IE UNIVERSIDAD

Tesis Doctoral / Doctoral Dissertation

Una investigación empírica acerca de la racionalidad e intuición en los procesos de toma de decisiones estratégicas en Colombia

An Empirical Investigation of Rationality and Intuition in Strategic Decision-Making Processes in Colombia

CARLOS TELLEZ

SEGOVIA, 2023

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This doctoral thesis presents an empirical investigation of four contextual factors identified in the available body of knowledge as predictors of rationality and intuition in strategic decision-making processes: External environmental characteristics, Strategic decision-specific characteristics, Internal firm characteristics, and Decision-maker specific characteristics. Data from 51 strategic decisions, from an equal number of privately-owned companies in Colombia, South America, served for this analysis.

Results presented in this document support findings from previous research regarding the significance of Environmental Uncertainty, a variable from the dimension of external environmental characteristics, and Decision Uncertainty, a variable from the dimension of strategic decision-specific characteristics, as predictors of the use of Experiential Intuition in decision-making processes. This study also found evidence supporting that Firm Size, a variable in the dimension of internal firm characteristics, is a significant predictor of Procedural Rationality in these processes.

An empirical examination of the mediation effect of Decision Uncertainty in the relationship between Environmental Uncertainty and strategic decision-making processes, Procedural Rationality and Experiential Intuition, is presented. This exploration yields support to theoretical formulations around this complex relationship, and regarding the association of Environmental Uncertainty as an antecedent of Decision Uncertainty. Finally, this study contributes to the understanding of the role of the thinking style of a decision-maker as a predictor of intuitive behaviors observed in the process of making strategic decisions.

The final part of this document summarizes the main findings and contributions to theory, as well as several limitations of this investigation and paths for future research. In attention to the nature of this study, the characteristics of participants in this exploration, and the motivations of the author to pursue this endeavor, the document presents a detailed body of practical implications for managers and practitioners.

Una investigación empírica acerca de la racionalidad e intuición en los procesos de toma de decisiones estratégicas en Colombia

Esta tesis doctoral presenta una investigación empírica de cuatro factores contextuales identificados en el corpus de conocimiento actual como predictores de racionalidad e intuición en procesos de toma de decisiones estratégicas: las características ambientales externas, las características estratégicas propias de la decisión, las características internas de la compañía y las características específicas del decisor. A efectos de este análisis, se han utilizado datos de 51 decisiones estratégicas de idéntico número de compañías privadas de Colombia, en Sudamérica.

Los resultados que se presentan en este documento refuerzan las conclusiones de las investigaciones previas en lo que respecta a la Incertidumbre Ambiental, una variable que pertenece a la dimensión de las características externas del entorno, y la Incertidumbre de la Decisión, que corresponde a la dimensión de las características propias de la decisión estratégica, como predictores del uso de la Intuición Experiencial en los procesos de toma de decisiones. Este estudio también encontró pruebas de que el Tamaño de la Compañía, una variable que pertenece a la dimensión de las características internas de la compañía, es un predictor significativo del uso de la Racionalidad Procedimental en estos procesos.

Se presenta un examen empírico del efecto de mediación de la Incertidumbre de la Decisión en la relación entre Incertidumbre Ambiental y los procesos de toma de decisiones estratégicas, Racionalidad Procedimental e Intuición Experiencial. Esta indagación apoya las formulaciones teóricas en torno a esta relación compleja, además de considerar la asociación de la Incertidumbre Ambiental como un antecedente de la Incertidumbre de la Decisión. Por último, el presente estudio contribuye a la comprensión del papel del estilo de pensamiento de un decisor como predictor de las conductas intuitivas observadas en el proceso de la toma de decisiones estratégicas.

La última parte de este documento presenta un resumen de los principales hallazgos, así como contribuciones a la teoría existente. También incluye varias

limitaciones de este estudio y vías para futuras investigaciones. En atención a la naturaleza de este estudio, a los participantes en la investigación y a las motivaciones del autor para acometer este proyecto, este documento presenta un conjunto detallado de implicaciones prácticas derivadas de los hallazgos para directivos y gerentes.

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1. Introduction

Strategic decisions refer to the choices related to the strategy of an organization, which make explicit the competitive behavior of the firm (Ferrier et al., 1999). Strategic decision-making has been considered by scholars a relevant field in management due to its implications for the survival of organizations and to the fact that making decisions is a core responsibility of managers in top positions (Mintzberg et al., 1976; Hosskison et al., 1999). Ronald Howard defined a decision as an irrevocable allocation of resources in the sense that it would take additional resources, perhaps prohibitive in amount, to change the allocation (Howard, 1968).

Several definitions of what a strategic decision is about are found in literature. Eisenhardt and Zbaracki (1992), following Mintzberg, Raisinghani and Theoret (1976), define a strategic decision as vital in terms of the actions taken, the resources committed, or the precedents set. Decisions such as restructuring, diversifying, entering new markets or expanding geographically, developing new products, mergers and acquisitions or divestment of companies or business units, shape the course of the firm as they critically affect organizational health and survival.

In a similar line of thinking, Dean and Sharfman (1993), citing Schwenk (1988), describe strategic decisions as those that tend to be ill-structured, non-routine, nonprogrammable, complex, and are seldom reversible once made. Elbanna (2006) goes further to note that strategic decisions are characterized by being the responsibility of top managers since they are associated with trade-offs and risk (carry a high level of uncertainty), therefore are essential to the livelihood and survival of the organization and have long-time horizons with significant levels of unpredictability.

Research on strategic decision-making has often been divided into two categories: Content and process research (Elbanna, 2006). Content research involves strategic content of decisions such as diversification, mergers and acquisitions, or the alignment of firm strategies with environmental

characteristics. Process research, conversely, has to do with the process through which a strategic decision is made, and the factors that affect that process and its outcomes. Scholars consider both research types complementary (Elbanna & Child, 2007a).

The relevance of studying processes in the field of strategic decision-making is related to the fact that managers´ ability to make such decisions is an essential contribution to the firm´s success (Elbanna & Child, 2007b). It is also justified by the findings of some pieces of empirical research, which have shown that decisions´ quality and effectiveness, as well as their economic outcomes, are related to process characteristics (Eisenhardt, 1989; Rajagopalan et al., 1993; Dean & Sharfman, 1996; Elbanna et al., 2018).

In line with this argument, and given the opportunity to contribute to the field with pertinent knowledge, this study explored two characteristics consistently present in Strategic Decision-Making Processes (SDMP), Procedural Rationality (PR) and Experiential Intuition (EI), and the contextual factors that have been identified as predictors of these qualities such as External environmental characteristics, Strategic decision-specific characteristics, Internal firm characteristics, and Decision-maker specific characteristics.

Therefore, the main research question of this study is the following: What context factors are relevant predictors of rationality and intuition in Strategic Decision-Making Processes? In this investigation, a second question of importance is: How is environmental uncertainty incorporated into the decision-making process?

The fundamental motivation for this research is to contribute to a better understanding of the antecedents of rationality and intuition in SDMP as a proper way to improve the capacity of practitioners to take better care of decision-making processes by consciously considering findings from empirical investigations. Results from this study also contribute to enriching available knowledge in the fields of decision sciences and business strategy, particularly about the role and use of intuition, a construct around which there is still relevant ground to advance.

This empirical research analyzes data gathered from executives in top management positions, responsible for leading strategy in 51 privately-owned companies in Colombia, South America. A questionnaire was developed to explore several variables of interest, as it is described in detail inside the body of this document. Different types of regression analyses were run to test a variety of hypotheses around the nature of the direct relationship between individual contextual factors with both Procedural Rationality (PR) and Experiential Intuition (EI) in SDMP, and with regards to the mediation effect of Decision Uncertainty (DU) in the relationship between Environmental Uncertainty (EU) and characteristics observable in SDMP.

The results of this investigation confirm empirical findings and theoretical formulations from available literature in relation to the role of Environmental Uncertainty (EU) and Decision Uncertainty (DU) as predictors of Experiential Intuition (EI) in SDMP. Also, the significance of Firm size, measured as the logarithm of the total number of full-time employees in the company, as an antecedent of Procedural Rationality (PR) in making a strategic decision. A novel and interesting contribution of this research has to do with the empirical confirmation of the mediating role of Decision Uncertainty (DU) in the relationship between Environmental Uncertainty (EU) and both Procedural Rationality (PR) and Experiential Intuition (EI) in SDMP.

In the following sections this document presents a theoretical framework to contextualize this investigation, followed by a set of hypotheses with their respective justification from existing literature. Thereafter, a detailed description of methods and instruments used to measure variables of interest is presented, previous to the results section in which hypotheses are tested and findings described. Later, the discussion section explores the implications of results presented for literature in decision sciences and business strategy, as well as the limitations of this study, implications for managers, and paths for future research.

This document closes with a conclusion, highlighting the study´s relevant findings and contributions, allowing it to meet its motivations and provide answers to the main research question.

In the two final sections of the document, a rich list of literature references that constitute the theoretical framework of this investigation is presented, followed by additional information provided in the Appendix regarding the questions used in the survey, as well as tables and graphs related to some of the statistical analyses.

Introducción

Las decisiones estratégicas hacen referencia a las elecciones relacionadas con la estrategia de una organización que explicitan la conducta competitiva de una compañía (Ferrier et al., 1999). El mundo académico ha considerado que la toma de decisiones estratégicas es un campo relevante en la gestión debido a sus implicaciones para la supervivencia de las organizaciones y el hecho de que tomar decisiones es una responsabilidad esencial de las personas en puestos de alta dirección (Mintzberg et al., 1976; Hosskison et al., 1999). Ronald Howard definió una decisión como una asignación irrevocable de recursos, entendida en el sentido de que alterar esa asignación requeriría recursos adicionales, quizá incluso prohibitivos en su cuantía (Howard, 1968).

Existen varias definiciones en la literatura académica de lo que es una decisión estratégica. Eisenhardt y Zbaracki (1992), en la línea de Mintzberg, Raisinghani y Theoret (1976), definen una decisión estratégica como aquella importante en términos de las acciones acometidas, los recursos dedicados y los precedentes establecidos. Decisiones como la reestructuración, la diversificación, la entrada en nuevos mercados o la expansión geográfica, el desarrollo de nuevos productos, las fusiones y adquisiciones o la desinversión de compañías o unidades de negocio, configuran el rumbo de la compañía al afectar a la salud y la supervivencia organizativas.

Siguiendo una lógica similar, Dean y Sharfman (1993), citando a Schwenk (1988), describen las decisiones estratégicas como aquellas que tienden a estar poco estructuradas, no son rutinarias o programables, y resultan complejas y difícilmente reversibles una vez adoptadas. Elbanna (2006) llega más lejos y señala que las decisiones estratégicas se caracterizan por ser responsabilidad de la alta gerencia debido a que comportan un coste de oportunidad y un riesgo (implican un elevado nivel de incertidumbre), por lo que son esenciales para la continuidad y la supervivencia de la organización y tienen un horizonte a largo plazo con un elevado grado de imprevisibilidad

La investigación en lo referente a la toma de decisiones estratégicas suele dividirse en dos categorías: investigación del contenido y del proceso (Elbanna, 2006). La investigación del contenido se ocupa de cuestiones de contenido estratégico de las decisiones como la diversificación, las fusiones y adquisiciones, o la alineación de las estrategias de las empresas con las características del entorno. La investigación de procesos, por su parte, tiene que ver con el proceso a través del cual se toma una decisión estratégica y los factores que afectan a ese proceso y a sus resultados. Los expertos consideran que ambos tipos de investigación son complementarios (Elbanna & Child, 2007a).

La relevancia del estudio de los procesos en el ámbito de la toma de decisiones estratégicas está relacionada con el hecho de que la capacidad de los directivos para tomar dichas decisiones constituye una contribución esencial al éxito de la empresa (Elbanna & Child, 2007b). También se justifica por los resultados de algunas investigaciones empíricas, que demuestran que la calidad y la eficacia de las decisiones, así como sus resultados económicos, están relacionados con las características de los procesos (Eisenhardt, 1989; Rajagopalan et al., 1993; Dean & Sharfman, 1996; Elbanna et al., 2018).

En consonancia con este argumento, y dada la oportunidad de contribuir al campo con conocimientos pertinentes, este estudio explora dos características presentes de forma habitual en los Procesos de Toma de Decisiones Estratégicas (PTDE), la Racionalidad Procedimental (RP) y la Intuición Experiencial (IE), y los factores contextuales que se han identificado como predictores de estas cualidades, como las Características externas del entorno, las Características propias de la decisión estratégica, las Características internas de la compañía y las Características propias del decisor.

Por tanto, la principal pregunta de investigación de este estudio es la siguiente: ¿qué factores del contexto son predictores relevantes de la racionalidad y la intuición en los Procesos de Toma de Decisiones Estratégicas? En esta investigación también hay una segunda pregunta significativa: ¿cómo se incorpora la incertidumbre ambiental en el proceso de toma de decisiones?

La motivación fundamental de esta investigación es contribuir a una mejor comprensión de los antecedentes de la racionalidad y la intuición en PTDE como una forma pertinente de fortalecer la capacidad de los profesionales para gestionar mejor los procesos de toma de decisiones mediante la consideración consciente de los hallazgos de las investigaciones empíricas. Los resultados de este estudio también contribuyen a enriquecer el conocimiento disponible en los campos de las ciencias de la decisión y la estrategia empresarial, en particular sobre el papel y el uso de la intuición, un concepto en torno al cual aún queda terreno relevante por explorar.

Esta investigación empírica está diseñada para analizar datos recogidos de ejecutivos en posiciones de alta dirección, responsables de liderar la estrategia en 51 empresas privadas de Colombia, en Sudamérica. Se desarrolló un cuestionario para explorar diversas variables de interés, tal como se describe en detalle en el marco de este documento, y se aplicaron diferentes tipos de análisis de regresión para poner a prueba una serie de hipótesis en torno a la naturaleza de la relación directa entre factores contextuales individuales tanto con la Racionalidad Procedimental (RP) como con la Intuición Experiencial (IE) en PTDE, y con respecto al efecto de mediación de la Incertidumbre de la Decisión (ID) en la relación entre la Incertidumbre Ambiental (IA) y las características observables en PTDE.

Los resultados de esta investigación confirman los hallazgos empíricos y las formulaciones teóricas de la literatura académica en relación con el papel de la Incertidumbre Ambiental (IA) y la Incertidumbre de la Decisión (ID) como predictores de la Intuición Experiencial (IE) en PTDE. Además, en lo que concierne al tamaño de la Compañía, medido como el logaritmo del número total de empleados a jornada completa, como un antecedente de la Racionalidad Procedimental (RP) en el proceso de tomar una decisión estratégica. Una contribución novedosa e interesante de la presente investigación tiene que ver con la confirmación empírica del papel mediador de la Incertidumbre de la Decisión (ID) en la relación entre la Incertidumbre Ambiental (IA) y la Racionalidad Procedimental (RP) y la Intuición Experiencial (IE) en PTDE.

En los siguientes apartados, este documento presenta un marco teórico que sirve como contexto de esta investigación, seguido por una serie de hipótesis con su respectiva justificación en la literatura académica existente. Posteriormente, se ofrece una descripción detallada de los métodos y los instrumentos empleados para medir variables de interés antes de pasar al apartado de resultados, en el que se ponen a prueba las hipótesis y se describen los hallazgos. Acto seguido, el apartado de análisis explora las implicaciones de los resultados presentados para la literatura académica en las ciencias de decisión y en la estrategia empresarial, así como las limitaciones de este estudio, las vías de investigación futuras y las implicaciones para practicantes de la gerencia.

Este documento se cierra con una conclusión, en la que se destacan los hallazgos y contribuciones relevantes del estudio, que le han permitido cumplir con sus motivaciones y dar respuesta a la pregunta principal de investigación.

En las dos secciones finales del documento, se presenta una rica lista de referencias bibliográficas que constituyen el marco teórico de esta investigación, seguida de información adicional proporcionada en el Apéndice sobre las preguntas utilizadas en la encuesta, así como tablas y gráficos relacionados con algunos de los análisis estadísticos.

2. Literature review and theory development

Strategic Decision-Making Processes (SDMP)

The field of study related to strategic decision-making processes (SDMP) is oriented to how strategic decisions are made in organizations (Rajagopalan et al., 1993). Studies of SDMP have mainly focused on four aspects: (1) Process characteristics, (2) Factors influencing those characteristics of the process (antecedent or context factors such as decision-maker specific characteristics, strategic decision specific characteristics, internal firm characteristics, and external environmental characteristics), (3) Process outcomes, measured by decision quality, speed, timeliness, commitment, and organizational learning; and (4) Economic outcomes related to processes measured mainly by financial metrics of growth, profitability, and stock price (Rajagopalan et al., 1993; Papadakis et al., 1998; Elbanna, 2006).

This study is focused on the first two dimensions, process characteristics and contextual factors, to explore them in a sample from a particular context, not only to contrast new findings with existing evidence, but also to investigate relationships suggested by experts as opportunities for future research (Elbanna et al., 2020).

A theoretical framework for this study includes a review of SMDP characteristics, and of the relevant contextual factors that determine those characteristics, enriched with ideas to support the formulated hypotheses.

SDMP Characteristics

Elbanna (2006) indicates that two basic perspectives dominate the literature on SDMP research: Synoptic and incremental. According to the author, the synoptic formalism model is an extension of the traditional rational model, in which analysis is its basic feature, supported by the believe that the 'Economic Man' acts rationally, possess complete knowledge, and is entirely moved by self-

interest to maximize personal utility. The incremental model is viewed as the antithesis to synoptic formalism as it considers political elements in the process, as well as the use of intuition, a construct that has been defined in many ways in management, but which refers to affectively charged judgments that arise through rapid, non-conscious, and holistic associations (Dane & Pratt, 2007).

In summary, there are three basic dimensions to characterize SDMP according to Elbanna and Child (2007b): Rationality (procedural rationality), intuition (intuitive synthesis), and political behavior. Procedural rationality refers, in this case, to the extent to which the decision-making process reflects the desire to make the best decision possible under the circumstances, which is visible in the will of decision-makers to collect and analyze information relevant to the decision (Dean & Sharfman, 1993). On the other hand, intuitive synthesis refers to reliance on judgment, experience, and the use of “gut feeling” (Khatri & Ng, 2000). Finally, political behavior has to do with how the interaction of interests, conflict, and power takes place as one of the characteristics of SDMP (Elbanna & Child, 2007a).

For this study, we adopted the dimensions for characterizing SDMP proposed by Elbanna (2006) and Elbanna and Child (2007b) to explore rationality as a representative of the synoptic perspective, and intuition as a representative of the incremental-political perspective. Four reasons justify the choice of these two process characteristics as the dependent variables for this study: First, to follow the recommendation of Elbanna and Child (2007b) regarding the importance of integrating the synoptic and incremental perspectives comprehensively when doing empirical research; second, given the conflicting views about the relationship between rationality and intuition, which for some authors are in clear opposition while for others they are either independent or even complementary; third, to follow the recommendation by Elbanna et al. (2013), who suggest always having rationality at least as a control variable when exploring intuition, and finally, given the interest of this study on exploring the relationship between those two SDMP characteristics and the thinking style of the decision-makers.

Rationality as a characteristic of SDMP

Rational analysis or analytical processing encompasses thinking and decision-making that is described as objective, sequential, convergent, logical, and detailed, according to Sadler-Smith (2004). The degree of rationality involved in decision-making processes has received significant attention in theory and practice (Eisenhardt & Zbaracki, 1992; Dean & Sharfman, 1996; Elbanna & Child, 2007b). In fact, the early development of strategic management literature advanced the rational model of strategic choice (Hitt & Tyler, 1991).

Several approaches to defining rationality are found in literature (Dean & Sharfman, 1993). In economics, rationality equates to utility maximization derived from the Hobbesian notion of consistent, value-maximizing calculation in human behavior. The most traditional models of rational strategic choice assume that human behavior has some purpose and that actors enter decision situations with known objectives, gather appropriate information and select the optimal alternative (Eisenhardt & Zbaracki, 1992).

Empirical research has shown the limitations of the rational model regarding the decision-maker´s processing and cognitive capabilities, political realities, and lack of resources in the organization to search for and analyze relevant information (Elbanna, 2006). A variety of limitations of the rational model were pointed out by scholars of the behavioral theory of the firm and the Carnegie School, and then became common in literature the references to the concept called “bounded rationality” (Cyert & March, 1963; Simon, 1987; Dean & Sharfman, 1993; Eisenhardt & Zbaracki, 1992; Elbanna & Child, 2007b; Thaler, 2015).

An alternative view to the basic model considers that rationality is multidimensional so that strategic decision-makers are rational in some ways but not in others, as mentioned by Eisenhardt and Zbaracki (1992), and that they aim for objectives that are good enough rather than the best (Eisenhardt, 1997).

More relativistic conceptions of rationality are therefore expected in organizational theory. Fredrickson (1984) used comprehensiveness as a measure of rationality to define how organizations attempt to be exhaustive and inclusive in making and integrating strategic decisions into their whole strategy (Fredrickson, 1984). Dean and Sharfman (1993) consider that rationality may be said to characterize behavior that is logical in pursuing goals and used a construct called procedural rationality to measure it in their empirical research, which refers to the extent to which the decision process involves the collection of information relevant to the decision, and the reliance upon analysis of this information in making a choice.

In terms of antecedents or determinants of rationality in SDMP, there is a body of empirical research that shows how process rationality is affected by a wide range of contextual factors related to the external environment, internal firm characteristics, decision-specific characteristics (Rajagopalan et al., 1993; Elbanna & Child, 2007b) and decision-maker characteristics (Fredrickson, 1985; Fredrickson & Iaquinto, 1989; Hitt & Tyler, 1991; Papadakis et al., 1998; Sadler-Smith, 2004). Scholars do not consider some findings in this regard to be conclusive.

In this study, following Dean and Sharfman (1993, 1996) and Elbanna and Child (2007b), the construct adopted to explore the degree of rationality characterizing the SDMP is *Procedural Rationality (PR)* that, as mentioned above, refers to the extent to which the decision-making process reflects the desire to make the best decision possible under the circumstances, and is visible in the will of decision-makers to collect and analyze information relevant to the decision (Dean & Sharfman, 1996). This intended rationality during the process, as described by Dean and Sharfman (1993), is characterized by an attempt to collect the information necessary to form expectations about various alternatives and use this information in the final decision.

Intuition as a characteristic of SDMP

Management theorists have recently paid more attention to using intuition in strategic decision-making (Elbanna et al., 2018). Mintzberg (1994) argued that there had been an overemphasis on analysis and rationality in management and noted the potential of intuition in decision-making in fast-moving and uncertain environments. As a result of the limits of the rational model, and derived of a growing body of empirical research, making decisions by intuition is increasingly viewed as a viable approach in the field of SDMP (Simon, 1987; Burke & Miller, 1999; Sadler-Smith & Shefy, 2004; Miller & Ireland, 2005; Kahneman & Klein, 2009; Thaler, 2015), and studying intuition is seen as a way to create a more realistic view of such processes (Eisenhardt & Zbaracki, 1992; Salas et al., 2010; Elbanna & Fadol, 2016; Elbanna et al., 2020).

There is an interesting level of agreement that intuition does not denote something contrary to reason or opposite to rationality, nor a random process of guessing (Sinclair, 2011). Instead, intuition is seen as a way to process information that complements the rational processing system and about which there is still insufficient information and much exploration to be done (Epstein et al., 1996; Khatri & Ng, 2000; Hodgkinson et al., 2008; Epstein, 2010; Elbanna et al., 2020). Woiceshyn (2009) supports the idea that, in high-responsibility positions, it is common to see how decision-makers use intuition to supplement or even replace rational analysis. Locke (2015) suggests that doing so is safe and necessary, for example, under time pressure or lack of information.

Several definitions of intuition are available in existing literature. Dane and Pratt (2007) define it as affectively charged judgments that arise through rapid, non-conscious, and holistic associations. For the authors, managerial intuition relies on the innate ability to synthesize information quickly and effectively. Elbanna and Fadol (2016) consider intuition as a composite phenomenon involving both knowing (intuition as judgmental and based on experience) and sensing (intuition as gut feeling). Literature from management and psychology

agrees, in general, that intuition occurs without conscious attention and effortlessly. Salas et al. (2010) suggest that intuition can be considered a type of cognition qualitatively different from conscious and analytical reasoning. Miller and Ireland (2005) distinguish two forms of intuition in strategic decision-making: Holistic hunch, involving a synthesis of diverse experiences, novel combinations of information, and a strong feeling of being right; and automated expertise, based on a combination of situation-specific experiences, past learning, and a sense of familiarity related to recognition of paths or associations.

The view of intuition as experiential intuition, or as the working of the experiential system (Epstein, 2002), is a common approach to this construct both theoretically and empirically. Simon (1987) noted that experienced managers had in their memory a large amount of knowledge gained from training and experience, organized in terms of recognizable chunks and associated information. That knowledge was the departing point of what he called expert´s intuition or skilled intuition, which he later explained in a paper in the following way: “The situation has provided a cue: This cue has given the expert access to information stored in memory, and the information provides the answer. Intuition is nothing more and nothing less than recognition” (Simon, 1992). Kahneman and Klein (2009) clarified that the recognition model implies two conditions that must be satisfied for an intuitive judgment (recognition) to be genuinely skilled: First, the environment must provide adequately valid cues to the nature of the situation, and second, people must have an opportunity to learn the relevant cues.

In the same line of intuition as experience, Wally and Baum (1994), for example, defined intuition as the ability to learn from or draw upon experience, which denotes a form of compressed knowledge that individuals can tap as an aid to their decision-making requirements. Other names for a similar construct in literature are expertise-based intuition or intuition rooted in extensive experience within a specific domain (Salas et al., 2010), and intuitive expertise (Sinclair, 2011), which mainly refers to path recognition and holistic associations. Some

theoretical formulations in strategy have even considered intuition from experience as a departing point for organizational learning (Crossan et al., 1999).

Experts on the role of intuition in strategic decision-making call attention to the risks of falling into the simple use of cognitive shortcuts or heuristic information processing (Kahneman & Klein, 2009), or relying solely on intuition, neglecting the role of rationality in the process (Locke, 2015).

It is worth mentioning again at this point that well-recognized authors have argued that intuition and rationality are compatible. From the perspective of psychology, the Cognitive-Experiential Self-Theory (CEST) proposes that people process information through two parallel, interactive systems: A rational analytical system and an experiential intuitive system. Both systems are independent (Epstein et al., 1996). In management, authors have noted how executives can rely simultaneously on both managerial intuition and rational analysis (Fredrickson, 1985; Simon, 1987; Eisenhardt, 1989). Agor (1988) identified several conditions under which the use of intuition is appropriated without neglecting the value of rationality: High levels of environmental uncertainty, little previous precedents for action available in the face of new emerging trends, limited availability or absence of facts, and when there are several plausible alternative solutions to choose from with good factual support for each option. On a similar line, Burke and Miller (1999) reported, from empirical research, that executives outline various benefits of using intuition, such as expediting decision-making, improving ultimate decisions, and promoting decisions compatible with the organization.

In contrast to rationality, there are few references regarding commonly accepted ways to operationalize intuition for empirical research, perhaps because this concept has been studied from the point of view of several fields such as psychology, philosophy, and management, among which there is still a lack of convergence of findings and methodologies (Sinclair, 2011). In the field of management, empirical references related to the research of intuition in SDMP

are scarce (Elbanna, 2006; Elbanna et al., 2020), as most studies on managerial intuition have been theoretical (Dane & Pratt, 2009; Seifert, 2008). However, empirical research has shown the relevance of intuition for strategic decision-making, especially in contexts in which environmental instability and time pressure are present (Eisenhardt, 1989; Wally & Baum, 1994; Khatri & Ng, 2000; Elbanna et al., 2013; Seifert & Hadida, 2013; Locke, 2015; Calabretta et al., 2018). Elbanna et al. (2013), for example, found support for the hypothesis of a positive and significant correlation between environmental uncertainty and the use of intuition in SDMP.

Khatri and Ng (2000) conducted an empirical study, frequently cited by subsequent literature, exploring the role of intuition in strategic decision-making. These authors used the “intuitive synthesis” construct to suggest that intuition is a “synthetic” psychological function that apprehends a given situation´s totality. It allows to synthesize certain isolated data and experiences into an integrated picture. They operationalized intuitive synthesis with three indicators: (1) Reliance on judgment: Situations in which adequate information is absent and without precedent call for judgment; (2) Reliance on experience: Intuitive synthesis is a form of expertise or distilled experience based on a deep knowledge accumulated; therefore in handling problems, reliance on experience suggests the use of intuition; (3) Use of “gut feeling” as many researchers suggest that intuition manifests itself in this form, which is also described as a sense of excitement. Khatri and Ng´s (2000) measure was used in empirical research by Elbanna et al. (2013); however, based on confirmatory factor analysis results, the instrument needed to be more robust.

In this study, the construct adopted to explore the degree of intuition characterizing the SDMP was *Experiential Intuition (EI)*, understood as presented in the above paragraphs. Several reasons justify this choice: First, it borrows from the definition of intuition by Wally and Baum (1994) and from Elbanna and Fadol (2016), tested in empirical settings; second, it is conceptually better aligned with the REI instrument used in this study to approach the thinking style of the

decision-makers, which strengthens the potential exploration of correlations of thinking style with rationality and intuition in the SDMP; third, it narrows the exploration of a broad concept such as intuition to only one of its perspectives (experiential); fourth, it avoids the use of “intuitive synthesis”, a construct around which some doubts have been raised in terms of its robustness; and fifth, it seemed more understandable and straightforward for data collection given the profile of participants in the study.

Influences on SDMP: Context Factors

According to literature, both theoretical and derived from empirical research, several contextual factors influence the characteristics of strategic decision-making processes in an organization. Scholars interested on SDMP agree that decisions are made in a context (Rajogapalan et al., 1993). Elbanna and Fadol (2016), in line with Shepherd and Rudd (2014), noted that to understand intuition and rationality in SDMP it is necessary to acknowledge its context, as processes are highly dependent on the existing circumstances.

Some authors call them context factors (Papadakis et al., 1998; Elbanna & Child, 2007a), and others refer to them as either antecedent factors, influencing factors or determinant factors (Rajogapalan et al., 1993; Wally & Baum, 1994; Elbanna, 2006; Elbanna & Fadol, 2016). Literature, in general, agrees that factors influencing SDMP are grouped into four well-defined contextual perspectives (Papadakis et al., 1998; Elbanna, 2011): External environment factors, internal firm factors, decision-specific factors, and decision-maker specific factors.

Several authors recognize the limitations of the available body of empirical research in the field and the inconsistencies of many of the findings reported, some of them due to oversimplified looks at a complex phenomenon (Elbanna et al., 2018). Elbanna and Fadol (2016) remark on the need for more empirical investigation regarding, for example, how decision-makers evaluate and incorporate contextual factors that determine the SDMP they adopt, and for studies that explore more complex relationships beyond the main effects of constructs from the four contextual perspectives on SDMP (Elbanna et al., 2018).

This includes their interactions as it has been recognized that they work relationally rather than independently (Hartel & O´Connor, 2014).

This is a reason why scholars interested in the topic of SDMP have recommended, since some time ago, integrative models for future research to examine the effect of contextual factors in a more comprehensive and complex approach (Hitt & Tyler, 1991; Eisenhardt & Zbaracki, 1992; Rajagopalan et al., 1997; Papadakis et al., 1998; Elbanna & Child, 2007a; Elbanna et al., 2018).

In order to attend this recommendation from experts in the field, the basic model that served as the reference framework for this study is inspired by the work of Elbanna and Child (2007a, 2007b), researchers who have explored the influence of contextual factors on the characteristics of SDMP empirically. These authors, based on the formulations of Pettigrew (1990), Schneider and Meyer (1991), Rajagopalan et al. (1993), and Papadakis et al. (1998), included four basic perspectives to develop an integrative model to explain characteristics of SDMP: External environment characteristics, Strategic decision-specific characteristics, Internal firm characteristics, and Decision-maker characteristics. Their original empirical exploration of this integrative model combined the first three perspectives and excluded the fourth due to the difficulty of collecting data (Elbanna & Child, 2007b).

In another publication, Elbanna & Child (2007a) recommended including the decision-maker perspective in future research to overcome a limitation of their study, as the upper echelons theory of organizations suggests the important effect of the individual deciding on SDMP.

Elbanna, Thanos, and Jansen (2018) later presented an integrative strategic decision-making framework as part of a comprehensive literature review that also formulates a recommended agenda for future research. This framework integrates context, processes, and outcomes of decisions. In the model, a holistic view of the context is integrated by four dimensions following Shepherd and Rudd (2014): Environmental characteristics, decision-specific characteristics, organizational characteristics, and top management characteristics.

Figure 1 presents the model adopted for this study and the variables chosen inside each one of the contextual dimensions:

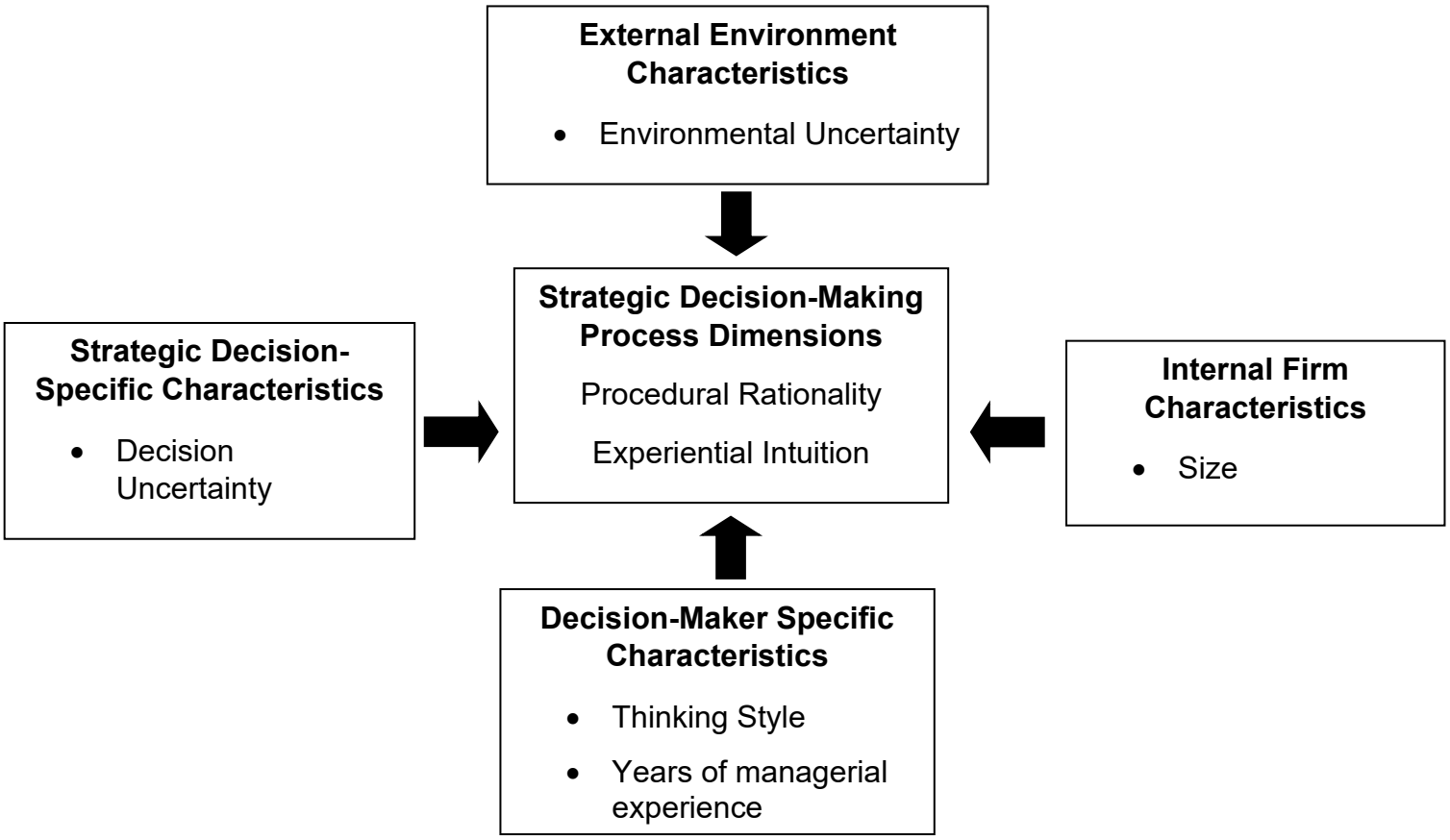


Figure 1. *An integrative model of contextual factors that determine rationality and intuition in SDMP.*

As advised by Elbanna and Child (2007a), the variables included in the model have been the subject of theoretical interest, and empirical research is available to build a framework for this study. These variables also provide continuity to previous research in SDMP (Elbanna & Fadol, 2016). The same criterion was considered for including the variables in the decision-maker perspective of the model based on existing literature, mainly on empirical research conducted by Papadakis et al. (1998) and Sadler-Smith (2004).

3. Hypotheses

Contextual factors included in each of the four dimensions in the model shown in Figure 1 influence SDMP characteristics; therefore, they play the role of independent variables, while Procedural Rationality (PR) and Experiential Intuition (EI) are considered dependent variables. Consequently, hypotheses in this study derive from the expected direct relationships of context factors with procedural rationality and experiential intuition as SDMP characteristics, as well as among context factors as recommended by Elbanna et al. (2020), based on theoretical formulations and empirical findings from other studies.

1- External Environment Characteristics

Making decisions in dynamic environments tends to be more difficult. This is why environmental uncertainty has received substantial empirical attention from scholars (Elbanna et al., 2018).

This perspective is founded on traditional roots of organizational theory. Scholars in strategy recognize that decisions express adaptation to opportunities and threats determined by the environment (Hannan & Freeman, 1977). Contingency theory also suggests that strategic decisions are determined by the need to respond to specific circumstances derived from external changes to adapt and evolve accordingly (Schoonhoven, 1981; Mintzberg et al., 2009; Ghemawat, 2010). Also, Elbanna et al. (2018) suggest that context factors affect the outcomes of decisions through their effect on the process, as environmental conditions may alter how managers process strategic issues.

Empirical research has shown the relative importance of environmental factors in motivating rationality and intuition in decision processes (Elbanna & Child, 2007b; Elbanna et al., 2018). Elbanna and Fadol (2016) found strong support from an empirical study for their hypothesis according to which environmental characteristics account for a significant amount of variance in the presence of intuition above and beyond the variance attributable to decision characteristics and firm-specific characteristics.

Authors suggest that SDMP are influenced by the following environmental factors: Environmental uncertainty (Dean and Sharfman, 1993), Environmental instability (Dean & Sharfman, 1996; Khatri & Ng, 2000; Elbanna, 2006), Environment munificence or hostility (Papadakis et al., 1998; Elbanna & Child, 2007a), Environmental complexity (Rajagopalan et al., 1993), External control (Dean & Sharfman, 1993), Environmental dynamism (Bourgeois & Eisenhardt, 1988; Papadakis et al., 1998), Environmental heterogeneity (Papadakis et al., 1998), Industry characteristics (Wally & Baum, 1994) and Culture (Hofstede, 1991; Allison & Hayes, 2000; Elbanna & Child, 2007a).

In this study, *Environmental Uncertainty (EU)* is the variable chosen inside the dimension of external environment characteristics, which combines two elements: dynamism and complexity (Elbanna et al., 2018).

According to Milliken (1987), there are three facets of uncertainty: Lack of clarity about cause-effect relations, inability to predict the likelihood of future states or events favoring one alternative or another, and lack of predictability of decision outcomes. Meissner and Wulf (2014) found support for the idea that the level of perceived environmental uncertainty directly affects the SDMP. Along the same line, Dean and Sharfman (1993) found environmental uncertainty to be negatively related to procedural rationality in SDMP, while Khatri and Ng (2000) found moderate support for their hypothesis that the use of intuitive synthesis in strategic decision-making was greater in an unstable environment than in a stable environment. Alternatively, Blattberg and Hoch (1990) found that in the presence of uncertainty, a combination of database models and managerial intuition led to better predictions than either one of the single elements operating alone.

Several authors suggest that managers embrace more intuitive SDMP when environmental uncertainty is present (Covin, Slevin, and Heeley, 2001; Elbanna, 2006; Harrington & Otternbacher, 2009; Elbanna et al., 2013; Locke, 2015; Elbanna & Fadol, 2016). In firms subject to high environmental uncertainty time may be scarce to engage in rational processes as managers need to respond rapidly (Elbanna, 2015). It may also have to do with the fact that, in unstable environments, the quality and quantity of information may be restricted to behave

more rationally, and it is less useful trying to predict the future (Mintzberg, 1994). Bantel and Osborn (2001) argue that stress and anxiety caused to individuals by uncertain environments lower their capacity for information processing, resulting in them adopting learned behaviors or experiences and knowledge in decision-making processes.

In a highly cited study, Papadakis et al. (1998) did not find a statistically significant correlation between environmental dimensions and the level of rationality of SDMP.

This framework of theoretical formulations, an absence of conclusive findings (Elbanna et al., 2018), and available empirical findings from different contexts justify the exploration of the following hypotheses:

Hypothesis 1: There will be a negative relationship between Environmental Uncertainty (EU) and Procedural Rationality (PR) in SDMP.

Hypothesis 2: There will be a positive relationship between Environmental Uncertainty (EU) and Experiential Intuition (EI) in SDMP.

2- Strategic Decision-Specific Characteristics

All decisions are not equal; therefore, specific features of the decision itself influence the characteristics of the process adopted to make it (Rajagopalan et al., 1993). Papadakis et al. (1998) found that decision-specific characteristics appear to have the most critical influence on SDMP, above environmental and firm characteristics, as decisions with different characteristics are handled through different processes. Empirical research has also shown the relative importance of decision-specific factors in activating rationality and intuition in decision processes (Elbanna & Child, 2007b; Elbanna & Fadol, 2016).

Some of those decision-specific factors cited in literature as influencers of SDMP are the following: Decision importance (Papadakis et al., 1998; Elbanna & Child, 2007b), Magnitude of impact (Papadakis et al., 1998), Decision urgency and pressure (Rajagopalan et al., 1993; Wally & Baum 1994; Papadakis et al., 1998), Decision uncertainty (Papadakis et al., 1998; Elbanna & Child, 2007b;

Elbanna et al., 2013), Decision complexity and risk (Rajagopalan et al., 1993; Wally & Baum, 1994), Decision motive (Fredrickson, 1985; Dean & Sharfman, 1993; Papadakis et al., 1998; Elbanna & Child, 2007a), Decision frequency (Dean & Sharfman, 1996; Papadakis et al., 1998), and Decision type (Papadakis et al., 1998).

In this study, the variable analyzed in the dimension of strategic decision-specific characteristics was *Decision Uncertainty (DU).* This context factor refers to the uncertainty of the decision, not of the environment. In this case, it is determined by "uncertainty about the actions to be taken, general uncertainty surrounding the decision, and uncertainty concerning the information collected" (Papadakis et al., 1998). It also refers to Information scarcity, lack of precedents for reference, and difficulty in predicting potential unanticipated consequences (Elbanna & Child, 2007b). According to Sharfman and Dean (1997) decision uncertainty exists when decision-makers face complex and peculiar problems along with unclear relationships between their means and ends.

Elbanna et al. (2018) consider two views concerning the relationship between decision uncertainty and SDMP. One in which if the decision entails significant levels of uncertainty, then managers will employ rational processes. The logic is that the way to reduce uncertainty is by collecting and analyzing data. Another view suggests that decision uncertainty reduces rationality (Dean & Sharfman, 1993) as the collection and analysis of information are too costly or impossible.

In a theoretical formulation, Dane and Pratt (2007) suggest that as tasks become more judgmental, meaning that there is no objective criterion or demonstrable solution, the effectiveness of intuitive decision-making will increase. These authors also propose theoretically that the relationship between environmental uncertainty and the effectiveness of intuition in decision-making is mediated by judgmental task characteristics and suggest that intuitive judgments become more effective relative to rational analysis as a problem becomes increasingly unstructured. Along the same line, Hayashi (2001) argues that effective analytical approaches for well-defined problems are much less so for ill-

defined problems. Therefore, decision uncertainty may increase the reliance on intuition when making strategic decisions (Locke, 2015; Elbanna & Fadol, 2016).

In an empirical study Dean and Sharfman (1993) report support for the hypothesis that decision uncertainty is negatively correlated to procedural rationality in strategic decisions. Papadakis et al. (1998) reported that decision uncertainty is negatively and significantly correlated to the formalization of rules in SDMP, an element associated with rationality. Elbanna and Child (2007a) found a positive correlation between rationality and strategic decision effectiveness, but weaker for high-uncertainty decisions than for low-uncertainty decisions. Regarding intuition, in a more recent study, Elbanna et al. (2013) found some support for the hypothesis about a positive relationship between decision uncertainty and the use of intuition in SDMP.

Empirical findings from different contexts, as well as theoretical formulations concerning this study, invited the exploration of the following hypothesis:

Hypothesis 3: There will be a negative relationship between Decision Uncertainty (DU) and Procedural Rationality (PR) in SDMP.

Hypothesis 4: There will be a positive relationship between Decision Uncertainty (DU) and Experiential Intuition (EI) in SDMP.

Environmental Uncertainty (EU) and Decision Uncertainty (DU): A mediation relationship

Elbanna et al. (2018), in an extensive literature review about the role of context in the strategic decision-making process, call for future studies to examine more complex relationships beyond the main effects of constructs from the four perspectives in the basic model presented in Figure 1. Interactions between the four perspectives could add in explaining the variance in the dependent variables over and above the direct effects. In their literature review, only one study exploring these relationships was found, published by Brouthers et al. (2000).

Elbanna et al. (2018) suggest that organization and decision characteristics may mediate the effects of environmental factors on SDMP. They further mention, as a suggestion for future empirical research, that it could be possible that environmental uncertainty increases decision uncertainty, and then decision uncertainty would fully mediate the relationship between environmental uncertainty and SDMP (Elbanna et al., 2020). If this was the case, the authors propose, then the effect of environmental factors may be filtered through the decision´s characteristics (decision-specific factors).

The study of the direct effects of singular contextual factors on SDMP leaves many questions regarding how this influence operates in practice. Harrington and Ottenbacher (2009) claim that in uncertain environments executives employ experience and personal knowledge as the primary tactic to make decisions, both traits of experiential intuition. This affirmation, however, would suggest that the sole presence of environmental uncertainty will derive in more intuitive decision-making processes regardless of the decision at hand. This is not necessarily observable in practice, as many decisions, notwithstanding the surrounding uncertainty, are made and should be made by adopting rational procedures (Mintzberg, 2011).

Following the suggestion of Elbanna et al. (2018), this study explores the mediating role of Decision Uncertainty (DU) in the effect of Environmental Uncertainty (EU) on SDMP, as shown in Figures 2 and 3. According to Baron and Kenny (1986), the mediator function of a third variable represents the generative mechanism through which an independent variable can influence the dependent variable of interest. These models imply that Environmental Uncertainty (EU) may determine the level of Experiential Intuition (EI) and Procedural Rationality (PR) in SDMP through its effect on Decision Uncertainty (DU).

This approach embraces the view of Elbanna et al. (2018), according to which higher levels of Environmental Uncertainty (EU) may deepen the complexity and uncertainty of a decision, which suggests that Environmental Uncertainty (EU) is incorporated into the process by the decision-maker through the decision and not directly. Examining this intervention is crucial as it helps to identify and explicate

the mechanisms behind the relationship between environmental uncertainty and both intuition and rationality in the decision-making process (Elbanna, 2015).

Therefore, this study explores the following hypotheses:

Hypothesis 5: There will be a positive relationship between Environmental Uncertainty (EU) and Decision Uncertainty (DU).

Hypothesis 6: Environmental Uncertainty (EU) is negatively related to Procedural Rationality (PR), and this relationship is mediated through Decision Uncertainty (DU). See Figure 2.

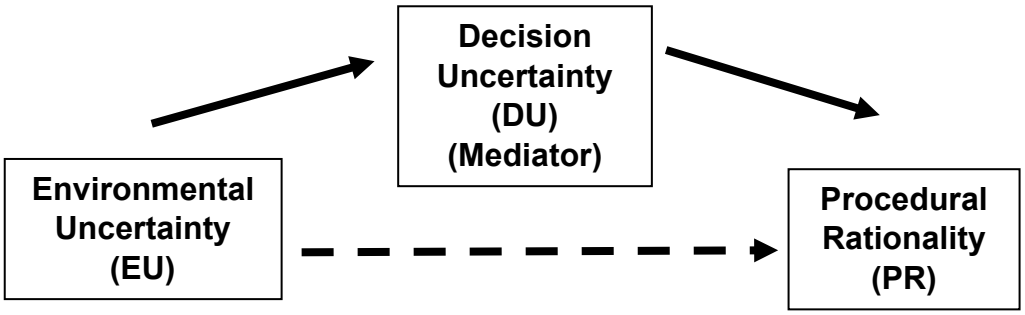


Figure 2. *Mediation role of Decision Uncertainty (DU) in the relationship of Environmental Uncertainty (EU) as an antecedent of Procedural Rationality (PR).*

Hypothesis 7: Environmental Uncertainty (EU) is positively related to Experiential Intuition (EI), and this relationship is mediated through Decision Uncertainty (DU). See Figure 3.

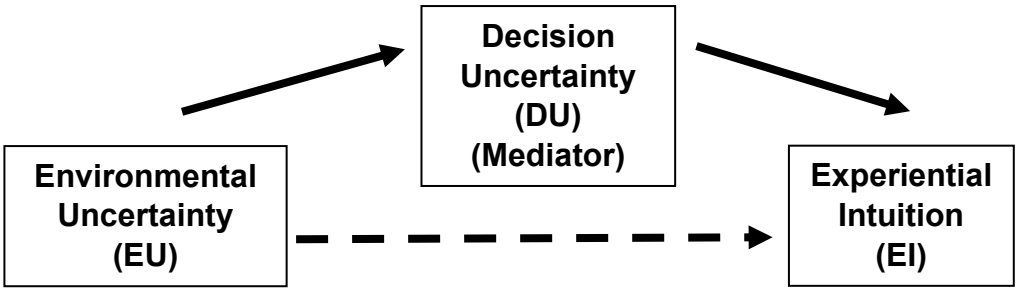


Figure 3. *Mediation role of Decision Uncertainty (DU) in the relationship of Environmental Uncertainty (EU) as an antecedent of Experiential Intuition (EI).*

Baron and Kenny (1986) suggest that mediators explain how external events take on internal significance. They are clear to differentiate mediation from moderation, as mediators speak to how or why such effects occur. Therefore, exploring a mediation effect seems to be the correct analysis as it would shed light on how decision-makers incorporate in practice the effect of environmental uncertainty, how it manifests in the process, and how the uncertainty of the decision is also affected by the environment in which it is being made.

Elbanna (2015) examined mediating effects according to the protocol suggested by Baron and Kenny (1986), who recommend that to test for mediation, three regression equations are needed: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator.

Following Baron and Kenny (1986), to establish mediation, the following four conditions must be met: 1- The independent variable significantly affects the mediator variable in the first equation; 2- The independent variable significantly affects the dependent variable in the second equation; 3- The mediator variable significantly affects the dependent variable in the third equation; and 4- When both the independent and mediator variables are considered together, the impact of the independent variable on the dependent variable is either reduced (partial mediation) or no longer significant (full mediation).

Therefore, following the model in Figure 2, we might expect a negative correlation between Decision Uncertainty (DU) and Procedural Rationality (PR) as presented in hypothesis 3, a positive correlation between Environmental Uncertainty (EU) and Decision Uncertainty (DU) as presented in hypothesis 5, a negative correlation between Environmental Uncertainty (EU) and Procedural Rationality (PR) as presented in hypothesis 1, and a negative correlation between Environmental Uncertainty (EU) and Procedural Rationality (PR) mediated by Decision Uncertainty (DU), as indicated in hypothesis 6.

In contrast, following the model in Figure 3, we would expect a positive correlation between Decision Uncertainty (DU) and Experiential Intuition (EI) as presented in hypothesis 4, again a positive correlation between Environmental Uncertainty (EU) and Decision Uncertainty (DU) as for hypothesis 5, a positive correlation between Environmental Uncertainty (EU) and Experiential Intuition (EI) as presented in hypothesis 2, and a positive correlation between the Environmental Uncertainty (EU) and Experiential Intuition (EI) mediated by Decision Uncertainty (DU), as presented in hypothesis 7.

3- Internal Firm Characteristics

Empirical research has shown the relative importance of internal firm factors as antecedents of rationality and intuition in decision processes (Elbanna & Child, 2007b, Elbanna & Fadol, 2016). The resource-based view of the firm, a line of thinking in strategic management, suggests that strategic decisions are determined by the resources and capabilities of firms (Wernerfelt, 1984). Authors in strategic decision-making also suggest that some firm characteristics determine the shape of their SDMP.

The following items related to the firm are found in literature as internal contextual factors that determine process characteristics: Organization´s past strategies (Rajagopalan et al., 1993), Organizational performance (Papadakis et al., 1998; Elbanna & Child, 2007a), Organizational culture (Rajagopalan et al., 1993; Wally & Baum, 1994), Organizational structure (Rajagopalan et al., 1993), Organizational slack (Fredrickson, 1984; Rajagopalan et al., 1993),

Centralization (Miller et al., 1988; Eisenhardt, 1989; Rajagopalan et al., 1993; Wally & Baum, 1994), Formalization (Miller et al., 1988; Wally & Baum, 1994; Papadakis et al., 1998), Size (Fredrickson & Iaquinto, 1989; Wally & Baum, 1994; Papadakis et al., 1998; Elbanna & Child, 2007a; Elbanna et al., 2013), Organizational age (Sadler-Smith, 2004), and Ownership type (Papadakis et al., 1998; Elbanna, 2011).

The model used as a reference for this study emphasizes *Firm Size* as the most relevant internal characteristic of the firm. Titus, Covin, and Slevin (2011) noted that strategic processes vary systematically with firm size. The influence of this factor departs from the premise that size is related to complexity (larger firms are more complex), which makes SDMP slower due to a tendency to more rational behaviors of decision makers as centralization and formalization are also higher in larger firms (Wally & Baum, 1994).

In general, empirical studies in the field approach firm size as the number of full-time employees (Papadakis et al., 1998; Elbanna & Child, 2007a; Elbanna et al., 2020). Fredrickson and Iaquinto (1989) found a positive relationship between size increase and comprehensiveness increase in the SDMP. This would lead to thinking that size is an antecedent of a more rational SDMP due to structure and more robust control systems. On the other hand, Elbanna et al. (2013) found a negative correlation between company size and the use of intuition in SDMP. This could be due to the symbolic management argument cited by Elbanna (2011).

Symbolic management is a perspective in corporate governance introduced by Westphal and Zajac (1994), which suggests that “top managers can satisfy external demands for increased accountability to shareholders while avoiding unwanted compensation risk and loss of autonomy by adopting but not implementing governance structures and behaviors that address shareholders interest and by bolstering such actions with socially legitimate language” (Westphal & Zajac, 1998). This argument implies that managers behave and speak one way to send signals, which is not necessarily what they mean or believe. In light of that argument, Elbanna (2011) would also suggest that

managers from larger companies would be prone to avoid being perceived as intuitive decision-makers as they are expected to behave rationally due to the magnitude of their responsibility.

Findings regarding the relationship between firm size and SDMP are mixed (Elbanna et al., 2018). Therefore, in this study, firm size, measured in line with many previous studies as the logarithm of the number of full-time employees, will be used as another contextual variable. This study includes the following hypotheses to examine the direct effect of firm size on SDMP:

Hypothesis 8: There will be a positive correlation between Firm Size and Procedural Rationality (PR) in SDMP.

Hypothesis 9: There will be a negative correlation between Firm Size and Experiential Intuition (EI) in SDMP.

4- Decision-Maker Specific Characteristics

This perspective emphasizes the role of the decision-makers in shaping SDMP characteristics. Theoretical frameworks that support this view are related to the managerial choice perspective, according to which strategic choices have a behavioral component and reflect the personal idiosyncrasies of decision-makers (Cyert & March, 1963); to the theory of organizational learning (Levitt & March, 1988); and to the Upper Echelons theory (Hambrick & Mason, 1984), which states that organizational outcomes, such as strategic choice and performance levels, are related to the characteristics of its managers. Empirical research has studied these factors at the individual and the top management team (TMT) levels.

Factors related to the decision-maker perspective found in literature as influencers of SDMP can be divided into those involving personality and those related to demographics (Elbanna, 2011). Regarding personality, the following factors are found in available literature: Cognitive ability (Wally & Baum, 1994), Thinking style (Eisenhardt, 1989; Eisenhardt & Zbaracki, 1992; Wally & Baum, 1994; Kathry & Ng, 2000; Sadler-Smith, 2004; Sadler-Smith & Shefy, 2004),

Propensity to act (Wally & Baum, 1994), Attitude towards risk (Eisenhardt, 1989; Wally & Baum, 1994; Papadakis et al., 1998), Need for achievement (Miller et al., 1988; Papadakis et al., 1998), and Aggressive philosophy (Papadakis et al., 1998). On the other hand, in the field of demographics, there is literature available about the following factors: Age (Hitt & Tyler, 1991; Elbanna, 2011), Years of managerial experience (Fredrickson, 1985; Agor, 1989; Fredrickson & Iaquinto, 1989; Hitt & Tyler, 1991; Elbanna, 2011); Tenure (Hitt & Tyler, 1991; Papadakis et al, 1998; Elbanna, 2011), and Level of education (Hitt & Tyler, 1991; Papadakis et al., 1998; Elbanna, 2011).

The following are the decision-maker specific characteristics included in this study to explore the relationships between this contextual dimension with rationality and intuition in SDMP:

4.1 Thinking Style:

The REI (Rational-Experiential Inventory) is a self-report measure of individual differences in intuitive-experiential and analytical-rational thinking styles based on a global theory of personality referred to as Cognitive-Experiential Self-Theory (CEST). Psychologists have proposed two different modes of processing information: One that is usually considered intuitive or experiential and the other analytical or rational (Epstein et al., 1996). Styles of thinking and decision-making are reported as influencing SDMP (Eisenhardt, 1989; Eisenhardt & Zbaracki, 1992; Wally & Baum, 1994; Kathry & Ng, 2000; Sadler-Smith, 2004; Sadler-Smith & Shefy, 2004). Given the above, the following hypotheses were included:

Hypothesis 10: There will be a positive correlation between the decision-maker´s Rational Thinking Style and Procedural Rationality (PR) in SDMP.

Hypothesis 11: There will be a positive correlation between the decision-maker´s Intuitive Thinking Style and Experiential Intuition (EI) in SDMP.

4.2 Years of Managerial Experience:

This factor has been the subject of empirical research in strategic decision-making (Hitt & Tyler, 1991; Elbanna, 2011; Elbanna et al., 2020). Experience has been reported as a moderator of the influence of other contextual factors in the decision-maker behavior and process characteristics (Fredrickson, 1985; Fredrickson & Iaquinto, 1989).

Agor (1989) found a relationship between good intuitive decisions and the number of years of experience. On the same line, Sadler-Smith (2004), following the findings by Allison et al. (2000), suggests that experience will lead to more intuitive SDMP; however, was unable to demonstrate it empirically. Khatri and Ng (2000) highlighted that it is likely that, with growing experience, a person increasingly relies on intuition for decision processes. Dane and Pratt (2007) note that "the individuals most capable of making the associations that trigger accurate intuitive judgments are those who possess complex, domain-relevant cognitive structures within a particular domain. Those individuals are referred to as experts" (Dane & Pratt, 2007). These authors view experience as an input to intuition effectiveness. Considering these formulations, this hypothesis was explored in the study:

Hypothesis 12: There will be a positive correlation between Years of Managerial Experience of decision-makers and Experiential Intuition (EI) in SDMP.

Inside the Decision-Maker Dimension: Thinking Style and Managerial Experience

As mentioned previously, Agor (1989) suggested a relationship between intuitive decision-making and years of experience. On the other hand, in the construct of intuitive synthesis used by Khatri and Ng (2000), the metric of reliance on experience suggests that it is likely that, with growing experience, a person increasingly relies on intuition for decision-making and less in rational processes. Finally, the Experiential Intuition (EI) construct used in this study suggests a positive relationship between experience and intuitive thinking (Wally

& Baum, 1994). In the context of those formulations, we would expect more experienced managers to reveal more intuitive thinking styles and less rational thinking styles, therefore:

Hypothesis 13: There will be a negative correlation between the decision maker´s Years of Managerial Experience and the decision-maker´s Rational Thinking Style.

4. Methods

a. Data Collection

The initial step to build the sample for this study was to invite a total of 138 privately-owned companies to participate, either by phone calls to executives, written letters, or electronic messages to top leadership team members. Eighty-four companies gave a positive answer, and in each one a contact person received all the information regarding the study and the instrument designed to gather data. All companies are in main cities of Colombia, South America, such as Bogota, Medellin, Cali, and Barranquilla.

A questionnaire that covered all the variables of interest for the study, translated into Spanish and composed of nearly 85 questions in different formats and scales, was made available to executives in 84 companies, in which both the CEO and a member of the top management team were willing to take it. The idea of counting on two answers per strategic decision was to avoid reliance on a single respondent to reduce common method bias.

The unit of analysis is one strategic decision chosen by both participants in each company, around which they delivered answers to the questionnaire. A clear explanation of what a strategic decision refers to was provided in the questionnaire to the participants, consistent with definitions mentioned in the literature review of this study (Eisenhardt & Zbaracki,1992; Dean & Sharfman, 1993; Elbanna, 2006).

The questionnaires were available to the participants through Qualtrics, a digital platform for this purpose, so they could take them asynchronously and at various times. Some participants requested a printed version of the instrument to facilitate the process for them, which was also sent and processed into the data-base.

The data collection occurred between 2016 and 2017, for seven (7) months, and all decisions considered for the study had been made within the two years prior to taking the survey.

A total of 51 pairs of answers from an equal number of companies were finally available to run the analysis, which meant 102 completed questionnaires. Companies in the study represented a wide variety of industries. Most are manufacturing companies (32) in industries such as food products, bathroom ceramics, electrical transformers, paints, dental prostheses, fertilizers, office supplies, cosmetics, construction, plastic tanks, and wooden floors. Service companies (19) are mainly consulting and law firms, as well as some in financial services, advertising, vehicle satellite-tracking, international trading, and educational services.

b. Operationalization and measures of variables

Consistent with prior studies on strategic decision making (Papadakis et al., 1998; Elbanna & Child, 2007a; Elbanna et al., 2013), the questionnaire implemented to gather data was assembled to measure dependent, independent and control variables of interest for the study, using for each one of them a specific instrument.

Dependent variables

Procedural Rationality:

The questionnaire used five questions (see Appendix for details) based on Dean and Sharfman (1996) to measure Procedural Rationality (PR). The five items were averaged to obtain individual-level scores for Procedural Rationality. Cronbach's alpha for this five-item scale was 0.77.

Experiential intuition:

Following Elbanna & Fadol (2016), Experiential Intuition (EI) was measured based on six questions – Reliance on personal judgment, Role of past experience, Extent of a gut feeling (two questions), and Process of decision-making (two questions). The Cronbach's alpha for the scale was 0.61 (See Appendix for details about these questions).

Due to the low scale reliability value, a principal component factor analysis was conducted to analyze the use of each question in measuring this variable. The principal component factor analysis led to the retention of four items, as shown in the results of the principal component factor analysis (see Table 7 in the Appendix). We retained the following items: Reliance on personal judgment, Role of past experience, Extent of a gut feeling (one question), and Process of decision-making (one question), and dropped two questions (one each from 'extent of a gut feeling' and 'process of decision-making'), with low factor loadings.

Our single-factor solution had an Eigenvalue greater than one, and this single factor could explain 41 percent of the variance in responses. We further recomputed Cronbach's alpha by including the four items based on the factor analysis, and we had an improved Cronbach's alpha of 0.74. These four items were averaged to obtain individual-level scores for Experiential Intuition (EI).

Additionally, a principal components analysis with 'varimax' rotation confirmed that Procedural Rationality (PR) and Experiential Intuition (EI) represent distinct constructs. The results of the analysis are shown in Table 1. Each of the two Eigenvalues was above one, and the two factors accounted for 58 percent of the variance in responses.

Item	Factor Loading*	
	Procedural Rationality (PR)	**Experiential Intuition (EI)**
Extent of search for information	**0.846**	0.138
Extent of analysis of information	**0.859**	0.129
Use of quantitative techniques	**0.701**	0.046
Focus of the process being analytical	**0.648**	0.099
Focus on crucial information	**0.547**	0.101
Reliance on personal judgment	0.017	**0.927**
Role of past experience	0.146	**0.621**
Extent of gut-feeling 1	0.003	**0.913**
Process of decision making 1	0.131	**0.596**
Eigenvalue	2.962	2.262
Percentage of Variance Explained	32.92	25.13
Cumulative Percentage of Variance Explained	32.92	58.05
*Values shown in bold are those defining the factor		

Table 1. Results of Principal Components Analysis of Procedural Rationality (PR) and Experiential Intuition (EI) Items.

Independent and control variables

Environmental uncertainty

Environmental Uncertainty (EU), the variable chosen in the contextual dimension called External Environmental Characteristics, was approached with an instrument developed by Miller (1993). Cronbach's Alpha for this scale was 0.9.

The instrument consists of 35 questions regarding politics, economy, resources, technology, markets, and competition, to be answered on a 7-point Likert scale (see Appendix for details). One advantage of this instrument, given the context of this particular investigation, is that it was initially developed with a sample of managers from 6 different Latin American countries.

Decision uncertainty

Decision Uncertainty (DU), a variable in the contextual dimension of Strategic Decision-Specific Characteristics, was measured based on the questions used by Dean and Sharfman (1993). Cronbach's alpha for this scale consisting of five questions was 0.54. This result is similar to the one reported by the authors (see Appendix for details about the questions).

Because of the low Cronbach's alpha value, a principal component analysis led to the retention of all five items as shown in the results of the principal component factor analysis (Table 8 in the Appendix). All five items of the scale are loaded on a single factor with factor loadings greater than 0.5. The single-factor solution had an Eigenvalue greater than one (1) accounting for 36 percent of the variance in responses.

Firm size

A common measure of firm size in precedent studies is the number of full-time employees (Dean & Sharfman, 1993; Papadakis et al. 1998; Elbanna & Fadol, 2016). In this study we formulated an open question asking for this number. Given that the range of sizes in the sample is broad, and to make this analysis consistent with former studies, the natural logarithm of the number of full-time employees was used to smoothen the distribution of this variable.

Thinking style

Epstein, Pacini, Denes-Raj and Heir (1996), developed an instrument called the REI (Rational-Experiential Inventory), a self-report measure of individual differences in intuitive-experiential and analytical-rational thinking styles based on a global theory of personality referred to as Cognitive-Experiential Self Theory (CEST), which proposes that "people process information by two parallel, interactive systems: A rational system, which operates at the conscious level and is intentional, analytic, primarily verbal, and

relatively affect-free; and an experiential system that is assumed to be automatic, preconscious, holistic, associationistic, primarily non-verbal, and intimately associated with affect" (Epstein et al., 1996).

The later version of the REI (Pacini & Epstein, 1999) was used, as it has proved to be a robust instrument to measure this variable (Novak & Hoffman, 2008). Pacini and Epstein (1999) report for their 40-item instrument high reliability for both the rationality scale and the intuitive scale (Rationality scale $\alpha = 0.90$; Experiential scale $\alpha = 0.87$), and a non-significant correlation between scales, which supports the CEST assumption of the existence of two independent information processing modes.

Following the recommendation of authors of this scale, for this study we draw 20 questions from the 40-items instrument. Therefore, thinking styles were approached using the scales to measure Rational Engagement (for Rational Thinking Style: T_Sty_R) and Experiential Engagement (for Intuitive Thinking Style: T_Sty_I), each containing ten (10) questions, which are part of the 40-item REI instrument. In our study we observed for these scales α values of 0.86 for Rationality Engagement and 0.67 for Experiential Engagement. The actual questions applied are available in the Appendix section.

Years of managerial experience

This variable was measured as the number of years of experience in managerial positions (first and second level in the organization), reported by people taking the questionnaire. A clear explanation of the meaning of "managerial experience" was provided in the questionnaire.

Position

In this study only two positions were possible: CEO of the company or Member of the top management team different from the CEO. The survey offered a question to choose one of these two options.

c. Data analysis

Once the data were collected and ready for analysis, we used descriptive statistics to understand the general characteristics of the sample better, as will be presented in this document. Different types of regressions, described later in detail, were subsequently run to test the hypotheses in the study.

The report of results of the study is divided into two parts. First, we analyze the relationships of three contextual dimensions shown in Figure 1, each represented by one variable (Environmental Uncertainty – EU, Decision Uncertainty – DU, and Firm Size), with the dependent variables (Procedural Rationality – PR and Experiential intuition - EI). In this first part, we tested hypotheses of single direct relationships between pairs of variables (hypotheses 1, 2, 3, 4, 5, 8, and 9), and explored a mediation model as one of the particularities of this study (hypotheses 6 and 7).

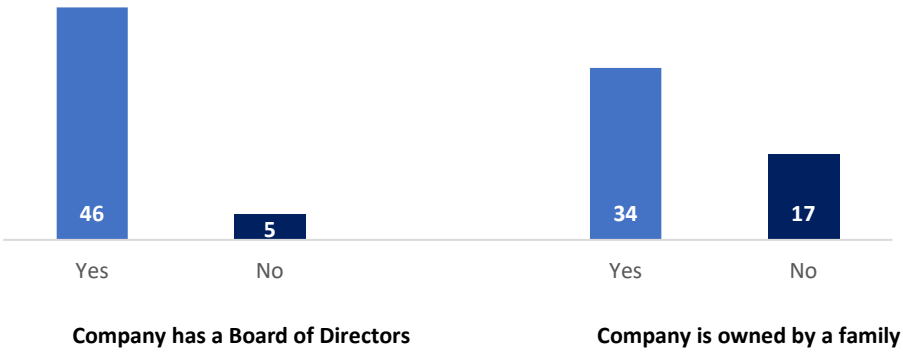
In the second part, we include in the analysis the fourth dimension presented in Figure 1, decision-maker specific characteristics, with two additional variables: thinking style and years of managerial experience. In this second part, we tested hypotheses 10, 11, 12 and 13. This division of the study is due to the abundance of research and literature available with regards to the first three factors and the scarcity about the fourth, around which there is a lack of publications related to findings from empirical explorations.

5. Results

a. Demographics of the sample

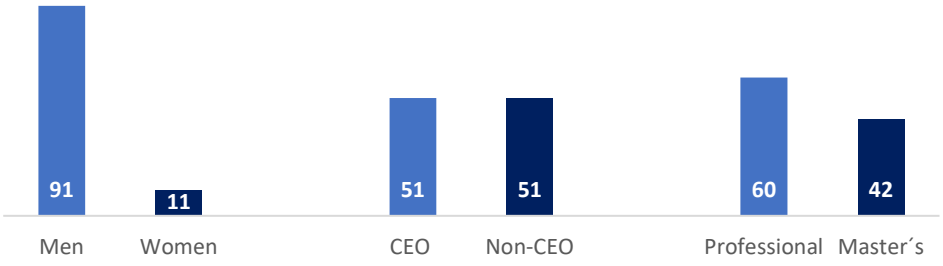
As per the number of full-time employees, Firm Size ranges from 60 to 4500, with an average of 770. In the sample, only five (5) firms lack a Board of Directors or a similar corporate governance entity, and 34 companies are owned and controlled by families (See Figure 4).

Figure 4. Companies: Ownership and Board of Directors
(Number of companies)



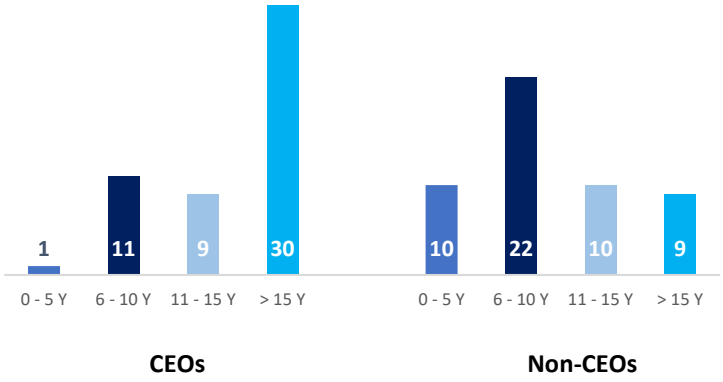
A total of 102 people were involved in the study; 11% were women. 42 respondents hold master´s degrees, of which 22 are MBAs (See Figure 5). Two people per company took the instrument designed to capture data, and of the total participants, 51 were the company´s CEO and 51 were top management team members. A positive trait of this study is having two people per strategic decision to reduce the risks derived from depending on a single respondent.

Figure 5. Demographics of the participants
(Number of people)



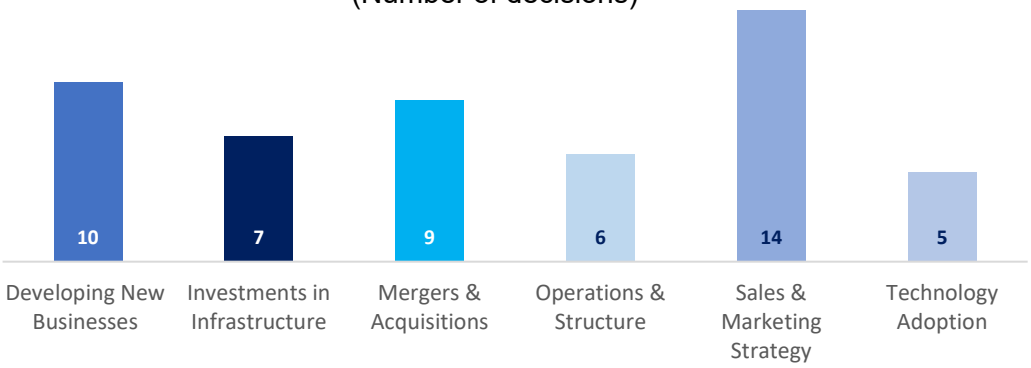
The average managerial experience of participants is 15 years, ranging between 2 and 46 years in high-responsibility positions. CEOs have an average of 19 years of managerial experience, while participants in other positions have accumulated 11 years (See Figure 6).

Figure 6. Years of managerial experience
(Number of participants)



All 51 strategic decisions analyzed had been made within the last two (2) years before taking the survey. Topics among the strategic decisions considered for this study include the following: entering international markets, international or local acquisitions, new product launching, brand extension to new categories, distribution channels´ definition, building a new manufacturing facility, divestiture of a business unit, spinning off a business unit, technological transformation, vertical integration, joint ventures to enter a new business, and choosing among growth opportunities (See Figure 7).

Figure 7. Types of strategic decisions
(Number of decisions)



b. Part 1

The first part of this study explores three of the four contextual factors influencing Strategic Decision-Making Processes (SDMP), as presented in Figure 1: External Environmental Characteristics, Strategic Decision-Specific Characteristics, and Internal Firm Characteristics. The second part of the study includes in the analysis the fourth contextual factor, Decision-Maker Specific Characteristics.

As a first stage in Part 1, we ran a correlation analysis that included the dependent variables, independent and control variables in the model presented in Figure 1 for each of the three contextual factors covered in this section.

Table 2 presents correlations between five variables, which include both of the Strategic Decision-Making Processes in which the study is focused, Procedural Rationality (PR) and Experiential Intuition (EI), as well as variables representing each of the three contextual factors: Environmental Uncertainty (EU) for External Environmental Characteristics, Decision Uncertainty (DU) for Strategic Decision-Specific Characteristics, and Firm size (log), which refers to the natural logarithm of the number of full-time employees, for Internal Firm Characteristics.

Table 2. Correlations Part 1

	PR	EI	EU	DU	Firm size (log)
PR	1	-.720**	-.214*	-.365**	.268**
EI	-.720**	1	.257**	.338**	-,134
EU	-.214*	.257**	1	.203*	-,083
DU	-.365**	.338**	.203*	1	,050
Firm size (log)	.268**	-,134	-,083	,050	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
n=102

Table 2 shows the tendency of some pairs of variables to move into the same direction. As expected, some correlations are consistent with findings cited in literature and exhibit different levels of significance.

Strategic Decision-Making Processes (SDMP) considered in this study, Procedural Rationality (PR) and Experiential Intuition (EI), are negatively correlated at a highly significant level ($p<0.01$). Correlation of Procedural Rationality (PR) is negative and significant ($p<0.05$) with Environmental Uncertainty (EU), negative and highly significant ($p<0.01$) with Decision Uncertainty (DU), and positive and highly significant ($p<0.01$) with Firm size (log). The direction of the correlation between Procedural Rationality (PR) and each one of the three contextual variables is consistent with literature.

In the case of Experiential Intuition (EI), the correlation with Environmental Uncertainty (EU) is positive and highly significant ($p<0.01$), as it is also the case for its correlation with Decision Uncertainty (DU). The correlation of Experiential Intuition (EI) with Firm size (log) is not significant even though it resulted in the expected direction.

It is interesting to see how the correlation between Environmental Uncertainty (EU) and Decision Uncertainty (DU) is positive and significant ($p<0.05$), and also the absence of significance in the correlation between Firm size (log) and the other two contextual variables.

Test of hypotheses Part 1

In order to test hypotheses 1, 2, 3, and 4 we conducted a stepwise OLS regression analysis. We ran two models, one with Procedural Rationality (PR) as the dependent variable and the other with Experiential Intuition (EI) as the dependent variable. The results from this regression are provided in the Table 3.

Firms may differ in their decision-making procedures and routines depending on their size. For example, large firms may have more detailed and bureaucratic processes (Papadakis et al., 1998) compared to smaller firms. We wanted to control such effects in our analysis as we are focused on the relationship and the mechanism laid out in the hypotheses. Hence, we included Firm Size (logarithm of the number of full-time employees of the firm), as a control variable in both regression models.

	Model 1			**Model 2**	
Dependent Variables	**Procedural Rationality (PR)**			**Experiential Intuition (EI)**	
	Step 1	**Step 2**		**Step 1**	**Step 2**
Constant	4.46 (0.709)	5.19 (0.688)		2.71 (0.711)	2.09 (0.707)
Environmental Uncertainty (EU)	-0.275* (0.125)	-0.169 (0.130)		0.35** (0.136)	0.25 (0.133)
Decision Uncertainty (DU)		-0.439** (0.112)			0.37** (0.115)
Control variables:					
Firm size (log)	0.50* (0.191)	0.54* (0.171)		-0.23 (0.191)	-0.26* (0.183)
Position	0.08 (0.199)	0.09 (0.194)		0.10 (0.609)	0.005 (0.199)
R-square	0.10	0.23		0.08	0.17
F	3.99	7.23		2.98	4.923
Change in R-square	-	0.13*		-	0.09*

**. Correlation is significant at the 0.01 level (2-tailed).
*.Correlation is significant at the 0.05 level (2-tailed).
Standard errors in parenthesis
n=102

Table 3. Results of stepwise OLS regression for Procedural Rationality (PR) and Experiential Intuition (EI)

Similarly, the position of the decision-maker in the organization may affect how this individual absorbs and perceives uncertainty in the environment and the

decision context (Sadler-Smith & Shefy, 2004). To control such potential effects, we included the position of the decision-maker as an additional control variable in both regression models.

In Model 1, we added two independent variables in our stepwise regression. In Step 1, we included Environmental Uncertainty (EU). Results show a significant ($p<0.05$) and negative relationship between Environmental Uncertainty (EU) and Procedural Rationality (PR) in SDMP, in line with findings reported by Dean and Sharfman (1993), which supports Hypothesis 1.

Next, in Step 2 of Model 1, we added our second independent variable, Decision Uncertainty (DU). As it can be seen in Table 3, there is a negative and highly significant ($p<0.01$) relationship between this independent variable and Procedural Rationality (PR), which supports Hypothesis 3 and coincides with findings reported by Dean and Sharfman (1993), as well as Papadakis et al. (1998). This finding goes against the idea that in the presence of high decision uncertainty, managers will employ more rational decision processes by collecting and analyzing more information to reduce such uncertainty (Denis et al., 2011).

We observe that in Step 2 of our regression Model 1, Environmental Uncertainty (EU) is not significant even though it was in Step 1. This phenomenon indicates a possible mediation mechanism between these variables, which is analyzed by testing the mediation hypotheses later in this study.

Model 2 explores the relationship between Experiential Intuition (EI) and variables related to uncertainty in the environment and the decision itself. We followed a stepwise procedure similar to Model 1. In Model 2, we find support for our hypotheses 2 and 4. Environmental Uncertainty (EU) shows a positive and highly significant ($p<0.01$) relationship with Experiential Intuition (EI), as stated in Hypothesis 2. Several studies cited in this investigation suggest this relationship but had not found strong empirical support for this hypothesis.

In Step 2, results show a positive and highly significant ($p<0.01$) relationship between Decision Uncertainty (DU) and Experiential Intuition (EI). This finding aligns with reports by Elbanna et al. (2013) and supports Hypothesis 4.

As was noted for Model 1, in Model 2, we also observe that the effect of Environmental Uncertainty (EU) on Experiential Intuition (EI) is not significant with the introduction of Decision Uncertainty (DU) in Step 2. In order to investigate the interplay between Environmental Uncertainty (EU) and Decision Uncertainty (DU) on our dependent variables in our above regression models we further test for the presence of a possible mediation mechanism as per hypotheses 6 and 7.

Table 3 also shows that we found support for hypotheses 8 and 9 related to the firm size as a contextual factor influencing SDMP.

As expected, large firms are generally designed to have more formal decision-making procedures, and this is supported by our results as Firm size (log) has a positive and significant ($p<0.05$) relationship with Procedural Rationality (PR). Findings presented in Table 3 support Hypothesis 8, which coincides with reports of Fredrickson and Iaquinto (1989). In agreement with the reports of Elbanna et al. (2013), Firm size (log) is negatively and significantly ($p<0.05$) related to Experiential Intuition (EI), as shown in step 2 of Model 2, which supports Hypothesis 9.

We further checked for any collinearity by running the collinearity diagnostics. The VIF collinearity statistics ranged around 1, significantly less than 10. We also created residual plots for our regression (Figures 10 and 11 are provided in the Appendix). The residuals are randomly distributed without specific patterns, indicating that no additional systematic information in the data environment could improve model fit.

Further, we computed and checked the Cook's distance to rule out the possibility of any influential points. There were no influential points found as per

the Cook's distance. We also checked the distribution of the residuals by plotting the studentized residuals and found the residuals to be normally distributed as shown in Figures 12 and 13 in the Appendix.

Environmental Uncertainty (EU) and Decision Uncertainty (DU): A mediation relationship

In order to test hypotheses 5, 6, and 7, we conducted an Ordinary Least Squares (OLS) regression using the mediation model from the Andrew F. Hayes procedure, PROCESS (Hayes, 2013). The results from this regression are provided in Table 4.

We ran two models, one with Procedural Rationality (PR) as the dependent variable and the other with Experiential Intuition (EI) as the dependent variable.

Both models followed the two-stage mediation approach laid out by Hayes´ procedures (Hayes, 2013), with a bootstrap sample of 1000. In Stage 1 for both models, we tested the effect of Environmental Uncertainty (EU) on Decision Uncertainty (DU). We found a significant correlation between these two variables ($p<0.05$), supporting Hypothesis 5. As suggested by Elbanna et al. (2018), Environmental Uncertainty (EU) may elevate the complexity and uncertainty of a decision, which may imply that Decision Uncertainty (DU) could have a mediation effect between Environmental Uncertainty (EU) and SDMP observable in the decision-maker.

Model 1 for Procedural Rationality

In Stage 2 of Model 1, that is, the full model, we can observe that our dependent variable, Procedural Rationality (PR), is not directly driven by Environmental Uncertainty (EU) and instead is induced by Decision Uncertainty (DU).

		Model 1			Model 2	
		Procedural Rationality (PR)			Experiential Intuition (EI)	
Independent Variables		Dependent Variable: Decision Uncertainty (DU)	Dependent Variable: Procedural Rationality (PR)		Dependent Variable: Decision Uncertainty (DU)	Dependent Variable: Experiential Intuition (EI)
	Stage 1					
Constant		1.68** (0.597)			1.68** (0.597)	
Environmental Uncertainty (EU)		0.24* (0.114)			0.24* (0.114)	
Firm size (log)		0.11 (0.161)			0.11 (0.161)	
Position		0.2736 (0.172)			0.2736 (0.172)	
	Stage 2					
Constant			5.2** (0.688)			2.1** (0.707)
Decision Uncertainty (DU)			-0.44** (0.112)			0.37** (0.115)
Environmental Uncertainty (EU)			-0.17 (0.130)			0.26 (0.133)
Firm size (log)			0.55** (0.179)			-0.26 (0.183)
Position			0.09 (0.194)			0.05 (0.199)
	R-square	0.07	0.23		0.07	0.17
	F	2.44	7.27		2.44	4.92
Summary of Direct and Indirect Effects		*Direct effect of EU on PR: Effect: -0.1689 (0.1287), p-value:0.19*			*Direct effect of EU on EI: Effect: 0.2568 (0.1331), p-value:0.06*	
		Indirect effect of EU on PR through DU: Effect: 0.106 (0.054)*			*Indirect effect of EU on EI through DU: Effect: 0.0887* (0.049)*	
*** P<0.05 ** P<0.01** *Standard errors in parentheses*						

Table 4. Results of Regression (Two Stage Mediation Model) for Procedural Rationality (PR) and Experiential Intuition (EI).

Higher Decision Uncertainty (DU) is negatively related to the use of Procedural Rationality ($p<0.01$). As per our expectation, this suggests that laid-out procedures and fixed decision rules are often relatively less useful in the decision-making process when the perceived uncertainty in the environment (Environmental Uncertainty – EU) is high, which is captured by the decision-maker through higher Decision Uncertainty (DU). Our mediation model explains the mechanism involved here: Decision Uncertainty (DU), driven by Environmental Uncertainty (EU), fully mediates this negative relationship.

The direct effect of Environmental Uncertainty (EU) on Procedural Rationality (PR) is absent in the presence of Decision Uncertainty (DU) ($p>0.10$), and the presence of the indirect effect supports the fully mediated model. The indirect effect of Environmental Uncertainty (EU) on Procedural Rationality (PR) through Decision Uncertainty (DU) is significant ($p<0.05$).

The evaluation of the conditions for a mediation effect proposed by Baron and Kenny (1986) show the following in this case: We can see condition 1 in Stage 1 of Model 1, the independent variable (Environmental Uncertainty – EU) significantly affects the mediator variable (Decision Uncertainty – DU) ($p<0.05$); condition 2 was also met in the evaluation of direct effects (Step 1 – Model 1 Table 3) as the independent variable (Environmental Uncertainty) significantly affects the dependent variable (Procedural Rationality - PR) ($p<0.05$); condition 3 is present in the full model in Stage 2 of Model 1 as the mediator variable (Decision Uncertainty – DU) significantly affects the dependent variable (Procedural Rationality - PR) ($p<0.01$); and condition 4 is also met as it can be observed (Stage 2 – Model 1 – Table 4) that in the presence of the mediator (Decision Uncertainty – DU) the relationship between the independent variable (Environmental Uncertainty – EU) and the dependent variable (Procedural Rationality - PR) is no longer significant (full mediation). These results support Hypothesis 6.

These conditions for a full mediation effect are represented as follows for the case of Procedural Rationality (PR) as the independent variable:

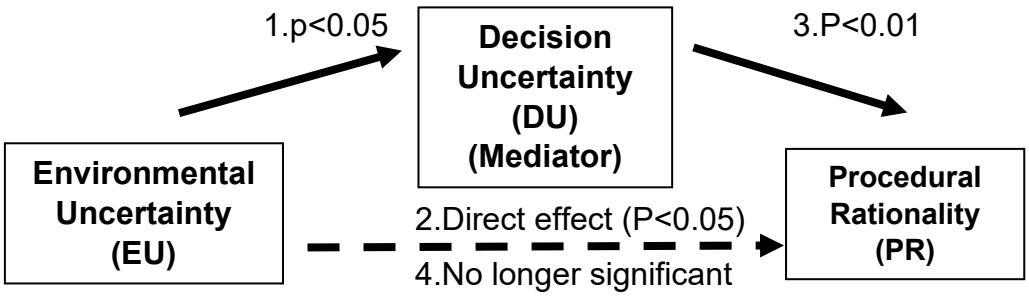


Figure 8. *Mediation role of Decision Uncertainty DU) in the relationship of Environmental Uncertainty (EU) as an antecedent of Procedural Rationality (PR).*

Model 2 for Experiential Intuition

In Stage 2 of Model 2 (Table 4), that is, the full model, we can observe that the dependent variable, Experiential Intuition (EI), is not directly driven by Environmental Uncertainty (EU) but rather is induced by Decision Uncertainty (DU). We can see that higher uncertainty in the decision itself (DU) is positively correlated to the use of Experiential Intuition (EI) ($p<0.01$). This, as per our expectation, suggests that past experiences of the decision-maker are more useful in decision-making contexts characterized by high levels of uncertainty, both in the environment and in the decision itself. Essentially, the standard procedures and rules-based processes are less relevant in uncertain contexts, and managers consider their intuition and past experiences to be more pertinent. Decision Uncertainty (DU), which is driven by uncertainty in the environment (EU), fully mediates this positive relationship.

The direct effect of Environmental Uncertainty (EU) on Experiential Intuition (EI) is absent in the presence of DU ($p>0.10$), and the presence of the

indirect effect (p<0.05) supports the fully mediated model. The indirect effect of Environmental Uncertainty (EU) on Experiential Intuition (EI) through Decision Uncertainty (DU) is significant (p<0.05).

Following the four conditions mentioned by Baron and Kenny (1986) to evaluate a mediation effect, we can see in this case condition 1 in the Stage 2 of Model 2, the independent variable (Environmental Uncertainty – EU) significantly affects the mediator variable (Decision Uncertainty – DU) (p<0.05); condition 2 was met in the evaluation of direct effects (Step 1 – Model 2 Table 3) as the independent variable (Environmental Uncertainty) significantly affects the dependent variable (Experiential Intuition – EI) (p<0.01); condition 3 is observable in the full version of Model 2 in Stage 2 as the mediator variable (Decision Uncertainty – DU) significantly affects the dependent variable (Experiential Intuition – EI) (p<0.01); and condition 4 is met as in the presence of the mediator (Decision Uncertainty – DU) the relationship between the independent variable (Environmental Uncertainty – EU) and the dependent variable (Experiential Intuition - EI) is no longer significant (full mediation) (P>0.10). This finding supports Hypothesis 7.

These conditions for a mediation effect are represented as follows for the case of Experiential Intuition (EI) as the independent variable:

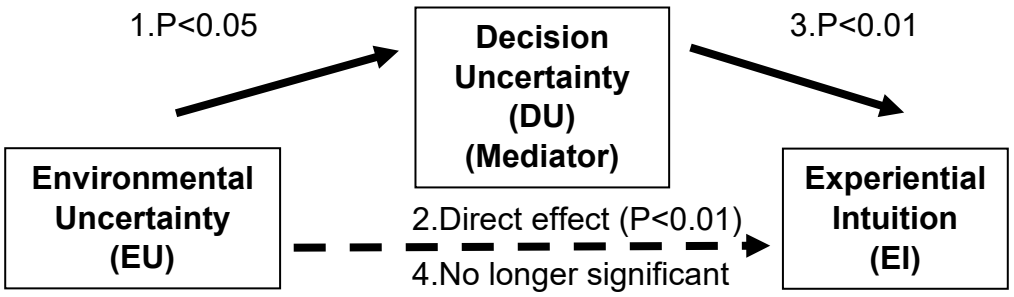


Figure 9. *Mediation role of Decision Uncertainty (DU) in the relationship of Environmental Uncertainty (EU) as an antecedent of Experiential Intuition (EI).*

c. Part 2

In the second part of this study, as another contribution of this investigation, we included in the analysis the dimension of the decision-maker characteristics, which is the fourth of the model presented in Figure 1. The analysis included two variables of this dimension: thinking style and years of managerial experience.

As a departing point in Part 2, we ran a correlations analysis that included Procedural Rationality (PR) and Experiential Intuition (EI), the dependent variables to approach SDMP in this investigation, and the variables for each one of the four contextual factors as presented in Figure 1.

Table 5 presents correlations between all these variables, which also include Environmental Uncertainty (EU) for the dimension of External Environmental Characteristics, Decision Uncertainty (DU) for Strategic Decision-Specific Characteristics, Firm size (log), which refers to the natural logarithm of the number of full-time employees for Internal Firm Characteristics; as well as variables of the decision-maker dimension, such as Years of Managerial Experience (Experience), Rational Thinking Style (T_Sty_R) and Intuitive Thinking Style (T_Sty_I).

Table 5. Correlations Part 2

	T_Sty_R	T_Sty_I	Experience	Firm size (log)	DU	EU	PR	EI
T_Sty_R	1	-,037	-.221*	,172	-,077	,133	,074	-,016
T_Sty_I	-,037	1	,078	-,171	-,041	-,032	-.243*	.469**
Experience	-.221*	,078	1	-,057	,013	,084	,009	-,046
Firm size (log)	,172	-,171	-,057	1	,050	-,083	.268**	-,134
DU	-,077	-,041	,013	,050	1	.203*	-.365**	.338**
EU	,133	-,032	,084	-,083	.203*	1	-.214*	.257**
PR	,074	-.243*	,009	.268**	-.365**	-.214*	1	-.720**
EI	,016	.469**	-,046	-,134	.338**	.257**	-.720**	1

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
n=102

Some interesting correlations, as expected, can be observed in Table 5. For example, a negative and significant correlation ($p<0.05$) between Years of Managerial Experience (Experience) and Rational Thinking Style (T_Sty_R). Also, a negative and significant correlation ($p<0.05$) between Procedural Rationality (PR) and Intuitive Thinking Style (T_Sty_I), and a positive and highly significant correlation ($p<0.01$) between Experiential intuition (EI) in SDMP and Intuitive Thinking Style (T_Sty_I). However, other expected correlations are not visible in this table, such as a positive and significant relationship between Years of Managerial Experience (Experience) and Experiential Intuition (EI) in SDMP.

The direction of the correlation between Rational Thinking Style (T_Sty_R) and Intuitive Thinking Style (T_Sty_I) is negative as expected, however not significant. Finally, it is interesting to note that thinking style, either Rational (T_Sty_R) or Intuitive (T_Sty_I), has no significant correlation with Environmental Uncertainty (EU), Decision Uncertainty (DU) and Firm Size (log).

Test of hypotheses Part 2

In the last part of this investigation, we tested the hypotheses relating to the decision-maker specific characteristics using an Ordinary Least Squares (OLS) regression. Specifically, we ran two regression models with Procedural Rationality (PR) and Experiential Intuition (EI) as the dependent variable in each of them (see Table 6).

These results support Hypothesis 11, as there is a positive and highly significant correlation between Intuitive Thinking Style (T_Sty_I) and Experiential Intuition (EI). Moreover, there is no significant relationship between the decision-maker´s Rational Thinking Style (T_Sty_R) and Experiential Intuition (EI). Even though it was not one of our hypotheses, it is interesting to see a negative and highly significant relationship between the decision maker´s Intuitive Thinking Style (T_Sty_I) and Procedural Rationality (PR) in SDMP. Therefore, the findings shown in Table 6 partially support the theoretical view according to which styles

of thinking influence SDMP (Eisenhardt, 1989; Eisenhardt & Zbaracki, 1992; Wally & Baum, 1994; Kathry & Ng, 2000; Sadler-Smith, 2004; Sadler-Smith & Shefy, 2004).

	Model 1		**Model 2**
Dependent Variables	**Procedural Rationality**		**Experiential Intuition**
Constant	6.18 (1.11)		-0.49 (0.999)
Thinking Style Rational	0.068 (0.201)		0.04 (0.181)
Thinking Style Intuitive	-0.35** (0.132)		0.72** (0.119)
Experience	0.003 (0.011)		0.01 (0.010)
Control variables:			
Firm size (log)	0.46* (0.181)		-0.11 (0.163)
Position	0.18 (0.218)		-0.11 (0.196)
Environmental Uncertainty (EU)	-0.19 (0.130)		0.29* (0.117)
Decision Uncertainty (DU)	-0.45** (0.111)		0.39** (0.100)
R-square	0.29		0.41
F	5.35		9.16

*** P<0.05 ** P<0.01** *Standard errors in parentheses*

Table 6. Results of OLS regression for SDMP and Decision-Maker Specific Characteristics.

Findings in the second part of this investigation do not yield support for hypotheses 10, 12, and 13. We observe a positive association between the Rational Thinking Style (T_Sty_R) of the decision-maker and Procedural Rationality (PR). However, it is not statistically significant, as seen in Model 1 of Table 6 (Hypothesis 10). We do not find support for hypotheses 12 and 13

regarding the importance of Years of Managerial Experience (Experience) as an antecedent of Experiential Intuition (EI) in SDMP (Hypothesis 12), and as having a negative relationship with Rational Thinking Style (T_Sty_R) of the decision-maker (Hypothesis 13). Finally, it is interesting to see how all our control variables have behaved consistently with our earlier results, which serves as a robustness check.

In order to rule out the influence of any other characteristics of the individual deciding on our dependent variables, we ran the above regression models by adding fixed-effects for the decision-maker. Our results are consistent and robust after adding the fixed effects. We also observe that the residuals from both our regression models are randomly distributed without any patterns (residual plots are provided in Figures 14 and 15 in the Appendix).

We further checked for any collinearity by running the collinearity diagnostics and the VIF collinearity statistics ranged around 1, significantly less than 10. We did not find any influential points as per the Cook's distance.

6. Discussion

Several findings of this study are interesting as they enrich the body of existing knowledge and deliver empirical evidence around theoretical formulations. The results of this investigation validate the influence of contextual factors on SDMP and the existence of interactions among those factors. The lack of support for some of the hypotheses suggests the opportunity to use new approaches to empirically explore these relationships, which includes trying measuring instruments of higher robustness.

In line with some pieces of previous empirical research and theoretical formulations (Covin, Slevin & Heeley, 2001; Elbanna, 2006; Harrington & Otternbacher, 2009; Elbanna et al., 2013; Locke, 2015; Elbanna & Fadol, 2016), this study found that Environmental Uncertainty (EU) is a significant predictor of Experiential Intuition (EI) in SDMP ($p<0.01$). Another relevant antecedent of Experiential Intuition (EI) in making a strategic decision, observable as per the data analyzed, is Decision Uncertainty (DU). These two variables showed a positive and highly significant correlation ($p<0.01$), which coincides with reports by Elbanna et al. (2013).

Findings from this empirical exploration are also aligned with reports by Fredrickson and Iaquinto (1989), who found a positive correlation between firm size and the use of rationality in SDMP. In this investigation, we found a positive and significant ($p<0.05$) relationship between Firm Size, measured as the logarithm of the number of full-time employees, and Procedural Rationality (PR).

Two interesting findings from the analysis of correlations between pairs of variables are worth mentioning: first, the disappearance of a significant correlation between Environmental Uncertainty (EU) and both Procedural Rationality and Experiential Intuition (EI) in the presence of Decision Uncertainty (DU), which justified the exploration of a mediation effect. Second, the positive and significant ($p<0.05$) correlation between Environmental Uncertainty (EU) and Decision Uncertainty (DU), which also shed light on the pertinence of exploring a mediation effect.

The results mentioned above led to one of the most significant contributions of this study, which has to do with the empirical observation of a mediation effect of Decision Uncertainty (DU) in the relationship of Environmental Uncertainty (EU) as an antecedent of both Procedural Rationality (PR) and Experiential Intuition (EI), in line with suggestions by Elbanna et al. (2020). This result is peculiar and not comparable with past empirical research, and it yields support for theoretical formulations around this idea. In an extensive literature review, covering 87 papers, Elbanna et al. (2020) did not find available publications showing empirical evidence on this topic. These authors suggested this type of relationships as an intriguing avenue for future empirical research.

This study also showed that Procedural Rationality (PR) and Experiential Intuition (EI) are different constructs, as suggested by Elbanna et al. (2013). Instruments to approximate these two constructs are challenging, and there is still an opportunity to refine them, especially to have more comparable studies.

Finally, this research illustrates the importance of including the dimension of the decision-maker specific characteristics as part of the contextual factors influencing SDMP, to explore predictors of Procedural Rationality (PR) and Experiential Intuition (EI) in more complex models (Elbanna et al., 2018). This investigation contributes to the understanding of this dimension of the context with empirical findings about the positive and highly significant ($p<0.01$) relationship between the Intuitive Thinking Style of the decision-maker and the presence of Experiential Intuition (EI) in the decision-making process. However, it leaves the discussion open, for example, regarding the role of Years of Managerial Experience as an antecedent of SDMP.

Contributions to literature in strategic decision-making

Elbanna and Child (2007 a) formulated three relevant recommendations for studies in this field: to encompass different perspectives to develop a complete model of strategic decision-making, to investigate strategic decision-making processes in relation to the synoptic and incremental-political debate, and to conduct research in a non-American or non-British setting. This study meets all

these recommendations, resulting in compelling contributions to existing theory on decision sciences.

This investigation also provides valuable pieces of empirical evidence, which are only sometimes abundant in matters included in the study, that enrich knowledge generated beyond artificial or lab conditions. According to experts in the field, it is challenging to do empirical research using samples of executives in high-responsibility positions. This study overcomes that limitation, which is an argument for giving higher value to its findings.

A novel geographical setting such as Latin America is explored, from which it was not possible to find relevant publications on topics like the ones covered by this investigation. Results also add to the still small body of research around the decision-maker dimension as part of the context of strategic decisions, since it explores thinking style and years of managerial experience in that perspective. Findings of the Intuitive Thinking Style of the decision-maker as an antecedent of the use of Experiential Intuition (EI) in the decision-making process open an interesting avenue for future research.

This study also contributes with empirical evidence of more complex relationships, beyond simple direct effects, among contextual factors and of them with SDMP. The empirical finding of the mediation effect of Decision Uncertainty (DU) in the relationship between Environmental Uncertainty (EU) and SDMP, hypothesized by Elbanna et al. (2020), supports the need and possibility of more sophisticated analyses and approaches to this matter. Several of these relationships happen among contextual factors, some of which have been formulated theoretically but need empirical validation. In light of the findings in this study, environmental context is captured more by the decision characteristics than by the decision-maker directly.

This study, however, was unable to find evidence related to findings reported, for example, by Sadler-Smith and Shefy (2004), who noted how more

experienced managers tend to be more intuitive than less experienced ones. Results are not conclusive regarding how a particular thinking style derives in a specific decision-making process.

Contributions to literature in strategy

This investigation also contributes to theory in strategy. As the set of choices that companies make, strategy formulation is based on decision-making processes. This study shows how in strategic decision-making, rationality mixes with intuition derived from experience, and that the strategic process is not entirely rational. This finding is consistent with the views of Mintzberg (1994), who theorizes that strategy is a process of learning and imagination fueled by existing information, experience, and creativity, in which intuition is critical in the middle of fast-moving and uncertain environments.

Results from this study also contribute to a better understanding of the dynamics that shape strategy in an organization and of the competitive behaviors observed given the context in which a strategic decision is made (Ferrier et al., 1999). The use of experience, expressed as intuition, in the process of making decisions that shape strategy sheds light on organizational learning theory (Crossan et al., 1999), as well as clarifies a way in which changes in the environment are incorporated to derive in adaptation (Hannan & Freeman, 1977). A better understanding of intuition, as a legitimate tool for decision-making under time and information constraints, also contributes to contingency theory (Schoonhoven, 1981) as a line of thinking interested in how companies shape their future facing their environment.

Finally, findings of this study suggest that it is relevant to go further in the exploration of the role of specific characteristics of the people defining the strategy since both the strategic processes and its final results might be also contingent to the individuals and not only to the objective circumstances, as highlighted by the Upper Echelons theory.

Implications for managers

Practitioners of management benefit from findings of this type of studies in several ways, hence this investigation contributes, for example, to a better understanding of the antecedents of rational and intuitive behaviors in the process of making strategic decisions, which can help practitioners to be more conscious of the context in order to take better care of the process.

This study also invites managers to be careful when adopting or tolerating behaviors based on studies that test isolated relationships between context factors and SDMP. Derived from the findings presented in this document, they should be aware of the complexities of the context and the interplay of variables that integrate it when making strategic decisions. As recommended by experts (Elbanna et al., 2018), narrow studies should only be considered by practitioners as potentially prescriptive if the context in which they were developed is very similar to their own.

One of the main implications of this study for practitioners is the opportunity to develop skills to use their experience, expressed as experiential intuition, to their advantage. The first step is recognizing it as a legitimate part of the decision-making process. It also requires a self-evaluation of the experience that supports the type of intuition explored in this study. Elbanna et al. (2013) suggest that executives could think of rationality and intuition as operating in a dual process in which rationality is used to its limits, given the availability of information, and intuition takes over beyond those limits. Managers can confidently believe that they do not have to opt for one or another process as they complement each other and operate simultaneously.

Another way of understanding this dual process, and the interaction of rationality and intuition as different and not opposing operations, is presented by Kahneman and Klein (2009), who indicate that rationality gets information from intuition for its analytical process, while intuition is properly incorporated

into the process through a rational intention and rational criteria for consciously taking advantage of it when available. Furthermore, Locke (2015) suggests that decisions made intuitively in the early stages of the process can then be rationalized when time allows it, and information becomes available.

The findings presented in this study also have interesting implications for practitioners regarding their behavior in the midst of high environmental uncertainty, as may frequently be the case in developing countries. First, results indicate that the sole presence of uncertainty in the environment does not necessarily explain or even justify intuitive behaviors in the process of making strategic decisions. Several decisions can still be made mainly using rational procedures in such a context, as external uncertainty does not affect assumptions or information needed. In other words, environmental uncertainty is not an excuse to behave intuitively, disregarding the rational process as the context itself does not diminish the potential usefulness of rationality. This means that the uncertainty observable in the environment may be relevant for some decisions but not others.

Another consideration with practical implications is the relationship between environmental uncertainty and decision uncertainty. It is likely that uncertainty surrounding a business is incorporated and turns tangible through decisions that become more complex and uncertain, derived of the context. In the middle of environmental uncertainty, following procedures, meeting some norms, collecting and analyzing data, and behaving rationally could be more challenging. Another potential interpretation of this correlation, as an interesting contribution to practitioners, is that environmental uncertainty may damage the company, consequently making decisions more uncertain.

As a result of these implications, a prescriptive piece of advice for managers facing strategic decisions is to opt first for rational procedures and to consider experiential intuition as an additional source of information for that process. Furthermore, it is advisable to make sure that, in the cases where

that is not possible and intuitive processes are the only alternative available, the logic of those processes is solid and reasonable as clarity, coherence and effective communication are key to implement those decisions.

Finally, the benevolent invitation by experts in leadership to executives around the importance of knowing oneself gains strength from the results of this investigation, as findings revealed how the individual´s thinking style has the potential to influence behaviors in the strategic decision-making process.

Limitations

Several limitations in this study are worth mentioning. To begin with, the sample size is small compared to other studies, and all companies come from the same country, which limits the potential generalization of findings.

A limited number of variables representative of the context was included in the analysis considering the wide variety of them that have been the subject of investigation. Therefore, this study cannot claim that the variables explored are the best representatives of the contextual perspectives explored, even though they have been the subject of theoretical interest and empirical investigation.

Regarding the scales used to approach different study variables, the reliability of some of the instruments could have been more robust, as it is pertinent for this type of investigation. Some noise could have been introduced due to relatively low scale reliability in some cases, and this source of randomness might weaken the relevance of findings in this piece of research.

Following observations from Elbanna et al. (2020), this study may also need some improvement in its methodology. First, it relies on reporting past behavior, which may deteriorate the quality and accuracy of the respondent´s answers to the survey. Second, in a volatile setting, such as the one in the present study, drastic environmental changes might lead to different findings at different moments. Lastly, this study examines isolated strategic decisions; therefore, it has limitations in capturing the consistent behavior and patterns of the

participants. Different decisions in the same firm may lead to variations in the process and the behavior of individuals.

This formulation of a comprehensive view of the contextual factors influencing strategic decision-making processes also leaves an interesting element outside its consideration: Culture. Authors recognize what they call “geographical bias” in the body of research available in several fields of management, as most of it has been conducted in the United States of America and the United Kingdom (Pettigrew et al., 2002).

Two perspectives on the issue are found in literature. The “culture-free” argument suggests that cultural differences may not affect the nature of relationships among contextual factors and SDMP characteristics. On the other hand, the “culture-specific” argument sustains that idiosyncratic sociocultural parameters influence managerial practices. Some of the findings from empirical research on SDMP conducted by Papadakis et al. (1998) in Greece and by Elbanna and Child (2007a) in Egypt, support the “culture-free” argument, as they converge with findings from traditional domains where research has been conducted. However, in the same studies, other findings suggest the need for an explanation from a “culture-specific” perspective as they are not aligned with the existing body of knowledge.

Researchers suggest, in all cases, that culture is a relevant factor in the study of SDMP. Elbanna et al. (2013), for example, noticed how Egyptian managers are used to living amid environmental uncertainty, which may lead them to discount it when making strategic decisions. Elbanna and Fadol (2016) suggest that firms focus more internally than externally in volatile environments. This idea may also apply to the case of Colombia and might strengthen the mediation effect of Decision Uncertainty (DU), as Environmental Uncertainty (EU) by itself might not affect SDMP as strongly in this context.

Most of the limitations mentioned for this study point mainly to a difficulty common in the field: comparability. The use of different definitions of constructs, inconsistencies in the use of scales, differences in statistical approaches to the

analysis, as well as geographical and cultural differences, make comparability a challenge at the current level of knowledge in the field.

Paths for future research

Elbanna et al. (2020) mention that research on strategic decision-making processes is dominated by studies showing mixed, contradictory, and inconclusive findings. Therefore, there is still much work to be done.

More empirical research using an integrative approach is needed to go beyond available findings of isolated direct effects of contextual factors on SDMP. This study has shown that all factors that make up the context act permanently to influence the process, and interactions among them are complex and still to be revealed in depth. The call is for further exploration of the interactions of those factors among themselves, for example, mediation and moderation effects, but also around the interaction between SDMP, such as Procedural Rationality (PR) and Experiential Intuition (EI), given that they are different constructs that operate simultaneously in the process, perhaps in a different way in each phase of the task of deciding.

It will also be interesting to see studies that include other variables in each of the contextual factors of the model, as having only one variable per factor may oversimplify the analysis. Along with this opportunity for further research, Elbanna et al. (2013) have suggested longitudinal studies to reduce the model´s limitations since the relevance of each factor might change over time as an organization gains experience and its surrounding environment evolves.

The dimension of the decision-maker, as part of the context of SDMP, is another promising avenue for future research. The available literature is scarce, and the findings of this study suggest the pertinence of the Upper Echelons theory, according to which demographic and psychological characteristics of top managers may interfere the influence of external and internal factors on the strategic decision-making process. The study of the role of culture in SDMP is another opportunity for research on comparative decision-making practices across different countries and cultural domains.

New research using improved versions of the existing scales to measure some of the variables may help solve some inconsistencies in existing literature. Elbanna et al. (2020) argue that such inconsistencies in findings, for example about rationality and intuition, are partly due to the use of different labels and measures of the same construct.

Finally, considering the literature review that gives context to this study, it is clear that intuition is a concept around which there is still open ground to explore. Future research can deepen the exploration of this construct as executives widely recognize its use. Elbanna and Fadol (2016) suggest that the more we know about intuition, the better executives will understand how and when to use it to their advantage. The aforementioned will also help to revise a still prevalent negative perception of intuition. This will demand efforts to undergo empirical research working with executives in positions of high responsibility, which this study has demonstrated is possible as they are generally willing to help.

7. Conclusion

The empirical research presented in this document offers six contributions to knowledge. Firstly, it enriches the understanding of contextual factors as predictors of characteristics in Strategic Decision-Making Processes. The model used as a reference validates that context factors affect decision-making processes simultaneously, and findings show that relationships among factors are relevant.

Secondly, this study shows how procedural Rationality (PR) and Experiential Intuition (EI) seem to be parallel, complementary, and not exclusive, coinciding with the view of Dane & Pratt (2007). Therefore, it contributes to the discussion about the relationship between these constructs and invites us to explore deeper into the dynamics of both during the process of deciding, as suggested by Elbanna and Fadol (2016), who hypothesize that different phases or moments of the decision process might be characterized by one or the other.

Thirdly a contribution has to do with strengthening the visibility of Experiential Intuition (EI) as pertinent and legitimate in strategic decision-making processes. This construct must be better understood as it is often perceived as negative or unreliable. In the current situation of humanity, in which experts describe the environment as VUCA (Volatile, Uncertain, Complex, and Ambiguous), analytical procedures as the only alternative for making decisions may fall short since information from the past has lost the capacity to predict the future, as change is fast and time pressure is constant. Results from this study contribute by offering ideas for practitioners to benefit from using their own experiential intuition.

Next, a contribution worth mentioning is related to the geographic context of the study. In an extensive literature review about topics in this investigation, Elbanna et al. (2020) did not find relevant research reported from any Latin American country. In the fifth place, this study contributes ideas around the contextual dimension of the decision-maker characteristics. This is a topic in which available research is limited and therefore offers relevant potential for future exploration. It will be interesting to see new findings about, for example, the influence of thinking style and years of managerial experience on SDMP.

Finally, this study offers evidence of the relationship between Environmental Uncertainty (EU) and Decision Uncertainty (DU), as well as an empirical examination of the mediation effect of Decision Uncertainty (DU) in the relationship between Environmental Uncertainty (EU) and characteristics of strategic decision-making processes, Procedural Rationality (PR), and Experiential Intuition (EI).

This document adopts the suggestions for future research by Elbanna et al. (2020) around exploring more complex relationships among contextual factors, and between them and SDMP to go beyond traditional research on isolated direct individual effects. Results presented in this document show that contextual factors do not operate in isolation and contribute to a better understanding of how those factors affect one another as antecedents of SDMP (Elbanna et al., 2020).

Conclusión

El trabajo de investigación empírica presentado en este documento ofrece seis contribuciones al conocimiento. En primer lugar, enriquece la comprensión de los factores contextuales como predictores de las características en Procesos de Toma de Decisiones Estratégicas (PTDE). El modelo utilizado como referencia certifica que los factores contextuales afectan simultáneamente a los procesos de toma de decisiones, y los resultados muestran que las relaciones entre los factores son relevantes.

Segundo, este estudio muestra cómo la Racionalidad Procedimental (RP) y la Intuición Experiencial (IE) parecen ser paralelas, complementarias y no excluyentes, en línea con los planteamientos de Dane y Pratt (2007). Por tanto, contribuye al análisis de la relación entre estos constructos e invita a profundizar en la dinámica de ambos durante el proceso de decisión, tal como sugieren Elbanna y Fadol (2016), quienes hipotetizan que diferentes fases o momentos del proceso de decisión podrían caracterizarse por uno u otro.

Una tercera contribución está relacionada con el fortalecimiento de la visibilidad de la Intuición Experiencial (IE) como instrumento pertinente y legítimo en los procesos de toma de decisiones estratégicas. Es preciso alcanzar una mejor comprensión de este constructo, dado que suele percibirse como negativo o poco fiable. En la situación actual de la humanidad, en la que los expertos describen el entorno como VICA (Volátil, Incierto, Complejo y Ambiguo), los procedimientos racionales como única alternativa para tomar decisiones pueden resultar limitados en vista de que la información del pasado ha perdido la capacidad para predecir el futuro, el cambio es veloz y la presión del tiempo es constante. Los resultados del presente estudio contribuyen con ideas para que los profesionales se beneficien del uso de su propia intuición experiencial.

Otra contribución reseñable está relacionada con el contexto geográfico del estudio. En un exhaustivo examen bibliográfico sobre los temas de esta investigación, Elbanna et al. (2020) no encontraron investigaciones relevantes acerca de ningún país latinoamericano. En quinto lugar, este estudio aporta ideas en torno a la dimensión contextual de las características del decisor. Este es un

tema en el que la investigación disponible no es abundante y, por tanto, ofrece un potencial relevante para futuras indagaciones. Será interesante ver nuevos hallazgos sobre, por ejemplo, la influencia del estilo de pensamiento y los años de experiencia gerencial en PTDE.

Por último, el presente estudio aporta pruebas de la relación entre Incertidumbre Ambiental (IA) e Incertidumbre de la Decisión (ID), así como un examen empírico del efecto de mediación de la Incertidumbre de la Decisión (ID) y características de los procesos de toma de decisiones estratégicas, la Racionalidad Procedimental (RP) y la Intuición Experiencial (IE).

Este documento atiende a las sugerencias de futuras investigaciones que han realizado Elbanna et al. (2020) en torno a la exploración de relaciones más complejas entre los factores contextuales, y entre estos y los PTDE, para avanzar más allá de la investigación tradicional sobre efectos individuales directos aislados. Los resultados presentados en este documento muestran que los factores contextuales no operan de forma aislada, y contribuyen a una mejor comprensión de la manera en la que esos factores se afectan mutuamente como antecedentes de los PTDE (Elbanna et al., 2020).

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9. Appendix

Appendix A – Questionnaire: variables and measures employed

1- Procedural Rationality:

The source of reference for this instrument is Dean and Sharfman (1996). Questions in the survey to gather information for this study were the following:

1.1 How extensively did the group look for information in making this decision?

Not at all extensively			Moderately		Extensively	
1	2	3	4	5	6	7

1.2 How extensively did the group analyze the relevant information before making a decision?

Not at all extensively			Moderately		Extensively	
1	2	3	4	5	6	7

1.3 How important were quantitative analytic techniques in making the decision?

Not at all extensively			Moderately		Extensively	
1	2	3	4	5	6	7

1.4 How would you describe the process that had the most influence on the group´s decision? *

Mostly analytical					Mostly intuitive	
1	2	3	4	5	6	7

*This item was reversed scaled to limit response bias.

1.5 In general, how effective was the group at focusing its attention on crucial information and ignoring irrelevant information?

Not all effective			Moderately effective			Very effective
1	2	3	4	5	6	7

2- Experiential intuition:

The instrument used is based on Elbanna and Fadol (2016). The actual questions in the survey to gather information for this study were the following:

2.1 In order to make this strategic decision, how complete was the information available compared to what the decision makers considered desirable or necessary? * Reliance on personal judgment

Very incomplete			Moderately complete			Highly complete
1	2	3	4	5	6	7

*This item was reversed scaled to limit response bias.

2.2 In the case of this strategic decision, participants in the decision-making process relied mostly on their judgment and experience more than on the analysis of available information. * Role of past experience

Totally agree						Totally disagree
1	2	3	4	5	6	7

*This item was reversed scaled to limit response bias.

2.3 I don´t believe it is a good idea to depend on my own intuition when making important decisions.* Gut feeling 1

Absolutely False						Absolutely True
1	2	3	4	5	6	7

*This item was reversed scaled to limit response bias.

2.4 I rely on my gut feeling in the decision-making process. Gut feeling 2

Absolutely False Absolutely True

1 2 3 4 5 6 7

2.5 How would you describe the process that had the most influence on the group´s decision? Process 1

Mostly analytical Mostly intuitive

1 2 3 4 5 6 7

2.6 I did not use complex problem-solving approaches in the decision-making process. Process 2

Absolutely False Absolutely True

1 2 3 4 5 6 7

3- Environmental uncertainty:

The source of reference for this instrument is Miller (1993). Questions in the survey to gather information for this study were the following:

Please use the following questions to describe the environment in which your company was operating by the time the strategic decision chosen was made:

3.1- Government and policies

Predictable Unpredictable

1 2 3 4 5 6 7

a- Ability of the party in power to Maintain control of the Government
b- Threat of armed conflict
c- Tax policies
d- Monetary policies
e- Prices controlled by the Government
f- National laws affecting International business

g- Legal regulations affecting the Business sector
h- Tariffs on imported goods
i- Enforcement of existing laws
j- Public service provision

3.2- Economy

	Predictable					Unpredictable
	1	2	3	4	5	6	7

a- Inflation rate
b- Exchange rate with US Dollar
c- Interest rate
d- Results of economic Restructuring

3.3- Resources and services used by your company

	Predictable					Unpredictable
	1	2	3	4	5	6	7

a- Availability of trained labor
b- Labor and union problems
c- Quality of inputs, raw materials and components
d- Availability of inputs, raw materials and components
e- Prices of inputs, raw materials and components
f- Transportation system within the country
g- Transportation system to foreign countries

3.4- Product market and demand

	Predictable					Unpredictable
	1	2	3	4	5	6	7

a- Client preferences
b- Product demand
c- Availability of substitute products
d- Availability of complementary product

3.5- Competition

	Predictable					Unpredictable
	1	2	3	4	5	6	7

a- Changes in competitors´ prices
b- Changes in the market served
By competitors
c- Changes in competitors´ strategies
d- Entry of new firms into the market
e- Domestic competitors
f- Foreign competitors

3.6- Technology

	Predictable					Unpredictable
	1	2	3	4	5	6	7

a- Product changes
b- Changes in product quality
c- New product introductions
d- Changes in the production process

4- Decision uncertainty:

The primary sources of reference for the instrument used in this study are Dean and Sharfman (1993) and Elbanna et al. (2013). Questions in the survey to gather information for this study were the following:

4.1 During the process of collecting information to make this decision, how much clarity did the decision makers have about the kind of information to be collected?

Total clarity		Moderate clarity				No clarity at all
1	2	3	4	5	6	7

4.2 At the time the decision was finally made, how would you describe your need for additional information?

Had all Relevant information					Needed a great deal more information
1	2	3	4	5	6	7

4.3 To what extent was this problem similar to others you have dealt with in the past?

Very similar			Moderately different			Very different
1	2	3	4	5	6	7

4.4 How difficult was it to predict the outcomes of the various courses of action you considered in making this decision?

Not at all difficult			Moderately difficult			Very difficult
1	2	3	4	5	6	7

4.5 As you were making this decision, how confident were you that you were making the right choice?

Not at all confident			Moderately confident		Very confident	
1	2	3	4	5	6	7

5- Thinking style:

The following questions, used to measure thinking style were drawn from the 40-item REI described in detail by Pacini and Epstein (1999), particularly those focused on measuring Rational Engagement and Experiential Engagement.

Rational thinking style questions

5.1 I prefer complex problems to simple problems.

Totally false				Totally true
1	2	3	4	5

5.2 I try to avoid situations that require thinking in depth about something.*

Totally false				Totally true
1	2	3	4	5

*This item was reversed scaled to limit response bias.

5.3 Thinking hard and for a long time about something gives me little satisfaction.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.4 Thinking is not my idea of an enjoyable activity.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.5 Learning new ways to think would be very appealing to me.

Totally false Totally true

1 2 3 4 5

5.6 I enjoy intellectual challenges.

Totally false Totally true

1 2 3 4 5

5.7 I enjoy thinking in abstract terms.

Totally false Totally true

1 2 3 4 5

5.8 I don't like to have to do a lot of thinking.

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.9 Knowing the answer without having to understand the reasoning behind it is good enough for me.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.10 I enjoy solving problems that require hard thinking.

Totally false Totally true

1 2 3 4 5

Intuitive thinking style questions

5.11 I don´t like situations in which I have to rely on my intuition.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.12 I like to rely on my intuitive impressions.

Totally false Totally true

1 2 3 4 5

5.13 Intuition can be a very useful way to solve problems.

Totally false Totally true

1 2 3 4 5

5.14 I would not want to depend on anyone who described himself or herself as intuitive.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.15 I don't think it is a good idea to rely on one's intuition for important decisions.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.16 I generally don´t depend on my feelings to help me make decisions.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.17 I tend to use my heart as a guide for my actions.

Totally false Totally true

1 2 3 4 5

5.18 I often go by my instincts when deciding on a course of action.

Totally false Totally true

1 2 3 4 5

5.19 I think it is foolish to make important decisions based on feelings.*

Totally false Totally true

1 2 3 4 5

*This item was reversed scaled to limit response bias.

5.20 I think there are times when one should rely on one's intuition.

Totally false Totally true

1 2 3 4 5

Appendix B – Factor loadings from factor analyses

Experiential Intuition – Principal Components Analysis

The four items finally retained were questions number 2.1, 2.2, 2.3 and 2.5.

Item	Factor Loading*
Reliance on personal judgment	**0.912**
Role of past experience	**0.632**
Extent of gut-feeling 1	**0.897**
Extent of gut-feeling 2	0.197
Process of decision-making 1	**0.556**
Process of decision-making 2	0.286
Eigenvalue	2.43
Percentage of Variance Explained	40.53
*Values shown bold are retained in the measurement of the variable.	

Table 7. Results of Principal Components Analysis of Experiential Intuition (EI)

Decision Uncertainty – Principal Components Analysis

Item	Factor Loading
Level of clarity	0.611
Need for additional information	0.732
Extent of familiarity	0.833
Difficulty in predicting outcomes	0.542
Confidence level about correctness	0.756
Eigenvalue	1.981
Percentage of Variance Explained	35.97

Table 8. Results of Principal Components Analysis of Decision Uncertainty (DU)

Appendix C - Additional Figures

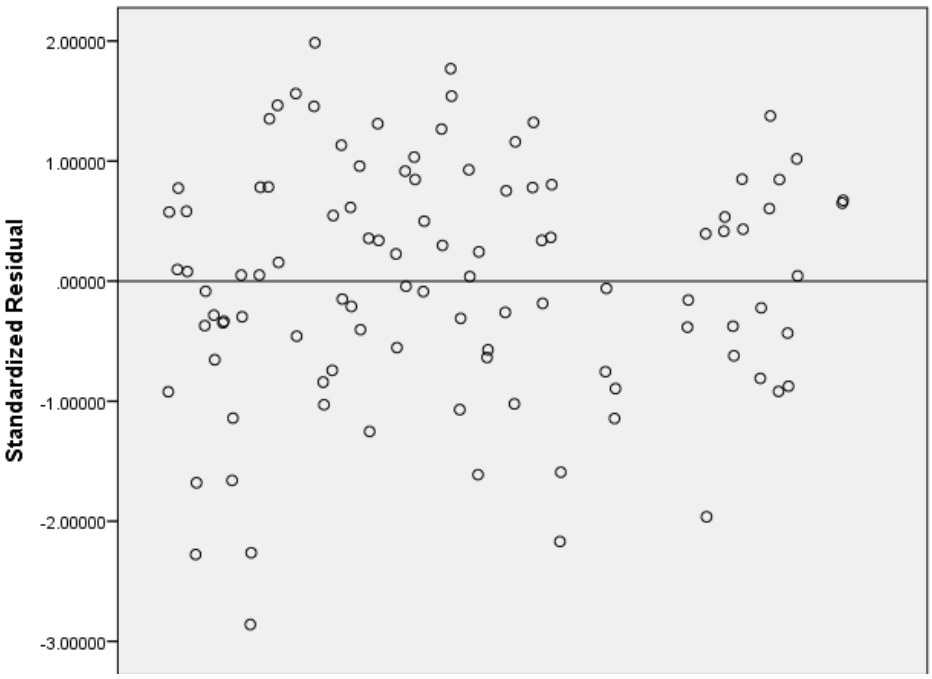

Figure 10. Residual plot for the regression with Procedural Rationality (PR) as the Dependent Variable (Model 1 – Table 3)

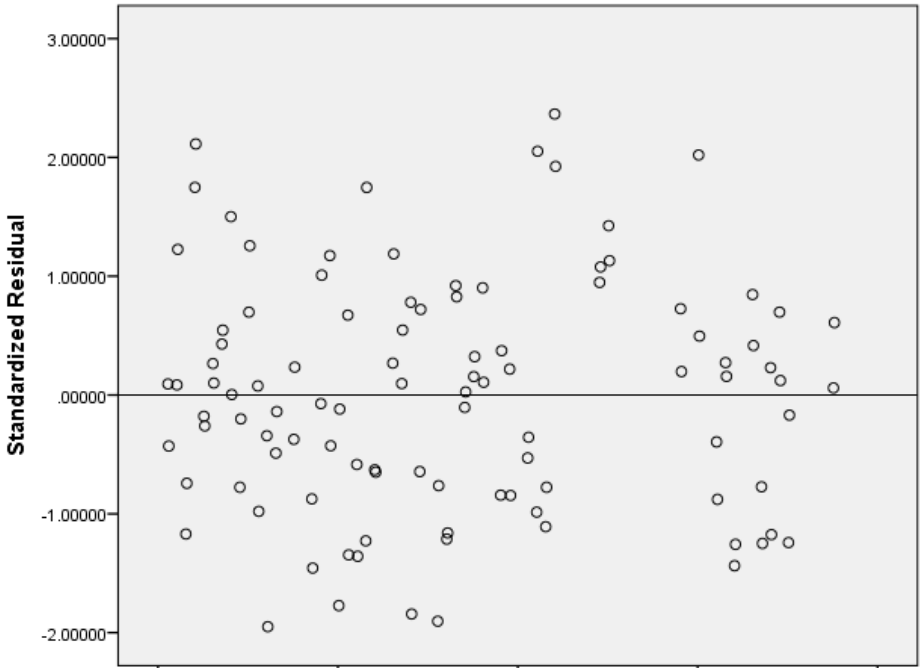

Figure 11. Residual plot for the regression with Experiential Intuition (EI) as the Dependent Variable (Model 2 – Table 3)

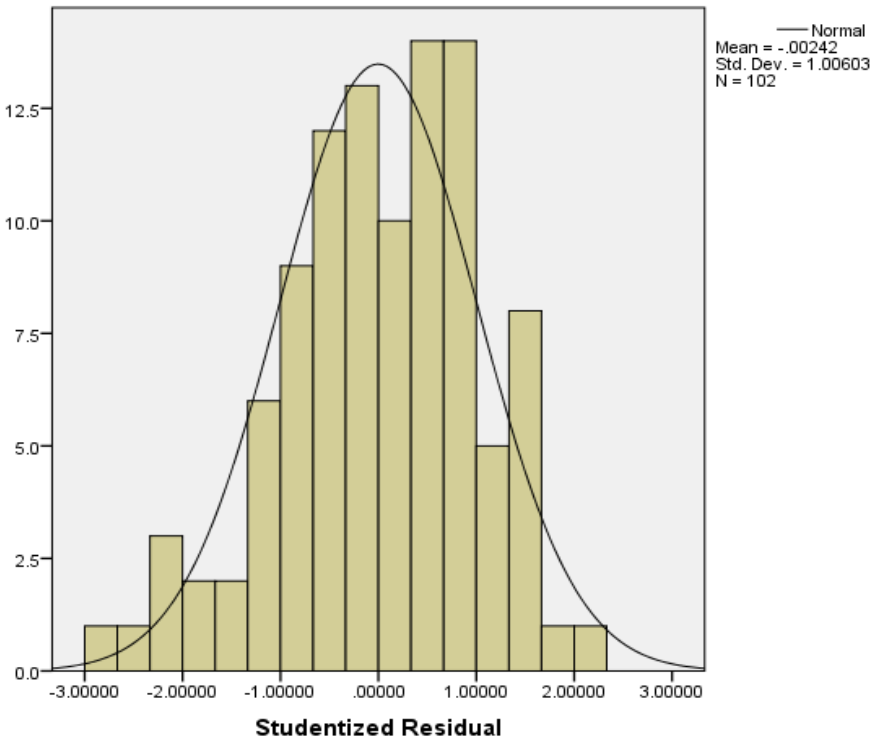

Figure 12. Distribution of the residuals for the regression with Procedural Rationality (PR) as the Dependent Variable (Model 1 – Table 3)

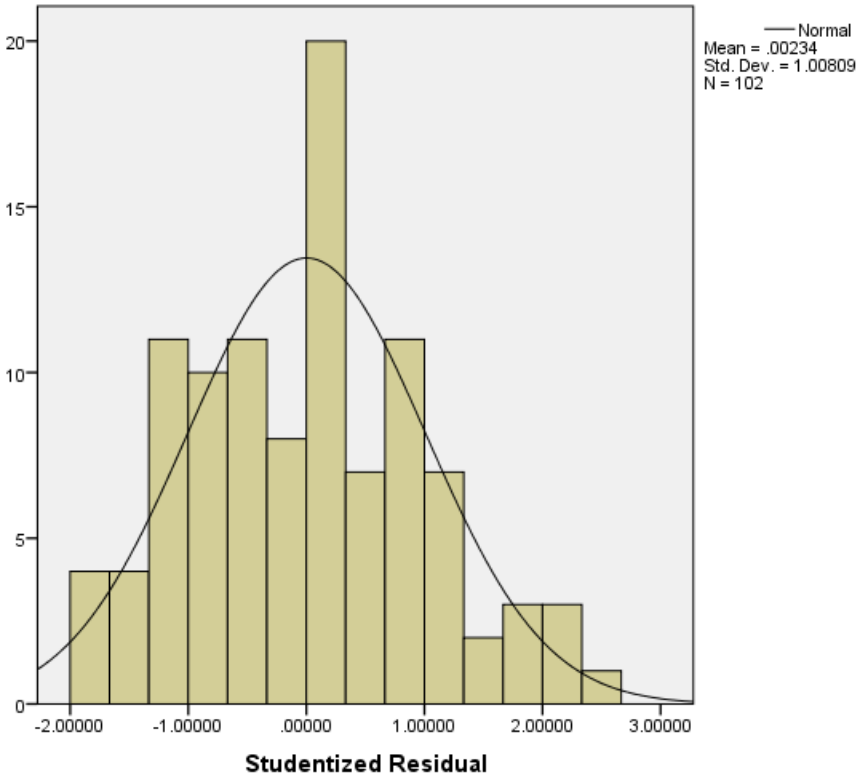

Figure 13. Distribution of the residuals for the regression with Experiential Intuition (EI) as the Dependent Variable (Model 2 – Table 3)

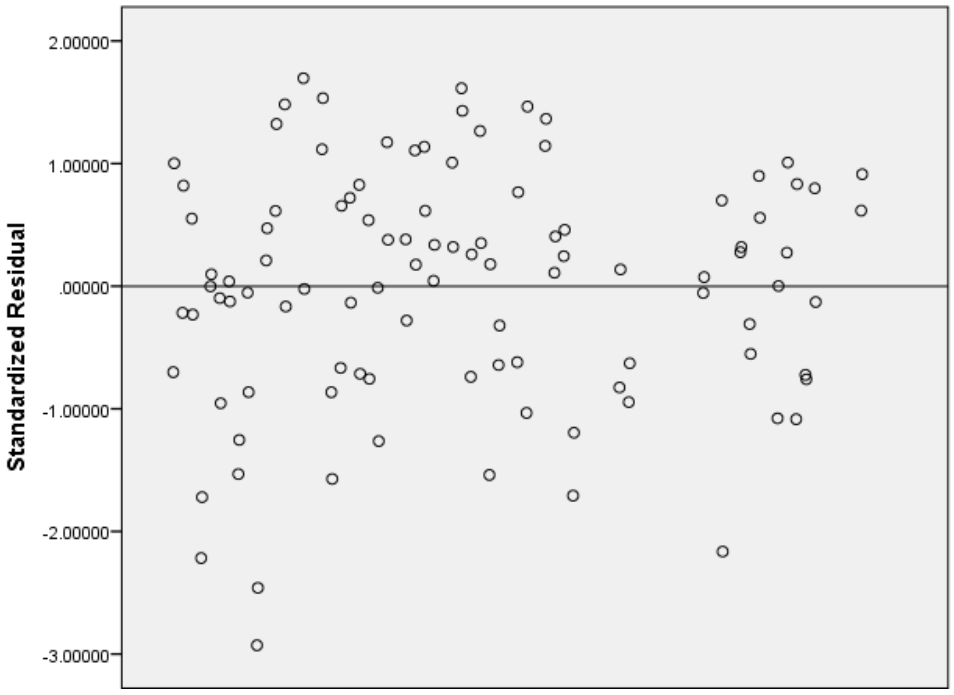

Figure 14. Residual plot for the regression with Procedural Rationality (PR) as the Dependent Variable (Model 1 – Table 6)

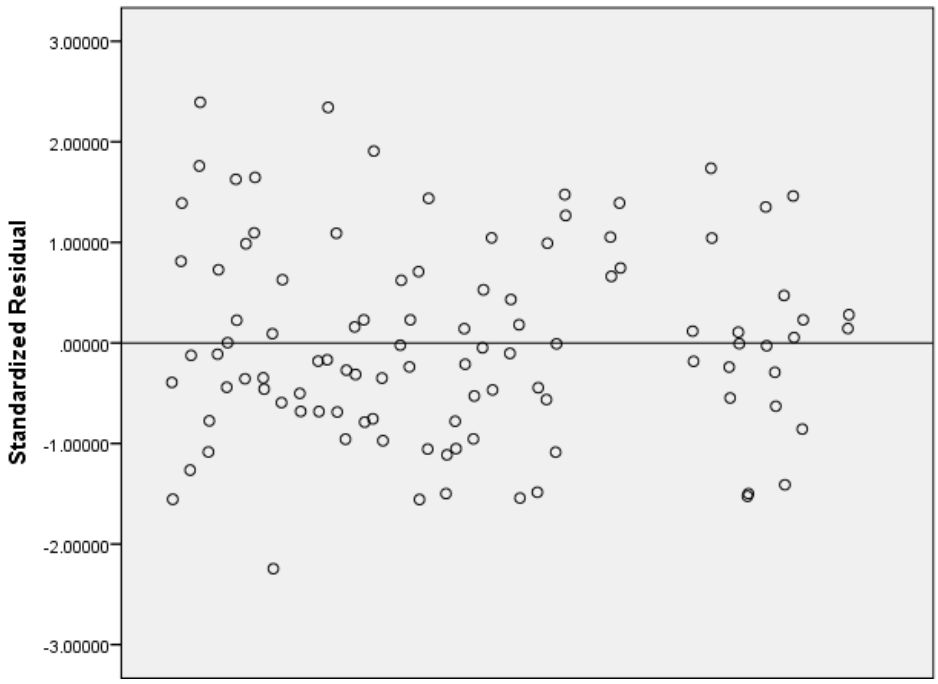

Figure 15. Residual plot for the regression with Experiential Intuition (EI) as the Dependent Variable (Model 2 – Table 6)