first. Then the regression model is examined and explained by looking at R^2 , the coefficients and the significance of the model and the variables. Lastly, the results are validated by looking at multicollinearity.

In addition, the control variables are included in the different models to investigate whether the variation in the dependent variable is caused by the control variables. This is done before the independent variable is included in the model, because in this way the total effect of the control variables can be examined. Therefore, in model 1 (Table 5), an intuitive decision making style was regressed on the control variables. Second, model 2 includes the objective time pressure and the control variables. Next, model 3 includes the subjective time pressure and the control variables. Then, model 4 includes both forms of time pressure and the control variables. Furthermore, model 5 (Table 6) regresses the dependent variable risk preference on the control variables. Lastly, model 6 includes both forms of time pressure and the mediator variable intuitive decision making style. Furthermore, a reverse causality regression was executed for the mediator- and the dependent variable, to prevent the case of reverse causality occurring.

Hypothesis 3 is analysed by using three different measurement methods to ensure the robustness of the findings. At first, a traditional causal step method is used to examine the mediation effect, therefore using Baron and Kenny's (1986) stepwise approach. Following from this approach, a mediation effect is present if: (1) the independent variable significantly predicts the mediating variable, (2) the independent variable significantly predicts the dependent variable, and (3) the mediating variable significantly predicts the dependent variable while controlling for the effect of the independent variable (Di stefano, King & Verona, 2014). The second method that will be used is the Sobel test, as recommended by Baron & Kenny (1986), Sobel (1982) and Mackinnon, Warsi & Dwyer (1995). A mediation effect is found when the Sobel test is significant at $p < 0.1$. Lastly, a multiple regression analysis is conducted with bootstrapping as recommended by Preacher and Hayes (2004). Bootstrapping is a random sampling method with replacement, which does not demand the

assumption of a normally distributed sample. Within this research, 1000 samples are used with a 95% confidence interval. The main reason why bootstrapping is used is because the sample of 129 is rather small, bootstrapping increases this sample which helps to investigate the mediating effect. To examine this effect, at first the mediator variable was regressed on the independent variable and the control variables. Second, the dependent variable is regressed on the independent-, the mediator- and the control variables.

Research ethics

As researcher I will act as an objective and non-controlling entity. I will make sure that the respondents are not steered into a direction to protect the validity of the research. Therefore, I will not be present when the participants fill in the experiment to prevent distortions. The participants will be contacted by using face-to-face contact, E-mail and social media. When they are contacted I will stay available for questions and clarification at any moment. To protect the validity of the research, the goal and topic of the study will not be given to the respondents up front, but afterwards. I will present this experiment in the field of decision making by managers and as my master thesis, which will also be made public and has possible implications for theory and practice. Following from this, the respondents will be asked whether their answers can be made public. Before the respondents start with the experiment a clear explanation is given of which questions emerge in the survey and how they should be answered, using an example.

As the experiment is in the form of a digital survey, I will make sure the collected data is protected and not made public without approval. The data will be protected by keeping the respondents anonymous and giving each of them a number instead. The analysis of the data will solely happen on my own personal laptop, where only myself has access to. Furthermore, the participants are free to quit the experiment at any moment if they feel the need to. Even if they want to withdraw their results afterwards, this is possible. In this case, I will delete the data instantly to prevent mistakes. After the research I will provide each of the respondents with a digital copy of the end result and conclusions, and I will stay available for possible questions.

Results

Manipulation check

An independent-samples T test was used to examine both of the questions from the manipulation check (See appendix 4). The first question was; how much time did you feel you had to answer the questions (scale 0 to 100). The second question was; did you feel any time pressure when answering the questions, with a scale from totally disagree (1) to totally agree (5). For this T test, the dummy-variable from the objective form of Time Pressure was used, named 'Objective Time Pressure', to indicate which part of the respondents had a time limit and which part of the respondents did not by giving them the scores 0 (no time limit) and 1 (time limit).

For the first question, Levene's Test is conducted first with a null hypothesis indicating that the variances of the two groups are equal. Levene's test is significant ($p < 0.05$), meaning that the null hypothesis is rejected and the variances of the two groups are significantly different. Therefore, there is looked at the second row which states that equal variances are not assumed. Next, the T-Test resulted in a significant difference between the experimental and control group, indicating that the respondents in the experimental group, who endured a time limit, felt that they had less time to answer the questions than the control group. The mean of the experimental group is $M = 70.29$ and the mean of the control group is $M = 94.73$, with $t(126.158) = 5.083$, $p < 0.05$ (See appendix 3).

For the second question, Levene's Test is conducted first with a null hypothesis indicating that the variances of the two groups are equal. Levene's test is significant ($p < 0.05$), meaning that the null hypothesis is rejected and the variances of the two groups are significantly different. Therefore, there is looked at the second row which states that equal variances are not assumed. Next, the T-Test resulted also in a significant difference between the experimental- and the control group. This indicates that the respondents in the experimental group, with a time limit, felt more time pressure than the respondents in the control group, without a time limit. The mean of the experimental group is $M = 3.63$ and the mean of control group is $M = 1.22$, with $t(107.544) = 14.249$, $p < 0.05$ (See appendix 4).

To conclude, the time pressure manipulation was successful, indicating that the respondents in the experimental group felt significantly more time pressure and felt they had significantly less time to answers the questions compared to the respondents in the control group.

Descriptive statistics and correlations

The descriptive statistics and correlations of all of the data from the respondents combined, regarding the main variables and the control variables, are shown in Table 3. Appendix 5 shows the descriptive statistics and correlations of the control group and the experimental group separately.

The mean of the objective variable of time pressure is 0.48, indicating that about half of the respondents endured a time limit and the other half did not. The mean of the subjective variable of time pressure is 25.756, whilst the theoretical maximum is 100. This means that on average the respondents did feel a little time pressure. Yet, the range is from 0 to 98, which indicates that some respondents did not feel any time pressure at all, and some respondents felt very high time pressure while answering the questions. The mean of the intuitive decision making style is moderately high with 3.459, while the theoretical maximum was 5. This indicates that the people in this group were fairly intuitive when answering the questions. The range is from 1 to 5, indicating that some respondents were not intuitive and some respondents were very intuitive. Furthermore, the mean of the dummy-variable Risk Preference was rather low with 0.23, while the theoretical maximum was 1. This means that the respondents from this group were fairly risk-averse when answering the questions. Also the range is from 0 to 1, which indicates that some respondents were very risk-seeking with the questions and others were very risk-averse with the questions.

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>Min.</i>	<i>Max.</i>
Objective Time Pressure	129	0.481	0.502	0	1
Subjective Time Pressure	129	25.756	27.897	0	98
Intuitive Decision Making Style	129	3.459	0.981	1	5
Risk Preference	129	0.23	0.424	0	1
Female	129	1.12	0.331	0	1
Age	129	4.16	1.052	1	6
Management Level	129	2.07	0.937	1	4
Years of Experience	129	2.80	1.669	1	7
Industry	129	5.98	3.752	1	14

Table 3: Descriptive statistics of the included variables

Table 4 shows some significant correlations between the included variables. Objective Time Pressure correlates positively with Subjective Time pressure (0.760, $p < 0.05$), which is logical as these variables represent the same variable but are measured in different ways. However, no other correlations are found between the three main variables time pressure, intuitive decision making style and risk preference. Yet, objective time pressure correlates respectively positively and negatively with Female and Management Level ($p < 0.1$). However, it's hard to say anything about this as the time limit manipulation was assigned randomly to the respondents. Furthermore, the

intuitive decision making style correlates negatively with Female at -0.165 ($p < 0.1$), indicating that the male respondents were significantly more intuitive than the female respondents and vice versa. Risk preference correlates negatively with management level (-0.217 , $p < 0.05$), which means that people from a higher management level were more risk-seeking and vice versa. Furthermore, there were some correlations between the control variables, which can be seen in table 4.

	Objective Time Pressure	Subjective Time pressure	Intuitive Decision Making Style	Risk preference	Female	Age	Manageme nt Level	Years of Experienc e	Industr y
Objective Time Pressure	1								
Subjective Time pressure	0.760***	1							
Intuitive Decision making style	0.112	0.098	1						
Risk preference	0.058	0.031	-0.067	1					
Female	0.156*	0.116	-0.165*	-0.040	1				
Age	0.058	-0.003	0.021	0.125	-0.126	1			
Manageme nt Level	-0.155*	-0.087	0.121	-0.159*	0.073	-0.075	1		
Years of experience	-0.098	-0.077	-0.046	0.056	-0.181**	0.642***	-0.111	1	
Industry	0.066	0.050	-0.047	0.145	0.228***	0.171*	-0.073	-0.047	1

Table 4: Correlations between the included variables in the experimental group. Notes: * $p < 0.1$; ** $p < 0.05$;

***** $p < 0.01$**

Hypotheses

Hypothesis 1 predicts that the presence of time pressure when managers make a strategic decision leads to an intuitive decision making style. A multiple regression analysis is conducted to examine this hypothesis. Therefore looking at the assumptions, the assumption of normality is not met, indicating that the data is not normally distributed, as can be seen in appendix 6 looking at the histogram and the P-P plot. Next to that, the assumptions of linearity and homoscedasticity are met, meaning that there is no clear pattern in the data and a random distribution, as can be seen in appendix 6 looking at the scatterplot.

In Table 5, the results of regressing the intuitive decision making style on both forms of time pressure and all control variables are shown. The total output of the results can be seen in appendix 6, also including the part-, partial- and zero-order correlations, the collinearity statistics and the change statistics. Model 1 excludes the two forms of the independent variable; objective- and subjective time pressure, to test the effect of the control variables on intuitive decision making style. Model 2 includes the control variables and the objective form of time pressure. Model 3 includes the control variables and the subjective form of time pressure, and model 4 includes all the independent variables. Objective time pressure shows a positive effect, but only in model 2, with 0.306 ($p < 0.1$). This is remarkable, as it does not show a significant effect in model 4. Female shows a negative effect in all models, with for example a coefficient of -0.611 on intuitive decision making style ($p < 0.05$) in model 4, indicating that men (0) are more intuitive than women (1). Management level shows a positive effect in model 2 and 4, with a coefficient of 0.160 on intuitive decision making style in model 4 ($p < 0.1$).

Furthermore, the R^2 in Model 4 compared to Model 1 increases from 0.053 to 0.076, which is a very small increase of 0.023, indicating that the two forms of the added independent variable time pressure do not explain very much of the variation of the intuitive decision making style and are almost negligible. Next to that, the overall R^2 is rather low, indicating that the model does not explain much of the dependent variable, and moreover, none of the models is significant ($p > 0.1$). This also comes forward when looking at the two forms of the independent variable time pressure in model 4. Objective Time Pressure is not significant with 0.270 ($p > 0.1$). Next to that, subjective Time Pressure is not significant with 0.001 ($p > 0.1$). Yet, both of these variables are positive, indicating that more of the independent variable leads to more of the dependent variable. In other words, more time pressure leads to a stronger use of the intuitive decision making style. Despite objective time pressure being significant in model 2, hypothesis 1 is rejected, since both forms of time pressure do not significantly have an effect in model 4, and thus not lead to an intuitive decision making style. These results are validated, as the Tolerance values are between 0.393 and 0.941 (see appendix 6), meaning that the assumption of multicollinearity is met. Multicollinearity examines whether there is a strong relationship between the independent variables, which should not be the case, and therefore Tolerance should have a value of > 0.2 .

Variables	Intuitive Decision making style							
	Model 1		Model 2		Model 3		Model 4	
	<i>Coefficient</i>	<i>Sign. Level</i>	<i>Coefficient</i>	<i>Sign. Level</i>	<i>Coefficient</i>	<i>Sign. Level</i>	<i>Coefficient</i>	<i>Sign. Level</i>
Objective Time Pressure			0.306* (0.178)	0.088			0.270 (0.272)	0.323
Subjective Time Pressure					0.004 (0.003)	0.161	0.001 (0.005)	0.861
Female	- 0.537* (0.273)	0.051	- 0.612** (0.274)	0.027	- 0.578** (0.273)	0.036	- 0.611** (0.275)	0.028
Age	0.084 (0.111)	0.452	0.052 (0.112)	0.643	0.074 (0.111)	0.504	0.054 (0.113)	0.634
Management Level	0.132 (0.093)	0.159	0.161* (0.094)	0.088	0.145 (0.093)	0.121	0.160* (0.094)	0.092
Years of Experience	- 0.072 (0.069)	0.297	- 0.051 (0.070)	0.463	- 0.064 (0.069)	0.360	- 0.052 (0.070)	0.459
Industry	- 0.005 (0.025)	0.855	- 0.003 (0.024)	0.895	- 0.004 (0.024)	0.857	- 0.003 (0.025)	0.891
R ²	0.053		0.076		0.069		0.076	
ANOVA	F (1.390)	0.233	F (1.670)	0.134	F (1.498)	0.184	F (1.425)	0.201

Notes: Standard errors in parantheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 5: Multiple regression analysis results; objective- & subjective time pressure and control variables on intuitive decision making style

Hypothesis 2 predicts that an intuitive decision making style leads to a more risk-averse decision. To examine this hypothesis, a multiple regression analysis is conducted as well. Therefore looking at the assumptions, the assumption of normality is not met, indicating that the data is not normally distributed, which can be seen in appendix 7 looking at the histogram and the P-P plot. Next to that, the assumption of linearity is not met, indicating that there is a pattern and the data is biased. Furthermore, the assumption of homoscedasticity is met, indicating that the data is randomly distributed, as both can be seen in the scatter plot in appendix 7.

In Table 6, the results of regressing risk preference on both forms of time pressure, an intuitive decision making style and all control variables are presented. The total output of the results can be seen in appendix 7, also including the part-, partial- and zero-order correlations, the collinearity statistics and the change statistics. Model 5 excludes the mediator variable intuitive decision making style and both forms of time pressure to test the effect of the control variables on risk preference. Model 6 includes these variables. No variables appear to be significant. Furthermore, the R² in Model 6 is rather low with 0.059, indicating that the variables do not explain much of the variation of the dependent variable. Also there is a very small increase in R² from model 5 to model 6, which means that the control variables explain almost all of the variance. Hence, the added variables objective- & subjective time pressure and intuitive decision making style do not explain much of the variation of the dependent variable and therefore do not add anything to the model. This also comes forward when looking at the mediator variable intuitive decision making style, that has a coefficient of -0.028

($p > 0.1$). Following from this, hypothesis 2 is rejected, as an intuitive decision making style does not significantly have an effect on risk preference, and thus not leads to a more risk-averse decision. These results are validated, as the Tolerance values are between 0.390 and 0.924 (see appendix 7), meaning that the assumption of multicollinearity is met.

Variables	Risk preference			
	Model 5		Model 6	
	Coefficient	Sign. Level	Coefficient	Sign. Level
Intuitive Decision Making Style			- 0.028 (0.040)	0.481
Objective Time Pressure			0.039 (0.120)	0.744
Subjective Time Pressure			0.000 (0.002)	0.946
Female	- 0.065 (0.118)	0.580	- 0.089 (0.123)	0.472
Age	0.043 (0.048)	0.373	0.041 (0.049)	0.403
Management Level	- 0.064 (0.040)	0.113	- 0.057 (0.042)	0.174
Years of Experience	0.008 (0.030)	0.789	- 0.008 (0.031)	0.805
Industry	0.014* (0.011)	0.182	0.014 (0.011)	0.185
R ²	0.054		0.059	
ANOVA	F (1.414)	0.224	F (0.942)	0.485

Notes: Standard errors in parantheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 6: Multiple regression analysis results; intuitive decision making style, objective- & subjective time pressure and control variables on risk preference

Hypothesis 3 predicts that an intuitive decision making style mediates the relationship between time pressure and risk preference. To examine this hypothesis and ensure the robustness of the findings, three different measurement methods are used. At first, the traditional way to measure a mediation effect is examined by using a causal step method, therefore using Baron and Kenny's (1986) stepwise approach. The results can be seen in table 7. The effect of X on M is not significant, as neither objective time pressure (0.270, $p > 0.1$), nor subjective time Pressure (0.001, $p > 0.1$) have a significant effect on the mediator variable. Next, the effect of X on Y is also not significant as both objective time pressure (0.032, $p > 0.1$) and subjective time Pressure (0.000, $p > 0.1$) do not have a significant effect on the dependent variable. Lastly, the effect of M on Y is also not significant as the intuitive decision making style does not have a significant effect on the dependent variable with - 0.028 ($p > 0.1$). Following from this, an intuitive decision making style does not mediate the relationship between time pressure and risk preference according to Baron and Kenny's stepwise approach, and therefore hypothesis 3 should be rejected.

The second method that is used to examine hypothesis 3, is the Sobel test, which can be seen in Table 7. Two Sobel tests were conducted, one with the objective independent variable and one with the subjective independent variable. Following from this, objective time pressure is insignificant with $z = -0.572$ ($p > 0.1$) and subjective time Pressure is also not significant with $z = -0.192$ ($p > 0.1$). These findings are in line with the results found by Baron and Kenny's stepwise approach. Therefore, an intuitive decision making style does not mediate the relationship between time pressure and risk preference, and hypothesis 3 should be rejected.

The third and last method used to examine hypothesis 3 is bootstrapping, as recommended by Preacher & Hayes (2004). Therefore, the intuitive decision making style and risk preference were regressed on the two forms of time pressure and the control variables sequentially, using multiple regression analysis with bootstrapping. The results can be seen in Table 8. Female shows a negative effect on intuitive decision making style with -0.611 ($p < 0.05$), indicating that men (0) are more intuitive than women (1). Furthermore, the R^2 of the total model with all variables included is rather small with 0.059, indicating that these variables do not explain much of the variation of the dependent variable. Next to that, both forms of time pressure do not show a significant effect on intuitive decision making style, and neither the forms of time pressure nor intuitive decision making style show a significant effect on risk preference. Following from this, an intuitive decision making style does not significantly mediate the relationship between time pressure and risk preference. These findings are in line with Baron and Kenny's stepwise approach and the Sobel test. As a result, hypothesis 3 is rejected.

Baron and Kenny's stepwise approach						
	Effect of X on M		Effect of X on Y		Effect of M on Y	
	Coef.	Sign. Level	Coef.	Sign. Level	Coef.	Sign. Level
Objective Time Pressure	0.270	0.323	0.032	0.792		
Subjective Time Pressure	0.001	0.861	0.000	0.937		
Intuitive Decision Making Style					-0.028	0.481
Sobel test						
	z	Std. Error	p			
Objective Time Pressure	-0.572	0.013	0.567			
Subjective Time pressure	-0.192	0.000	0.848			

Notes: Independent variable (X): Objective- & subjective time pressure; Mediator variable (M): Intuitive decision making style; Dependent variable (Y): Risk Preference

Table 7: Measurement hypothesis 3, the mediating effect of an intuitive decision making style: results of Baron and Kenny's stepwise approach and the Sobel test

Variables	Intuitive Decision Making Style		Risk Preference	
	<i>Coefficient</i>	<i>Sign. Level</i>	<i>Coefficient</i>	<i>Sign. Level</i>
Intuitive Decision Making style			- 0.028 (0.041)	0.483
Objective Time Pressure	0.270 (0.260)	0.286	0.039 (0.117)	0.721
Subjective Time Pressure	0.001 (0.005)	0.853	0.000 (0.002)	0.947
Female	- 0.611** (0.312)	0.046	- 0.089 (0.119)	0.460
Age	0.054 (0.118)	0.635	0.041 (0.050)	0.414
Management Level	0.160 (0.095)	0.100	- 0.057 (0.039)	0.142
Years of Experience	- 0.052 (0.072)	0.451	- 0.008 (0.032)	0.820
Industry	- 0.003 (0.024)	0.893	0.014 (0.012)	0.239
R ²	0.076		0.059	
ANOVA	F (1.425)	0.201	F (0.942)	0.485

Notes: Standard errors in parantheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 8: Multiple regression analysis results using bootstrapping; Intuitive Decision Making style on Objective- & Subjective Time Pressure and control variables; Risk preference on Objective- & Subjective Time Pressure, intuitive Decision Making Style and control variables

Robustness Check

To ensure the robustness of the findings multiple tests were conducted. First, three different tests were executed to examine hypothesis three and check whether there was a mediating effect. Therefore, Baron and Kenny's (1986) stepwise approach, the Sobel test (Sobel, 1982) and bootstrapping (Preacher & Hayes, 2004) were used. These three tests all resulted in the same outcome of rejecting hypothesis three as no mediation effect was found. Second, two different forms of time pressure were included to measure this variable in two different ways. This followed from the fact that people can objectively endure a time limit or not, and subjectively feel a certain time pressure because of this time limit. Therefore, it was plausible to examine whether these two different forms of measuring time pressure resulted in different outcomes. Both forms of time pressure resulted in the same outcome. However, when subjective time pressure was left out of the regression, objective time pressure appeared to be significantly affecting intuitive decision making style, which is an interesting finding and will be discussed in the following chapter. Lastly, a reverse causality regression was executed of risk preference on intuitive decision making style, which can be seen in Table 9. This regression analysis showed no reversed causal relationship between the two

variables with -0.147 ($p > 0.1$). Therefore, risk preference does not influence an intuitive decision making style. To my knowledge, the management- and decision making literature did never suggest this relationship, thus the probability of this reverse causal relationship occurring is considered minimal.

Intuitive Decision Making Style		
<i>Variables</i>	<i>Coefficient</i>	<i>Sign. Level</i>
Risk Preference	- 0.147 (0.208)	0.481
Objective Time Pressure	0.275 (0.273)	0.316
Subjective Time Pressure	0.001 (0.005)	0.865
Female	- 0.621 * (0.276)	0.026
Age	0.060 (0.113)	0.599
Management Level	0.151 (0.095)	0.116
Years of Experience	- 0.053 (0.070)	0.452
Industry	- 0.001 (0.025)	0.960
R ²	0.080	
ANOVA	F (1.304)	0.248

Notes: Standard errors in Parantheses. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 9: Reverse causality regression; Intuitive decision making style on Risk preference, Objective- & Subjective Time Pressure and all control variables

Discussion

In the fast-changing and developing world of today managers are under increasing pressure to make strategic decisions fast. As a result, people feel a certain time pressure when they have to make their decisions. This time pressure can affect the decision making process and make people act in different ways than without time pressure. Therefore, this research tried to examine what the effects of time pressure are and how it affects the decision making process. This study specifies on a manager's risk preference when making strategic decisions. The relationship between time pressure and risk preference appeared to be an under-researched topic within the management- and decision making literature. Next to that, researchers found contrary results regarding this relationship, where one stream suggests that people become risk-averse under time pressure, and the other stream suggests that people become risk-seeking. Therefore, this research examined what the actual effects are, using a mediator variable, named intuitive decision making style, to help explain the relationship. This study examined these relationships by conducting an experiment.

Below, figure 2 provides an overview of the relationships that were found in all of the models from this study, including only the significant control variables. None of the suggested relationships in this study were found to be significant, therefore all of the set hypotheses were rejected.

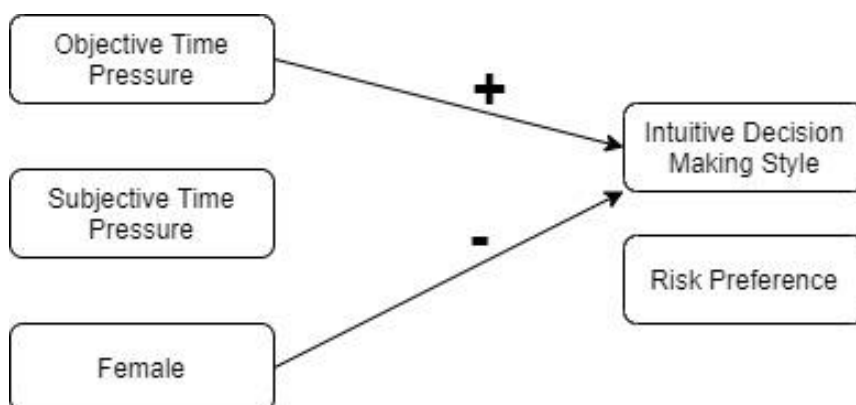


Figure 2: Overview of the regression results

This research found no evidence for the effect of time pressure on an intuitive decision making style. The assumption included that time pressure would result in more intuitive decision making, caused by a lack of time to think thoroughly, search for information and the pressure to reach an outcome. Apparently, this aspect is not one of the factors that determines that an intuitive decision making style is used. An explanation for this might be, that people in general make use of an intuitive decision making style by looking at their own knowledge and experience, regardless of the presence or absence of time pressure. This follows from Scott & Bruce (1995), who suggest that people often adopt more than one decision making style when making decisions. Therefore, it is plausible that the respondents without time pressure used more than one decision making style, including the intuitive

style. As a result, it is unlikely to find a significant relationship between time pressure and an intuitive decision making style, as most respondents with- and without time pressure appeared to be rather intuitive.

However, this study did find a positive effect between objective time pressure and an intuitive decision making style in model 2 of the regression results, indicating that people who endure a time limit are more intuitive. Model 2 excluded the subjective time pressure, which made objective time pressure become significant, which is remarkable. Yet, this does not imply that time pressure leads to more intuitive decision making, as the subjective time pressure was not taken into account. Model 4, where both forms of time pressure were included, did not result in any significant effects. Therefore, a reason for the significant effect in model 2 can also be that the people from this group are more intuitive from themselves in general, and due to a relatively small sample size this resulted in a significant effect.

These results contribute to the literature by placing a critical note on findings from former researches, e.g. De Dreu (2003) and Kruglanski & Freund (1983), where was claimed that time pressure leads to the use of an intuitive decision making style. This study did not find a significant relationship between time pressure and an intuitive decision making style, meaning that it can't be claimed that time pressure leads to this decision making style. Therefore, this relationship should be investigated and examined further by using different methods. Next to that, the respondents who were not under time pressure also made use of an intuitive decision making style when making the decisions, which can be seen when looking at the average of the respondents in the control group. This gives some implications for the theory that should be investigated further to see what causes actually do result in the use of an intuitive decision making style.

Then, an intuitive decision making style did not have a significant effect on a manager's risk preference. The assumption presented in this study was that an intuitive decision making style would result in more risk-averse decision making. The respondents appeared to be fairly risk-averse with an average of 0.23 (0 = totally risk-averse, 1 = totally risk-seeking). Next to that, the respondents were fairly intuitive overall with an average of 3.46 (1 = not intuitive, 5 = very intuitive). However, the relationship between intuitive decision making style and risk preference did not appear to be significant. The intuitive decision making style simply does not explain why a person has a certain risk preference. Yet, other decision making styles, or multiple styles together, possibly can explain a person's risk preference, which can be examined in further research.

Two theoretical implications can be deducted from these findings. First, as the relationship intuitive decision making style – risk preference was an under-researched topic, this research contributes by

examining the possible effects of a specific decision making style. It provides insights in the relationship and excludes a causal effect. This contributes to theories from e.g. Scott & Bruce (1995), Pacini & Epstein (1999), Hamilton & Mohammed (2016) and Girard, Reeve & Bonaccio (2016), who claim that different decision making styles lead to different decision making behavior and processes. Therefore, this study adds to this theories by examining a relationship between a decision making style and another factor. Second, this study creates new ideas to explain a person's risk preference in specific situations and can stand as an example to investigate more and similar relationships. For example, using different decision making styles to explain why a person has a certain risk preference in a specific situation. This study adds to theories about risk preferences from for example Tversky & Kahneman (1979), Miller & Chen (2004) and Levy (1992), who make suggestions about what risk preference a person has in a specific decision situation, by trying to explain the process that leads to this risk preference.

Next, since the time pressure – intuitive decision making style relationship, and the intuitive DMS – risk preference relationship were both insignificant, the mediation relationship was logically also insignificant. As the intuitive DMS has no significant effect on risk preference, it can therefore not perform a mediating role in the time pressure – risk preference relationship. Although no significant mediating effect was found, it still contributes to the literature in two ways. First, the mediating role of an intuitive decision making style in the relationship time pressure – risk preference has never been investigated before. By combining three common aspects within the management- and decision making literature, this study creates new perspectives within the theory to look at strategic decision making processes. Future researchers can built on this study and it perspectives, by adding or removing aspects to examine potential relationships. Especially because time pressure is an increasingly occurring phenomenon within decision making situations, therefore examining the effects of this aspect becomes increasingly relevant as well. Second, this study used a relatively easy and understandable experiment to measure the three aspects. This contributes to the literature by standing as an example for other researches how these aspects can be measured and be made understandable and even fun for the respondents.

When looking at the control variables, only one appeared to be significantly affecting one of the main variables. Gender (Female) appeared to be negatively affecting the intuitive DMS, which means that the men were more intuitive than the women. A study from Miller & Burke (2005) suggested that men often try to invoke their intuition when making decisions, and that women try to negate that they are using their intuition. Following from this, it explains why gender (female) negatively affects the intuitive DMS, as was found that the male respondents were significantly more intuitive than the female respondents. However, as this study contains data from only 16 women (12.4% of the total

sample), it can be questioned how generalizable this outcome is and if this significant relationship was only found by pure coincidence. Yet, it still contributes to the literature by giving an insight in how gender can possibly affect a decision making process, and that because of the gender a different decision making process can be used.

Managerial- and practical implications

This research offers some implications for practice that can be beneficial to for example managers, as their acts were the subject of this study. This research focused on the causal effects of time pressure and how these effects could be explained. Following from this, it creates a certain awareness about the effects that time pressure can have on the decision making process, which in practice can easily be forgotten or overlooked. Therefore, this study makes managers more aware about their decision making process and potential factors that could affect how they make their decision and what option they choose, especially because strategic decisions nowadays have to be made with an increasing amount of time pressure (Young et al., 2012). Therefore this research about the effects time pressure has on decision making processes can help explain why a certain decision is made. Even as this research found no significant relationships, it gives ideas and insights about the context of the process, and where can be looked at when decisions are made under time pressure. Also after a decision is made and it turns out that it was not the optimal choice, people can look back on the decision making process and possibly find out that certain factors like time pressure affected them which led them for example choose more risk-averse than was needed. Therefore, a manager can use this knowledge in a decision making situation to reduce biases caused by contextual factors, and as a result be more objective when making the decision.

Following from the above, a manager can grow and become a better decision maker as he is more aware of the context during a decision and what factors could potentially affect him. As a result, he can try to control these effects and therefore be able to make the decision more objectively. For example, a decision maker can grow and increase its capabilities by not simply choosing for the safe risk-averse option under time pressure, to prevent himself from making mistakes, but should deliberate as extensive as possible within the available time on the decision, and not letting contextual factors steer him into a direction. Therefore this research aimed to give insights and ideas about this context which a manager can take into account and try to control within a decision making situation.

Limitations and opportunities for future research

This research aimed to be objective, transparent and clear, however, several limitations can be stated as well. First, the sample size and the nonrandom sampling method to gather the

respondents. Due to the fact that the data was not gathered totally random it is hard to generalize the results. Next to that, no significant effects are found between the main variables and all hypotheses were rejected, which could be caused by the relatively small sample size or because of the nonrandom sampling. Future research should aim to use a random sampling method and gather more respondents to make the research more reliable and create a greater chance to find significant results.

Second, the definition that was used in this research to define Time Pressure, is self-made and not withdrawn from specific articles, which makes it less substantiated. However, the definition is based on a combination of definitions from multiple articles, including different aspects of these definitions.

Third, this research only takes into account decision problems that are presented in 'gains'. Literature suggests that a person's risk preference can differ significantly when a decision problem is presented in 'losses'. Therefore, this research was not able to make a comparison between these two different representations, which could have led to different results. Future research could include the aspect of 'losses' to examine what the effects are of time pressure on risk preference, mediated by an intuitive decision making style. In this way, it can be examined whether people react differently under time pressure on 'losses' and what the effects are, and a comparison can be made with the aspect of 'gains'.

Fourth, to measure the mediator variable intuitive decision making style, relatively easy questions were used. Next to that, only questions regarding this decision making style were asked in the form of a statement, which could possibly steer the respondents into a direction. As a result, the respondents could only reflect on how they answered the questions in one way, contrary to when more statements also regarding to other decision making styles would have been included. Then, a reflection on how one answered the questions would have been more clear as more different options were available, especially because Scott & Bruce (1995) claim that people often use multiple decision making styles. As a result, a main decision making style could be appointed to generate better results. Future research could focus on including more decision making styles next to the intuitive style. Every person reacts differently to time pressure and that it leads to the use of an intuitive decision making style is not a proven fact, therefore other decision making styles could also be in play. For example Eisenhardt (1989) claims that people under time pressure are searching more information and deliberate more on the decision than when there is no time pressure. Therefore, more decision making styles could be taken into account in future research to create a wider- and more detailed view.

Lastly, managers from all management levels participated in the experiment. This study is about strategic decision making, which normally only applies to people from higher (top/strategic) management levels and sometimes middle (tactical) management levels. Therefore, this makes this study slightly less generalizable as also people from lower management levels participated in the experiment, and they most likely have no experience with making strategic business decisions. Future research could focus on gathering respondents from mostly higher- and top management levels, however, this is a tough job as it is hard to reach many people in these positions and get a high response rate and therefore a large sample size.

Next to the above, two other recommendations for future research can be drawn from this study. First, the inclusion of different time limits that could lead to feelings of high- and low time pressure, to measure whether different degrees of time pressure would significantly lead to the use of an intuitive decision making style. Research suggests that as time pressure increases people tend to rely more on intuition (e.g. De Dreu, 2003). Therefore it would be interesting to investigate when people start to use an intuitive decision making style or if the amount of time pressure does not have an effect at all. Second, investigating the relationship between Gender and an intuitive decision making style, as this research found that men were significantly more intuitive than women. As there was a low number of women participating in the experiment, this finding is still intriguing and can be a reason to conduct further research.

Conclusion

The following research question was used in this study: *“What is the effect of time pressure on a manager’s risk preference when making strategic decisions and does an intuitive decision making style mediate this relationship?”*. An experiment was conducted to generate an answer to this research question and examine three relationships. The relationship between time pressure and intuitive decision making style, the relationship between intuitive decision making style and risk preference, and the relationship between time pressure and risk preference by using a mediator variable. The experiment did not lead to the expected results, as these relationships were not significant and all hypotheses were rejected. Therefore, it can be concluded that an intuitive decision making style does not mediate the relationship between time pressure and a manager’s risk preference. Yet, this study contributes to the literature by creating new ideas, insights and perspectives on the increasingly occurring phenomenon time pressure, and how it can be examined. Therefore, future research should focus on implementing more decision making styles to create a better and more detailed view and possibly find significant results. Furthermore, men appeared to be significantly more intuitive than women, which could be an interesting relationship to investigate in the future.

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Appendices

Appendix 1: Message to a potential respondent

Dear Sir/Madam,

I am currently writing my Master thesis at the Radboud University in Nijmegen. For this, I'm conducting an experiment in the form of a digital survey. The topic is strategic decision making. The experiment must be filled in by a person with a managerial-/supervisory function. The experiment takes about 6 to 8 minutes, is totally anonymous, and does not require any knowledge beforehand. Do you want to help me out and fill in this survey? Kind regards, Danny Driessen

Appendix 2: Feedback test experiment

- Gender: next to man and woman an option "other" should be available nowadays.
- The sentence structure at the question regarding amount of years on the job seems odd. It is looks more spoken language, therefore is suggested to change it to (Dutch sentence):
Hoeveel jaar bekleedt u uw huidige functie; translates to: how many years do you fulfill your current job?
- Instructions part two: there is talked about winning money. It is a bit confusing to read. There can be imagined that respondents think that they can get a reward for that. Next to that, this instruction is a bit technical. A suggestion is not to write that you can win an amount of money, but that you are asked which choice you would make within a time limit if such a choice had to be made.
- Some test respondents let the clock run out of time to see what would happen, the answer: nothing. If a respondents manages to find this out he could just take as long as he wants to answer the questions, which could cause problems.
- Question 3: instincts is a bit unclear. It looks ambiguous.
- Question 4 looks like question 3
- The approach is from the feeling of the respondents. It should be better to also look at the rational side. What can the respondent tell about how they answered the questions looking at the rational aspect.
- The box to fill in the last question, regarding additional questions or notes is a bit small.
- The last page only contains a thank you. A clear manage should be better like the following:
"your data has been received in good order, you can now close this page.
- Some spelling mistakes that were appointed in the experiment.

Appendix 3: The experiment

Dear respondent,

Thank you in advance for taking the time and effort to participate in this study. To obtain the necessary data for this research, an experiment is being conducted in the form of this digital survey. The concrete topic together with the research question will only be announced at the end of this experiment. The reason for this is that this knowledge could influence the experiment.

This survey is conducted completely anonymously, where you as respondent are referred to as 'respondent 1.2.3.'. The study can also be published online. On the next page you can indicate whether or not your answers are allowed to be published online. Publishing will also be anonymous. You can also indicate on this page whether you want to receive the final results of the experiment and the outcome of the entire study. If yes, then you must enter your email address.

The experiment will consist of three parts and will take about 8 to 10 minutes. Part 1 consists of a number of general questions. Part 2 consists of five questions in which an amount of money can be won. Per question there will be a maximum number of seconds to answer the question, pay attention to that! More explanation will follow before part 2. Part 3 will consist of a number of statements based on part 2, which will discuss how you answered these questions.

The experiment should be made individually, so make sure you are in a calm environment without distractions. The questions require little to no prior knowledge. In addition, the experiment should be completed by persons with a managerial / managerial position. Furthermore, there will be no possibility to review all questions at the end. At the end of the investigation there will be an opportunity to post comments and / or reactions.

NOTE: there are no wrong answers possible. So enter what you think or what you think is best.

You can start now.

Can your answers be published (anonymously) online?

☐ My answers can be published online

☐ My answers can NOT be published online

Do you want to receive the outcome of the experiment and the total research?

☐ Yes, fill in your email address below

☐ No

Part 1 of the experiment: general questions

What is your gender?

☐ Man

☐ Woman

What is your age?

☐ Younger than 20

☐ 20-29 years

☐ 30-39 years

☐ 40-49 years

☐ 50-59 years

☐ 60 years and older

What position do you hold at your current employer?

To which management level does your current position belong?

☐ Strategic management (top management)

☐ Tactical management (middle management)

☐ Operational management (lower management)

☐ Other, namely

How many years have you held a managerial position?

☐ 0-5 years

☐ 6-10 years

☐ 11-15 years

☐ 16-20 years

☐ 21-25 years

☐ 26-30 years

☐ Longer than 30 years

To which industry / sector does your organization belong?

Part 2 of the experiment

Dear respondent,

The upcoming five questions are based on a potential amount of money that can be won. You will be asked to choose between two answer options, A & B. Option A is a certain option, where you always win that amount of money. Option B is a lottery, where you have different chances to win a certain amount of money. The stake to win these amounts, such as the cost of a ticket, is insignificant and therefore negligible. An example of the following questions can be seen below:

Which option do you choose?

A You win X amount

B You have a 50% chance of Y and a 50% chance of Z.

NOTE: the upcoming questions must be made within a time limit of 10 seconds per question. Make sure you have filled in an answer before then, before clicking further.

Which option do you choose?

☐ A. You win 100 Euro

☐ B. You have a 50% chance to win 200 Euro and a 50% chance to win 0 Euro

Timing

De tijdregistratie voor deze pagina wordt niet aan de ontvanger getoond

Eerste klik	0 seconds
Laatste klik	0 seconds
Pagina verzenden	0 seconds
Aantal klikken	0 clicks

00

Which option do you choose?

☐ A. You win 300 Euro

☐ B. You have a 80% chance to win 4.000 Euro and a 20% chance to win 0 euro

Timing

De tijdregistratie voor deze pagina wordt niet aan de ontvanger getoond.

Eerste klik	0 seconds
Laatste klik	0 seconds
Pagina verzenden	0 seconds
Aantal klikken	0 clicks

10

Which option do you choose?

☐ A. You win 1.000 Euro

☐ B. You have a 20% chance to win 5.000 Euro, 25% chance to win 500 Euro and 55% chance to win 0 euro

Timing

De tijdregistratie voor deze pagina wordt niet aan de ontvanger getoond.

Eerste klik	0 seconds
Laatste klik	0 seconds
Pagina verzenden	0 seconds
Aantal klikken	0 clicks

10

Which option do you choose?

☐ A. You win 1.000 Euro

☐ B. You have a 1% chance to win 10.000 Euro, 49% chance to win 2.000 Euro and 50% chance to win 0 Euro

Timing

De tijdregistratie voor deze pagina wordt niet aan de ontvanger getoond.

Eerste klik	0 seconds
Laatste klik	0 seconds
Pagina verzenden	0 seconds
Aantal klikken	0 clicks

09

Which option do you choose?

☐ A. You win 1.000 Euro

☐ B. You have a 60% chance to win 1.500 Euro and 40% chance to win 0 Euro

Timing

De tijdregistratie voor deze pagina wordt niet aan de ontvanger getoond.

Eerste klik	0 seconds
Laatste klik	0 seconds
Pagina verzenden	0 seconds
Aantal klikken	0 clicks

10

Part 3 of the experiment

Dear respondent,

The upcoming questions are based on how you answered the past five questions. So keep this in mind when filling in the upcoming questions. There is no time limit for these questions. The questions consist of statements, where you can fill in your answers on a 5-point scale from 'totally agree' to 'totally disagree'. This is the last part of the study.

How much time did you have to fill in the questions of part 2?

0 10 20 30 40 50 60 70 80 90 100

0 = not enough time, 60 = just enough time, 100 = more than enough time

When filling in the questions I experienced time pressure

☐ Totally agree

☐ Partly agree

☐ Not agree, not disagree

☐ Partly disagree

☐ Totally disagree

I based my choice on intuition

☐ Totally agree

☐ Partly agree

☐ Not agree, not disagree

☐ Partly disagree

☐ Totally disagree

I made a certain choice purely because it felt right

☐ Totally agree

☐ Partly agree

☐ Not agree, not disagree

☐ Partly disagree

☐ Totally disagree

My choice was based on my instincts and hunches

☐ Totally agree

☐ Partly agree

☐ Not agree, not disagree

☐ Partly disagree

☐ Totally disagree

I chose the option that looked best to me

☐ Totally agree

☐ Partly agree

☐ Not agree, not disagree

☐ Partly disagree

☐ Totally disagree

I based my choice on my first impression

☐ Totally agree

☐ Partly agree

☐ Not agree, not disagree

☐ Partly disagree

☐ Totally disagree

I based my choice more on feelings than on analysis

☐ Totally agree

☐ Partly agree

☐ Not agree, not disagree

☐ Partly disagree

☐ Totally disagree

Dear respondent,

The experiment has ended. Thank you for participating in this experiment and the research! Answers and data will be handled with care.

The aim of this experiment was to investigate the influence of time pressure on the risk preference of a manager / supervisor when making strategic decisions. Half of the respondents were given a time limit when answering the questions in Part 2 of the experiment, and the other half were not. In the case of risk preference, a distinction is made between risk-averse (Option A) and risk-seeking (Option B) behavior.

In addition, it is investigated whether the effect between time pressure and risk preference can be explained by the decision style that is used when making the decision. This research takes one decision making style into account, namely the intuitive style. The conceptual model I use for this is as follows (in English):

Time pressure -> Intuitive decision making style -> Risk preference

The research question is (in English):

"What is the effect of time pressure on a managers risk preference when making strategic decisions and does an intuitive decision making style mediate this relationship?"

Thanks again for the time and effort taken. If you have any questions or comments, you can post them on the next page. Please write down your e-mail address in case of a question, so that I can respond to it. With regard to the persons who would like to receive the results of the research and experiment, I will send it to you as soon as I have finished my thesis. This will be between June 15 and 20.

Do you have any questions or comments? If so, please include your email address under the question or comment if you expect a response

Different types of industries (CBS, 2019)

1. Agriculture
2. Industry
3. Construction
4. Wholesale and retail
5. Transport and storage
6. Information and communication
7. Financial institutions
8. Trade real estate
9. Rental of movable property and other business services
10. Public administration and government
11. Education
12. Healthcare
13. Culture, Sports and Recreation
14. Other services

Appendix 4: Independent samples T-test results; manipulation check

Independent Samples Test									
		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
TP1	Equal variances assumed	5,083	,026	-7,238	127	,000	-24,44102	3,37684	-31,12318 -17,75886
	Equal variances not assumed			-7,237	126,158	,000	-24,44102	3,37731	-31,12453 -17,75751

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
TP2	Equal variances assumed	14,249	,000	14,274	127	,000	2,405	,168	2,072	2,739
	Equal variances not assumed			14,079	107,544	,000	2,405	,171	2,067	2,744

Appendix 5: Descriptive statistics and correlations control- and experimental group

Control group

The descriptive statistics of the three variables and the control variables from the control group are shown in Table 10. The mean of objective time pressure is 0, as the respondents in this group did not have a time limit. The mean of the subjective time pressure is very low with 5.43, while the theoretical maximum is 100.00. This means that the respondents in this group did not feel any time pressure on average. Yet, the range is from 0.00 to 98.00 which means that there was at least one respondent that did feel time pressure. However, this is more likely to be caused by someone who did not understand the question or someone who made a typing error. The mean of the intuitive decision making style is moderately high with 3.35, while the theoretical maximum was 5.00. This indicates that the people in this group were fairly intuitive when answering the questions. The range is from 1.00 to 5.00, indicating that some respondents were not intuitive and some respondents were very intuitive. Furthermore, the mean of the dummy-variable of Risk Preference was rather low with 0.21, while the theoretical maximum was 2.00. This means that the respondents from this group were fairly risk-averse when answering the questions. Also the range is from 0 to 1, which indicates that some respondents were very risk-seeking with the questions and others were very risk-averse with the questions.

		Objective Time Pressure	Subjective Time Pressure	Intuitive DMS	Risk Preference	Female	Age	Management Level	Years of Experience	Industry
N	Valid	67	67	67	67	67	67	67	67	67
	Missing	0	0	0	0	0	0	0	0	0
Mean		,0000	5,4328	3,3542	,21	,07	4,10	2,21	2,96	5,75
Std. Deviation		,00000	16,51191	1,04532	,410	,265	1,195	1,008	1,787	3,569
Minimum		,00	,00	1,00	0	0	1	1	1	1
Maximum		,00	98,00	5,00	1	1	6	4	7	14

Table 10: Descriptive statistics of the included variables in the control group

Table 11 shows some significant correlations between the included variables. However, these correlations are only between the control variables. Next to that, objective time pressure gives no data as this variable was constant, where no respondent endured a time limit. Age correlates positively with years of experience (0.690, $p < 0.01$), indicating that a higher age leads to more years of experience. Next to that, Female correlates positively with industry (0.245, $p < 0.05$), and also age

correlates positively with industry (0.273, $p < 0.05$). However, as industry is a nominal variable, this makes it hard to explain this correlation.

		Correlations								
		Objective Time Pressure	Subjective Time Pressure	Intuitive DMS	Risk Preference	Female	Age	Management Level	Years of Experience	Industry
Objective Time Pressure	Pearson Correlation	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a
	Sig. (2-tailed)									
	N	67	67	67	67	67	67	67	67	67
Subjective Time Pressure	Pearson Correlation	. ^a	1	,148	-,075	-,094	,076	,123	,183	-,098
	Sig. (2-tailed)			,233	,545	,449	,543	,322	,137	,429
	N	67	67	67	67	67	67	67	67	67
Intuitive DMS	Pearson Correlation	. ^a	,148	1	,079	-,143	-,076	,111	-,140	-,071
	Sig. (2-tailed)		,233		,524	,250	,542	,370	,259	,570
	N	67	67	67	67	67	67	67	67	67
Risk Preference	Pearson Correlation	. ^a	-,075	,079	1	-,146	,140	-,217	,034	,016
	Sig. (2-tailed)		,545	,524		,239	,257	,077	,787	,897
	N	67	67	67	67	67	67	67	67	67
Female	Pearson Correlation	. ^a	-,094	-,143	-,146	1	-,025	,111	-,089	,245 [*]
	Sig. (2-tailed)		,449	,250	,239		,841	,371	,474	,046
	N	67	67	67	67	67	67	67	67	67
Age	Pearson Correlation	. ^a	,076	-,076	,140	-,025	1	-,044	,690 ^{**}	,273 [*]
	Sig. (2-tailed)		,543	,542	,257	,841		,726	,000	,026
	N	67	67	67	67	67	67	67	67	67
Management Level	Pearson Correlation	. ^a	,123	,111	-,217	,111	-,044	1	-,163	-,044
	Sig. (2-tailed)		,322	,370	,077	,371	,726		,188	,724
	N	67	67	67	67	67	67	67	67	67
Years of Experience	Pearson Correlation	. ^a	,183	-,140	,034	-,089	,690 ^{**}	-,163	1	-,014
	Sig. (2-tailed)		,137	,259	,787	,474	,000	,188		,912
	N	67	67	67	67	67	67	67	67	67
Industry	Pearson Correlation	. ^a	-,098	-,071	,016	,245 [*]	,273 [*]	-,044	-,014	1
	Sig. (2-tailed)		,429	,570	,897	,046	,026	,724	,912	
	N	67	67	67	67	67	67	67	67	67

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

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

a. Cannot be computed because at least one of the variables is constant.

Table 11: Correlations between the included variables in the control group

Experimental group

The descriptive statistics of the three variables and the control variables from the experimental group are shown in Table 12. The mean of Objective Time Pressure is 1, as every respondent in this group endured a time limit. The mean of Subjective Time pressure is 47.72, while the theoretical maximum is 100.00. This indicates that the respondents in this group felt a moderate time pressure on average. The range is from 0 to 90.50, which means that some people felt very high time pressure and at least one person felt no time pressure at all. The latter can be seen as remarkable when considering the average. It is possible that this is a result of a typing error or someone who did not understand the question, but can also be the result of someone who is used to working with a time limit. The intuitive decision making style has a mean of 3.57, while the theoretical maximum is 5.00. This means that the respondents in this group were fairly intuitive when answering the questions. The range is from 1.00 to 5.00, indicating that some respondents were very intuitive and some respondents were not intuitive when answering the questions. The range of the dummy-variable of risk preference is from 0 to 1, indicating that some respondents were very risk-averse and some

respondents were fairly risk-seeking. The mean is 0.25 which indicates that the respondents were rather risk-averse, while the theoretical maximum was 2.00.

		Objective Time Pressure	Subjective Time Pressure	Intuitive DMS	Risk Preference	Female	Age	Management Level	Years of Experience	Industry
N	Valid	62	62	62	59	62	62	62	62	62
	Missing	0	0	0	3	0	0	0	0	0
Mean		1,0000	47,7177	3,5726	,25	,18	4,23	1,92	2,63	6,24
Std. Deviation		,00000	19,85493	,90063	,439	,385	,876	,836	1,528	3,953
Minimum		1,00	,00	1,00	0	0	2	1	1	1
Maximum		1,00	90,50	5,00	1	1	6	4	7	14

Table 12: Descriptive statistics of the included variables in the experimental group

Table 13 shows some significant correlations between the included variables. Next to that, objective time pressure gives no data as this variable was constant, where every respondent endured a time limit. Subjective time pressure correlates negatively with Risk Preference (-0.267, $p < 0.05$), indicating that a higher feeling of time pressure leads to more risk-averse decisions. Also Subjective Time pressure correlates positively with the control variable age (0.258, $p < 0.05$), indicating that people with a lower age feel more time pressure. Next, risk preference correlates positively with management level (0.289, $p < 0.05$), indicating that people with higher management levels are more risk-seeking and vice versa. Furthermore, some correlations are found between the control variables, which can be seen in the table below.

		Correlations								
		Objective Time Pressure	Subjective Time Pressure	Intuitive DMS	Risk Preference	Female	Age	Management Level	Years of Experience	Industry
Objective Time Pressure	Pearson Correlation	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a	. ^a
	Sig. (2-tailed)									
	N	62	62	62	59	62	62	62	62	62
Subjective Time Pressure	Pearson Correlation	. ^a	1	-.113	-.267*	,053	-.258*	-.031	-.201	,079
	Sig. (2-tailed)			,380	,041	,684	,043	,811	,117	,541
	N	62	62	62	59	62	62	62	62	62
Intuitive DMS	Pearson Correlation	. ^a	-.113	1	,189	-.235	,169	,186	,117	-.037
	Sig. (2-tailed)		,380		,151	,066	,188	,148	,365	,774
	N	62	62	62	59	62	62	62	62	62
Risk Preference	Pearson Correlation	. ^a	-.267*	,189	1	,020	,008	,289*	-.049	,058
	Sig. (2-tailed)		,041	,151		,879	,950	,026	,715	,662
	N	59	59	59	59	59	59	59	59	59
Female	Pearson Correlation	. ^a	,053	-.235	,020	1	-.266*	,096	-.248	,104
	Sig. (2-tailed)		,684	,066	,879		,036	,457	,052	,208
	N	62	62	62	59	62	62	62	62	62
Age	Pearson Correlation	. ^a	-.258*	,169	,008	-.266*	1	-.109	,590**	,036
	Sig. (2-tailed)		,043	,188	,950	,036		,399	,000	,781
	N	62	62	62	59	62	62	62	62	62
Management Level	Pearson Correlation	. ^a	-.031	,186	,289*	,096	-.109	1	-.075	-.088
	Sig. (2-tailed)		,811	,148	,026	,457	,399		,562	,495
	N	62	62	62	59	62	62	62	62	62
Years of Experience	Pearson Correlation	. ^a	-.201	,117	-.049	-.248	,590**	-.075	1	-.072
	Sig. (2-tailed)		,117	,365	,715	,052	,000	,562		,580
	N	62	62	62	59	62	62	62	62	62
Industry	Pearson Correlation	. ^a	,079	-.037	,058	,208	,036	-.088	-.072	1
	Sig. (2-tailed)		,541	,774	,662	,104	,781	,495	,580	
	N	62	62	62	59	62	62	62	62	62

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

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

a. Cannot be computed because at least one of the variables is constant.

Table 13: Correlations between the included variables in the experimental group

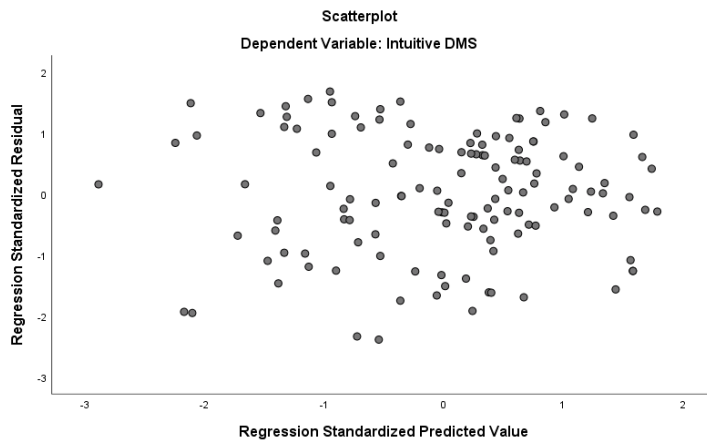
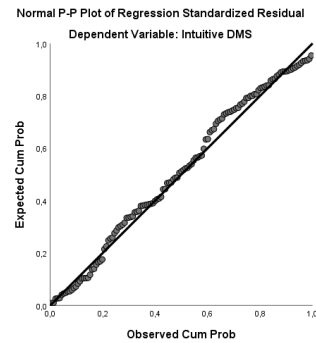
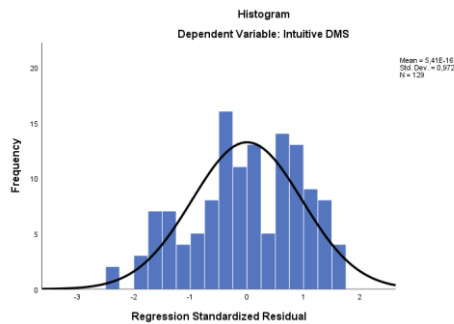
Appendix 6: First hypothesis; Multiple regression analysis results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	,276 ^a	,076	,023	,96960	,076	1,425	7	121	,201

a. Predictors: (Constant), Industry, Years of experience, Subjective Time Pressure, Management level, Female, Age, Objective Time Pressure

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error				Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2,994	,436		6,867	,000					
	Objective Time Pressure	,270	,272	,138	,992	,323	,112	,090	,087	,393	2,542
	Subjective Time Pressure	,001	,005	,024	,176	,861	,098	,016	,015	,417	2,398
	Female	-,611	,275	-,206	-2,219	,028	-,165	-,198	-,194	,885	1,130
	Age	,054	,113	,058	,478	,634	,021	,043	,042	,524	1,907
	Management level	,160	,094	,153	1,699	,092	,121	,153	,148	,941	1,063
	Years of experience	-,052	,070	-,089	-,743	,459	-,046	-,067	-,065	,535	1,869
	Industry	-,003	,025	-,013	-,137	,891	-,047	-,012	-,012	,868	1,152

a. Dependent Variable: Intuitive DMS



Appendix 7: Second hypothesis; Multiple regression analysis results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	,243 ^a	,059	-,004	,425	,059	,942	8	120	,485

a. Predictors: (Constant), Industry, Years of experience, Intuitive DMS, Subjective Time Pressure, Management level, Female, Age, Objective Time Pressure

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	,207	,225		,920	,359					
	Intuitive DMS	-,028	,040	-,065	-,708	,481	-,067	-,064	-,063	,924	1,082
	Objective Time Pressure	,039	,120	,046	,327	,744	,058	,030	,029	,390	2,563
	Subjective Time Pressure	,000	,002	-,009	-,067	,946	,031	-,006	-,006	,417	2,399
	Female	-,089	,123	-,069	-,721	,472	-,040	-,066	-,064	,851	1,176
	Age	,041	,049	,103	,839	,403	,125	,076	,074	,523	1,911
	Management level	-,057	,042	-,126	-1,366	,174	-,159	-,124	-,121	,919	1,088
	Years of experience	-,008	,031	-,030	-,247	,805	,056	-,023	-,022	,533	1,878
	Industry	,014	,011	,127	1,332	,185	,145	,121	,118	,868	1,152

a. Dependent Variable: Risk preference

