RESILIENCE OF MICRO, SMALL, AND MEDIUM-SIZED ENTERPRISES (MSMEs) IN TIMES OF CRISIS AND UNCERTAINTY: THE ROLE OF MANAGERS' DECISION-MAKING LOGIC

REZA ABBASI

PhD

The Hong Kong Polytechnic University

2024

The Hong Kong Polytechnic University

School of Hotel and Tourism Management

Resilience of Micro, Small, and Medium-sized Enterprises (MSMEs) in Times of Crisis and Uncertainty: The Role of Managers' Decision-Making Logic

Reza Abbasi

A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

December 2023

CERTIFICATE OF ORIGINALITY

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it reproduces no material previously published or written, nor material that has been accepted for the award of any other degree or diploma, except where due acknowledgement has been made in the text.

_____

Reza ABBASI

ABSTRACT

Organizational resilience plays a crucial role in the sustainability and success of Micro, Small, and Medium Enterprises (MSMEs), particularly during crises with dynamic and uncertain business environments. Managers and owners of MSMEs, as key decision-makers, have significant influence over the resilience of MSMEs. Their Decision-Making Logic (DML) (effectuation and causation) contributes to the capacity of the organization to adapt to changing environments. Despite previous scholarships, there is still limited understanding of how the decision-making logic of managers can influence their MSMEs resilience and what factors can influence the adoption of effectuation or causation during crises.

Comprising of two phases, an exploratory sequential design was employed to address three main issues in this study, centering on 1) the direct and indirect impacts of effectual/causal DML on MSME resilience, 2) the antecedents of the adoption of effectual/causal DML, and 3) the moderation of impacts of antecedents on the adoption of effectual/causal DML.

This study has four objectives, namely to: 1) articulate and test the effect of effectual and causal DML on MSME resilience during a prolonged crisis, 2) identify potential mediators and test their effects on the relationship between DMLs and MSME resilience, 3) identify and test the impacts of key individual, organizational and environmental-level antecedents on the adoption of effectual and causal DML during a prolonged crisis, and 4) identify potential moderators and examine their effect on the relationship between organizational and environmental level antecedents and effectual/causal DML. The unit of analysis was managers/owners of MSME restaurants in Hong Kong SAR.

In Study 1, eight restaurant managers in Hong Kong were interviewed with the aim to gain insights into managers' experiences and their business responses during a crisis. The findings of in-depth interviews not only provided initial support for the use of effectual/causal DML by managers, but also resulted in the identification of entrepreneurial bricolage behavior, business pre-crisis performance and perceived government support as three additional antecedents that may influence the adoption of DMLs by managers. In addition, entrepreneurial self-efficacy was found to be a personal level characteristic of managers which may moderate the effects of organizational and environmental-level antecedents on the adoption of effectual/causal DML. Ultimately, the findings from interviews were used to finalize the proposed conceptual model guiding this study.

In Study 2, a self-administered survey was employed. A quantitative analysis was performed using data from a sample of 312 managers of MSME restaurants in Hong Kong. The aim of study 2 was to examine 1) the direct and indirect impacts of effectual/causal DML on organizational resilience in MSMEs, 2) the indirect impacts of effectual/causal DML on organizational resilience in MSMEs though organizational resourcefulness and organizational agility, and 3) the antecedents of the adoption of effectual/causal DML at individual (psychological resilience and entrepreneurial bricolage behavior), organizational (perceived employee resilience and business pre-crisis performance) and environmental (perceived environmental uncertainty and perceived government support) levels while considering entrepreneurial self-efficacy as moderator variable.

A pilot test was conducted before the main survey. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the final conceptual model and hypothesized relationships. A rigorous analysis was performed, with the path coefficient analysis confirming that only effectuation had a direct positive impact on organizational resilience. When considering indirect effects, both effectuation and causation had a positive impact on organizational resilience through organizational agility. However, neither effectuation nor causation exhibited indirect impacts on organizational resilience when organizational resourcefulness was considered as a mediator.

Regarding antecedents of the adoption of DMLs, entrepreneurial bricolage behavior, perceived employee resilience, business pre-crisis performance, state uncertainty, effect uncertainty, and perceived government support play a significant role in the adoption of effectuation. On the other hand, entrepreneurial bricolage behavior, effect uncertainty, and perceived government support had significant effects on the adoption of causation. Results relating to moderating effects revealed that entrepreneurial self-efficacy only moderates two proposed relationships: (1) it strengthened the positive relationship between perceived employee resilience and the adoption of effectuation and (2) it weakened the positive relationship between perceived state uncertainty and the adoption of effectuation.

This study makes several theoretical contributions: (1) Drawing on Upper Echelons Theory, this study extends effectuation theory by proposing organizational resilience as a novel outcome for effectual DML in MSMEs and (2) introducing organizational agility as a mediating factor to explain the relationship between DMLs and organizational resilience, and (3) drawing on Social Cognitive Theory, it advances the understanding of the effects of multi-

level antecedents on the adoption of effectuation and causation during crises. Furthermore, the findings have practical implications. Managers of MSMEs should consider DMLs in training and development programs, while governments and policymakers should facilitate resilience of MSMEs by providing sufficient support, and various recovery assistance programs during crises.

Keywords: Organizational Resilience, Decision-Making Logic, Effectuation, Causation, Organizational Resourcefulness, Organizational Agility, Entrepreneurial Bricolage Behavior, Employee Resilience, State Uncertainty, Effect Uncertainty, Response Uncertainty

ACKNOWLEDGEMENTS

As I am closing this chapter of my academic life, I wish to express my deepest gratitude to all those who have helped me successfully complete my doctoral journey.

Foremost, I extend my sincere appreciation to Dr. Karin Weber, my supervisor, for her support, invaluable guidance, and insightful feedback throughout this research journey. Thank you, Dr. Weber, for all the lessons that will guide me in my academic and personal life.

I would also like to take this opportunity to thank external examiners Prof. Girish Prayag, and Dr. Lawrence Fong, and SHTM committee members Dr. Alice Hon, Dr. Vincent Tung and Dr. Qu Xiao for their constructive comments and guidance at various stages of my PhD journey. I extend my thanks to the School of Hotel and Tourism Management (SHTM), the School Research Committee (SRC), and the Hong Kong SAR Government for providing the scholarship, resources and facilities that have supported my doctoral studies.

I would like to express my gratitude to Dr. Jonathan Lockwood Sutton for his assistance throughout data collection process. I also extend my appreciation to all the managers who generously took the time to participate in my interviews and surveys, sharing their valuable experiences and opinions. This thesis would not have been completed without your willingness to participate in my research. A special acknowledgment goes to my fellow colleagues, PhD students, with whom I have shared countless productive discussions and much-needed coffee breaks.

Mum, Dad, I made it! Your support, encouragement, and sacrifices have been the foundation of all my achievements.

Last but not least, to my lovely wife, Nafis, I am grateful for having you in my life. Your belief in me has inspired me to be resilient during challenging times.

Reza, December 2023

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1. CHAPTER ONE: INTRODUCTION

1.1. Research Background

This thesis explores Organizational Resilience (OR) in Micro, Small and Medium-sized Enterprises (MSMEs), with a focus on assessing the impact of managers' Decision-Making Logic (DML) on OR and antecedents of managers' DML during a prolonged crisis. Several disasters, crises, and unexpected events have affected individuals, businesses, and destinations during the last two decades. Every unexpected event challenges the survival of the social community, natural environment, organization, and other established systems like tourism (Ritchie, 2009). Nowadays, "it is no longer a matter of whether a crisis will happen or not, it is a matter of what type it is and when it occurs" (Prescott, 2012, p. 152). Therefore, how different systems, such as businesses, can respond to these adverse events has become a vital issue among organizational managers and business owners that should be addressed (R. Chen et al., 2021). However, Koronis and Ponis (2018) argue that theoretical and practical studies often fail to explain why some organizations are resilient, whereas others suffer severe damages from crises and never recover.

Crisis, as "a low-probability, high-consequence event that develops very rapidly and involves ambiguous situations with unknown causes and effects" (Roberts et al., 2007, p. 109), can disrupt normal operations and increase uncertainty about the results of actions in the market. Therefore, scholars have investigated how businesses can cope with the impacts of crises and be resilient through crisis management and organizational resilience studies (Duchek, 2020; Ritchie & Jiang, 2019; Wut et al., 2021). Crisis management mainly deals with survival aspects as it is defined as "measures of all types which allow a business to cope with a suddenly occurring danger or risk situation in order to return as quickly as possible to normal business routines" (Martens et al., 2016, p. 91). In contrast, OR is seen as the capacity of individuals, communities, and systems to survive, adapt, and grow during normal periods and in the face of stress and shocks (Hall et al., 2017; Vargo & Seville, 2011).

Scholars have developed several frameworks and applied them empirically to assess or measure the resilience of businesses in different sectors, including tourism and hospitality (A. V. Lee et al., 2013; Orchiston et al., 2016; Usher et al., 2019). However, there is no 'one size fits all' approach since organizations with different characteristics, such as different sizes and

industries may have different capabilities in coping with crises (Sullivan-Taylor & Branicki, 2011).

1.1.1. Micro, Small, and Medium-sized Enterprises (MSMEs) and Crises

Resilience or vulnerability in small and large organizations can be different since they have different characteristics. For instance, small businesses are considered vulnerable during a crisis due to limited resources (Aggrey et al., 2021; Bartik et al., 2020; Eggers, 2020). Yet, on the other hand, they can be more flexible, innovative, and faster in responding to unexpected events (Dahles, 2018; Matalamäki, 2017), which may allow them to adapt to a crisis effectively through rapid decision-making, rapid learning, and rapid internal communications (Eggers, 2020; Giancotti et al., 2020). Organizational resilience, in the present study, is considered as a desired outcome or result (Melián-Alzola et al., 2020a) and defined as "the degree of operational and strategic organizational adaptation to new environmental conditions, reaching a new equilibrium point at which organizations emerge strengthened" (p. 7). Hence, understanding the mechanisms and practices that enable organizations to attain this desired state of resilience is crucial.

Resilience literature provides different frameworks with different indicators for the resilience of small to large organizations (Andersson et al., 2019; Conz & Magnani, 2020; Koronis & Ponis, 2018). Moreover, it is argued that the choice of coping strategies in small businesses can be affected by the availability of resources (Dahles & Susilowati, 2015). However, MSMEs' resilience is mainly affected by the entrepreneur/manager's experience, mindset, and lifestyle (Doern, 2016). Moreover, decision-making is considered as one of the main enablers of resilience during rapid changes and shocks (Dahles, 2018). At the same time, a lack of fast decision-making results in losses during a crisis (Pal et al., 2014). As a result, managers of MSMEs should be at the core of any resilient models since their way of thinking and decisions affect coping strategies during a crisis (Doern, 2016).

1.1.2. Effectuation and Causation (DML) During Prolonged Crises

A prolonged crisis such as the COVID-19 pandemic increases uncertainty (Shirokova et al., 2020), whereby anticipating and planning for the future is difficult if not impossible (Ratten, 2020). Moreover, the COVID-19 pandemic has similar characteristics to other

prolonged or slow-onset crises. For instance, the pandemic develops and is sustained over time before diminishing to a level that is no longer a significant direct threat. In addition, during the evolution of a prolonged crisis, risk parameters are not stable since peoples' attitudes, knowledge, and even threat levels posed by the situation are not stable (Few et al., 2020). As a result, scholars call for a shift from managing unexpected and prolonged crises based on a predictable future towards the development of adaptable and rapid responses to dynamic changes (Farazmand, 2017). It is believed that "effectuation" is an appropriate theory in this context (Monllor et al., 2020; Shirokova et al., 2020), which may help organizations to respond to such situations more effectively.

Effectuation emerged as an alternative to traditional managerial thinking in the new venture development process in the entrepreneurship literature. It is a means-driven process that "takes a set of means as given and focuses on selecting between possible effects that can be created with that set of means" (Sarasvathy, 2001, p. 245). In contrast, causation refers to "processes that take a particular effect as given and focus on selecting between means to create that effect" (p. 245), which is goal-driven. These means can be personal knowledge, skills, and social networks at an individual level. At the organizational level, means can be physical, human, and organizational resources (Fisher, 2012).

The underlying logic of causation is that "to the extent we can predict the future, we can control it" (Sarasvathy, 2001, p. 245). On the other hand, the underlying logic of effectuation is that "to the extent we can control the future, we do not need to predict it" (p. 251). As such, effectuation and causation are different in dealing with the unknown. Effectuation is often considered more suitable in times of uncertainty (D. Coudounaris & Arvidsson, 2019; Nelson & Lima, 2020) due to its emphasis on leveraging existing resources and engaging in iterative experimentation to create opportunities (Chandler et al, 2011). In uncertain environments, traditional predictive decision-making logics, such as causation, may be less effective because uncertainty in the environment makes it difficult to calculate an expected return for a given course of action (Chandler et al., 2011).

Although Eyana et al. (2018) argue that there is no solid evidence for the claim that effectuation is superior to causation in outcomes such as performance, others believe that one is more suitable depending on the context (Sarasvathy et al., 2014; Shirokova et al., 2020). For instance, effectual DML has been found appropriate and efficient under uncertainty and limited resources (Manfield & Newey, 2018). Whereas causal DML is mostly adapted when the

environment is stable and the expected outcomes are known in advance (Shirokova et al., 2020). It is then important to study the situations under which entrepreneurs or managers develop their DML.

Effectuation was initially developed to reduce uncertainties in creating a new firm or market (Chandler et al., 2011). However, it is believed that "effectuation theory can be applied beyond the context of new ventures and can also encompass more established organizations as long as organizations adopt entrepreneurial behaviour towards innovation and proactiveness" (Szambelan & Jiang, 2020, p. 877). Furthermore, entrepreneurial effectuation can be an effective theoretical lens to understand how individuals and organizations respond to crises (Monllor et al., 2020; Morrish & Jones, 2020; Nelson & Lima, 2020). For instance, utilizing effectual DML improves the performance of businesses in the context of emerging markets during adverse economic conditions (Laskovaia et al., 2019; Shirokova et al., 2020). It also enables the creative combination of available resources at hand to take advantage of unpredictable events and emerging opportunities (Laskovaia et al., 2019). Hence, scholars argue that effectual DML can help managers to cope with the consequences of crises in organizations (Eggers, 2020).

1.2. Research Problem

Although previous literature has investigated OR and DML from different perspectives, there are still three main overlooked areas:

Research Issue 1: Direct and indirect impacts of DML on MSME resilience

Most existing organizational resilience studies have mainly focused on identifying resilient indicators and organizational responses in the face of adversity (Brown et al., 2018; Jiang et al., 2021; Prayag et al., 2023). In addition, the positive effects of both planned and adaptive resilience on the performance of organizations have been verified (Smolka et al., 2018). In addition, entrepreneurial resilience studies highlight the significance of entrepreneurs' actions, decisions, and resilience in navigating challenges and adapting to dynamic organizational environments (Sharma & Rautela, 2022; Lee & Wang, 2017). Scholars in this domain have explored the relationship between entrepreneurial resilience and various organizational outcomes such as financial innovation climate (Brown & Kasztelnik, 2020),

international orientation (Lafuente et al., 2019), and business continuity (Elshaer & Saad, (2022).

While entrepreneurial resilience is often viewed as an organizational capacity or ability (Raetze & colleagues, 2022), it is believed to stem from the entrepreneurial mindset, spirit, or behavior of business founders (Korber & McNaughton, 2018). Managers employ different coping mechanisms and strategies during a crisis, which can significantly impact venture performance (Ahmed et al., 2022). Schonfeld and Mazzola (2015) discovered that entrepreneurs tend to rely more on problem-focused than emotion-focused strategies. Additionally, Ahmed et al. (2022) propose effectuation as a problem-focused coping strategy in entrepreneurial contexts.

Despite advancements in understanding organizational resilience amidst adversity (Ahmed et al., 2022; Williams et al., 2017), gaps persist regarding the manifestation of entrepreneurial behavior during crises and the mechanisms of creative transformation (Korber & McNaughton, 2018). Hence, drawing on Upper Echelons Theory (Hambrick and Mason, 1984; Hambrick, 2007), this study investigates effectuation and causation as two entrepreneurial decision-making logics of MSME managers that can influence organizational resilience during prolonged crises. It is crucial as it is believed that decisions must be made swiftly in the initial stages of crises, where the information is incomplete or subject to significant uncertainty (Vargo & Seville, 2011), and ‘stupid’ decisions worsen the situation (Linnenluecke et al., 2012).

Linnenluecke (2017) argues that organizations must build appropriate capacities and decision-making knowledge on how resilience is defined, determined, maintained, and improved over time. Otherwise, they will not be prepared for the impacts of shocks (Linnenluecke, 2017). Furthermore, effectual and causal DMLs affect the performance of organizations differently (Aggrey et al., 2021; An et al., 2020; Bakonyi, 2018; Cai et al., 2017; Eyana et al., 2018; Laskovaia et al., 2017; Smolka et al., 2018; Yu et al., 2018) because they may lead to different strategies (Mintzberg & Waters, 1985). In addition, effectual and causal DMLs cope with challenges caused by a crisis, such as time limitation, less available resources and information, and increased uncertainty differently (Kalinic et al., 2014).

Therefore, effectuation and causation may have different effects on the ability of MSMEs to adapt to a new environment and reconfigure their resources in novel ways to address crises (C. Li et al., 2015). However, it is argued that little attention has been paid to how

managers of different organizations, in particular MSMEs, cope with uncertainties created by the threat of crises (Helgeson et al., 2020). Therefore, the first aim of this thesis is to understand direct and indirect impacts of managers' effectual/causal DML on their MSMEs' resilience during a prolonged crisis. In particular, it aims to address the following research questions (RQs):

RQ1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?

RQ2: What are the indirect impacts (mediators) of effectual/causal DML on MSME resilience during a prolonged crisis?

In this regard, the below objectives will be achieved by answering the questions, as to:

i) articulate and test the effect of effectual and causal DML on MSME resilience during a prolonged crisis;
ii) identify potential mediators and test their effects on the relationship between effectual and causal DML and MSME resilience.

Research Issue 2: Antecedents of the adoption of effectual/causal DML

Apart from application of effectuation theory in other fields and contexts, scholars believe that effectuation studies should move from exploring the process of decision-making to new avenues and identify antecedents and consequences of the phenomena to speed up theory development (Welter & Kim, 2018). Entrepreneurship literature identifies factors such as entrepreneurial experience, perceived uncertainty, passion, slack resources, investor influence, managerial ties and family financial support as antecedents of the adoption of effectuation and causation mostly in the context of new business establishment (Stroe et al., 2018; Cannatelli et al., 2019; Frese et al., 2020; Braun & Sieger, 2021; Zhang et al., 2020).

Although scholars have identified antecedents of the adoption of effectual and causal DML in the new venture creation stage (Cannatelli et al., 2019; Frese et al., 2020), there is still a lack of knowledge on what conditions and factors may influence managers' DML (Schmidt & Heidenreich, 2018). Studies have examined the impact of effectuation on the performance of small businesses during an economic crisis (Aggrey et al., 2021; Shirokova et al., 2020), it is unclear what antecedents may affect the choice of effectual or causal DML by managers of MSMEs during a long-lasting crisis, which induces high levels of uncertainty. It is argued that

individuals do not simply follow effectual DML during uncertainty because they are experts. Therefore, it is suggested that other personal and contextual factors can affect DML of managers (e.g., Coudounaris & Arvidsson, 2021). Hence, gaining insight into the underlying reasons driving an individual's conscious or subconscious decision to embrace effectuation or causation within a specific context, such as a prolonged crisis, can add insightful knowledge to the literature (Coudounaris & Arvidsson, 2021).

Therefore, fundamental motivations, such as an enduring crisis, can contribute valuable insights to the existing literature (Coudounaris & Arvidsson, 2021).

According to Social Cognitive Theory (SCT) an individual's ultimate endeavor is the result of interaction between environmental events, personal factors and individual behaviors (Bandura, 1986). Thus, by drawing on SCT as a basis for understanding the effect of different factors on the adoption of effectuation and causation during a crisis, the second aim of this thesis is to investigate key antecedents at individual, organizational, and environmental levels that may affect the adoption of effectual and causal DML during a prolonged crisis.

In particular, the following RQs will be addressed:

RQ3: What individual-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

RQ4: What organizational-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

RQ5: What environmental-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

By answering the above research questions, this study aims to accomplish the following objectives:

i) identify key individual, organizational and environmental-level antecedents of the adoption of effectual and causal DML during a prolonged crisis; and
ii) examine the effect of each identified antecedent on the adoption of effectual and causal DML.

Research Issue 3: Moderation of Impacts of Antecedents on Effectual/Causal DML

The adoption of DMLs is influenced by multiple factors. Investigating how these antecedents are moderated during prolonged crises can provide an understanding of DML

dynamics. This can contribute to the development of more comprehensive models for DML and resilience during crisis situations. It is argued that individuals' internal factors can moderate the relationship between other factors and effectual behavior (Harms & Schiele, 2012). Therefore, the third aim of this thesis is to identify what moderates the impacts of antecedents on the adoption of effectual and causal DML during a prolonged crisis.

In particular, the following RQ will be addressed:

RQ6: What can moderate the impacts of organizational and environmental level antecedents on the adoption of effectual/causal DML during a prolonged crisis?

By answering the above research question, this study aims to accomplish the following objective:

i. identify potential moderators and examine their effect on the relationship between organizational and environmental level antecedents and effectual/causal DML.

Several sub-question questions and related hypotheses were developed to guide the investigation. These research questions and hypotheses were developed in chapters 3 and 4 listed in Table 4.5 at the end of chapter 4.

1.3. Research Justification

The proposed research is justified on three grounds:

The first justification centers on the continued focus on organizational resilience to build strong businesses that can tolerate and survive unexpected events. The inevitability of crises and the vital role of organizational resilience in navigating through them (Prescott, 2012; Ritchi, 2009), highlight the urgency to explore the specific context of MSMEs, considering their significance in economic stability and societal survival during crises (R. Chen et al., 2021). Resilient businesses can survival (Gao et al., 2018), reduce their failure (Carmeli & Markman, 2011), increase their competitive advantage (Marwa & Milner, 2013), and enhance organizational performance (Melián-Alzola et al., 2020a). Thus, this research addresses the critical need to understand and enhance resilience in MSMEs during prolonged crises.

The second justification centers around the importance of resilience in MSMEs. Independently owned MSMEs, such as restaurants, play a vital role in job creation and economic growth (Le & Needham, 2019). However, these MSMEs fail at a higher rate than large enterprises (Camillo et al., 2008). Parsa et al. (2005; 2011) found that independent restaurants experience a 2.5 times higher failure rate than franchised restaurants, with such failures often directly linked to the actions of their owners/managers. Moreover, the COVID-19 pandemic has intensified these vulnerabilities, resulting in profound impacts on small enterprises, particularly those reliant on face-to-face interactions, such as restaurants (Sobaih et al., 2021; Miescu & Rossi, 2021). In the context of Hong Kong's business landscape, MSMEs constitute a substantial majority, accounting for over 98% of all enterprises, providing employment opportunities for a substantial workforce of over 1.2 million individuals (SUCCESS, 2022).

Despite their economic significance, the COVID-19 pandemic inflicted severe setbacks on these establishments, as evidenced by a notable decline in restaurant receipts from HK$112.5 billion (US$14.5 billion) in 2019 to HK$79.4 billion (US$10.24 billion) in 2020, as reported by Hong Kong's Census and Statistics Department (2020). This marked downturn underscores the fragility of the restaurant industry in the face of unforeseen challenges. Notably, despite these adversities, there have been no studies conducted thus far to investigate restaurant resilience during COVID-19 in the region. This highlights the need to study MSME restaurant resilience by investigating their DML.

The third justification for this research is the importance of managers' behavior and decisions on their MSME resilience. This study algins with Upper Echelons Theory (Hambrick, 2007) in that characteristics of MSME managers significantly impact organizational outcomes and their organizations. Therefore, recognizing the gap in understanding the impact of managers' DML on MSME resilience during prolonged crises, this study not only sheds light on how MSME can achieve resilience, but also extends our understanding on how Upper Echelons influence their organizations' resilience by adopting certain DMLs.

The fourth justification for this research relates to the complexity of factors influencing the adoption of effectual and causal DML. Studies have identified antecedents of effectual and causal DML in the new venture creation stage (Cannatelli et al., 2019; Frese et al., 2020). However, still, little is known about different individual, organizational and environmental factors that can affect the adoption of effectuation or causation (Hubner et al., 2021). Thus, it

is critical to investigate key antecedents that may affect the adoption of effectual and causal DML during a prolonged crisis by drawing on SCT, which also aligns with the suggestion by Welter and Kim (2018) that effectuation studies should move beyond exploring decision-making processes to identify antecedents and consequences.

1.4. Methodology

Various methodological approaches were employed in this thesis investigation. Detailed justification and further explanation of methodological procedures are provided in Chapter 4 (Study 1), and Chapter 5 (Study 2).

A mixed method, which integrated both qualitative and quantitative approaches, was adopted to develop and test a conceptual model which aims to answer the previously identified research questions.

In Study 1, eight restaurant managers in Hong Kong were interviewed with the aim to gain insights into their experiences during COVID-19 and explore their business response. Content analysis was used to analyze interview transcripts. Findings of the in-depth, semi-structured interviews were used to modify the preliminary conceptual framework proposed in Chapter 3. They identified potential factors that may affect the adoption of certain DML by managers or moderate the relationship between identified organizational and environmental level antecedents and the adoption of effectual/causal DML.

In Study 2, a self-administered survey was employed to collect quantitative data with the aim to test the final conceptual model and hypotheses. Data was collected from 312 MSME managers in Hong Kong. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the data. Reliability and validity were tested. Chapter 5 presents the findings of the quantitative investigation.

Overall, in this research, the qualitative investigation provided insights into the experiences of MSME managers regarding their DML and crisis responses during COVID-19. Its findings aided with refining the conceptual model. On the other hand, the quantitative investigation tested the proposed model of managers DML during crisis and its antecedents and outcome. It not only validated the generalizability of the observations but also enhanced the reliability and validity of the structural model.

1.5. Thesis Structure

This thesis is composed of seven chapters. Figure 1.1 illustrates a graphic overview of the thesis contents. Chapter 2 reviews literature on restaurants during crises, focusing on COVID-19 and presents the study context. Chapter 3 presents a preliminary conceptual framework by reviewing organizational resilience and entrepreneurial DML literature. Since this thesis employs both qualitative and quantitative methodologies, these two research approaches are reported in Chapters 4 and 5, respectively. Chapter 4 presents Study 1 (Qualitative Study) research methods, analyses, findings, and the final conceptual framework. Chapter 5 discusses Study 2 (Quantitative Study) research methods, analysis, and results by examining the final conceptual framework and hypotheses. Chapter 6 presents discussions by providing answers to each research question, and concludes the research by detailing the theoretical contributions to the literature, practical implications, limitations, and future research directions.

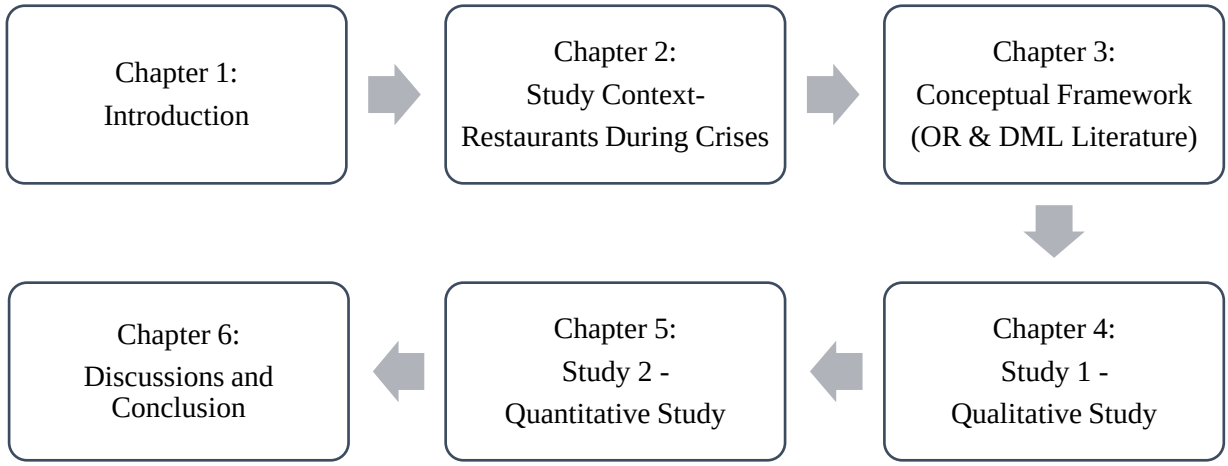

Figure 1.1 *Thesis Structure*

1.6. Delimitations

In this section, the specific boundaries established for the thesis investigation are outlined. First, the research setting was narrowed down to Micro, Small, and Medium-sized Enterprises (MSMEs), particularly independent restaurants. Unique conditions are present in the context of MSMEs, implying that findings from this research may not be readily transferable to larger organizations.

Second, the research had a geographical focus on Hong Kong MSMEs. Consequently, samples for this research were confined to the experiences of MSME restaurant managers during the COVID-19 pandemic in Hong Kong. There are special conditions in each country and region that affect the scope, impact, and conditions of crises. Thus, results may not be readily transferable to other regions or countries. In addition, given the unique characteristics of each crisis, caution shall be taken when generalizing the findings to other crisis settings.

Third, the factors influencing the adoption of effectual and causal DML were restricted to six key identified factors across individual, organizational, and environmental levels. While this intentional data reduction resulted in advancing a more manageable model, it may overlook the complexity of antecedents affecting the adoption of effectual and causal DML during a prolonged crisis.

1.7. Glossary of Terms

Terms used by researchers often have different meanings (Perry, 1998). Therefore, provision of definition of terms are adopted in this thesis. Table 1.1 provides a list of key terms, along with their definitions adopted in this study. Further definitions of specific terms under investigation in this thesis are provided in the relevant sections of Chapters 2 and 3.

Table 1.1 *Definition of Key Terms*

Term	Definition
Crisis	"A crisis is a low-probability, high-consequence event that develops very rapidly and involves ambiguous situations with unknown causes and effects" (Roberts et al., 2007, p. 109).
Organizational resilience (OR)	Organizational resilience is defined as a status or "the degree of operational and strategic organizational adaptation to new environment conditions, reaching a new equilibrium point at which organizations emerge strengthened" (Melián-Alzola et al., 2020a, p. 7).
Effectuation (EDML)	It is a DML that "takes a set of means as given and focuses on selecting between possible effects that can be created with that set of means" (Sarasvathy, 2001, p. 245).
Causation (CDML)	It is a DML that "take a particular effect as given and focus on selecting between means to create that effect" (Sarasvathy, 2001a, p. 245).
Micro, Small, and Medium-sized Enterprises (MSMEs)	Non-manufacturing businesses (restaurants in the case of this study) that employ fewer than 50 persons according to the Hong Kong SAR Government regulations (SUCCESS, 2022).

1.8.Chapter Summary

In this chapter, the foundations for the thesis investigation were outlined. The research background, the research problem, and research questions were introduced. The justification for conducting the thesis investigation were provided. Key aspects of the methodology and the structure of the thesis were outlined. Key terms were listed. A detailed description of the thesis investigation follows in chapters 2 to 6.

Chapter 2 reviews the restaurant crisis literature with the aim of setting the context for further discussions for this thesis – Hong Kong restaurants during COVID-19. The chapter commences by explaining the complexity of a restaurant business and its success/failure factors. Then, literature concerning the impact on restaurants during crises, with specific focus on the effects of COVID-19, is analyzed. Finally, literature relating to Hong Kong restaurants during COVID-19 is explored.

2. CHAPTER TWO: RESTAURANTS DURING CRISES

2.1. Introduction

Chapter 1 presented the outline of the thesis investigation. The major research focus on MSME resilience and managers DML was identified. Three main research issues were identified, and relevant research questions were advanced, centering on 1) the direct and indirect impacts of effectual/causal DML on MSME resilience, 2) the antecedents of the adoption of effectual/causal DML, and 3) the moderation of impacts of antecedents on the adoption of effectual/causal DML.

The purpose of chapter 2 is to introduce a context for the research that will be reported in chapters 4 and 5. Introducing this setting will be achieved in chapter 2 with a review of the literature on the restaurant industry context. First, the complexity of restaurants and their success/failure factors is provided. Then, a crisis is defined and restaurant industry challenges during crises, with a particular focus on COVID-19, are examined. Finally, restaurant industry challenges during COVID-19 in Hong Kong, including its specific effects and problems, are discussed.

2.2. Complexity of the Restaurant Business

As is the case with other MSMEs, independently owned, MSME restaurants play a vital role in job creation and economic growth (Le & Needham, 2019). MSMEs fail at a higher rate than large enterprises, especially small independent restaurants (Camillo et al., 2008). Parsa et al. (2005; 2011) found that independent restaurants experience a 2.5 times higher failure rate than franchised restaurants. They found that the success/failure of independent restaurants was directly tied to the owner's actions, while the success/failure of franchise restaurants was more likely to result from the franchise system or factors beyond the control of the local owner. Therefore, they suggested that independent restaurants and franchise operations be considered as separate segments of the restaurant industry.

Several scholars have attempted to explore why restaurants succeed or fail (Agarwal & Dahm, 2015; Camillo et al., 2008; C. Lee et al., 2016; H. G. Parsa et al., 2005, 2011, 2015, 2021; H. Parsa & Gregory, 2011). When considering various aspects of restaurant management, it becomes evident that one needs to possess a strategic vision, strong business

expertise, a competitive spirit, and the capability to efficiently oversee both the front-of-the-house and back-of-the-house operations (Camillo et al., 2008).

Parsa et al. (2005) categorized the factors influencing a restaurant's viability into four groups: 1) external environment (e.g., legal and political environment and competitive landscape), 2) internal environment (e.g., personal and operational factors), 3) organizational life cycle (recognizing that early stages are more vulnerable), and 4) family life cycle (highlighting the importance of work and family balance). Camillo and colleagues (2008) added emotional factors to those proposed by Parsa et al. (2005). They found emotions such as overconfidence, worries, and restlessness are signs of failure, whereas creative emotions such as curiosity, confidence, and fondness are important determinants of success.

Parsa et al. (2011) found that affiliation, size, and location have a significant influence on restaurants' survival. Independently-owned restaurants were found to have significantly higher failure rates than chain restaurants, as were small -sized restaurants compared to large-sized ones. Moreover, location had a significant effect on restaurant success/failure. Le and Needham (2019) identified hard work, passion, family support, location, and food and service quality as important success factors in their study of ethnic restaurant businesses in Canada.

As discussed, operating a restaurant under normal circumstances is a complex and challenging endeavor. This challenge is further intensified during crises. The next section presents the challenges and dynamics faced by restaurants during crises.

2.3. Restaurants and Crises

2.3.1. What is a Crisis?

In this study, the term 'crisis' refers to "a low-probability, high-consequence event that develops very rapidly and involves ambiguous situations with unknown causes and effects" (Roberts et al., 2007, p. 109). Bonn and Rundle-Thiele (2007) argue that a crisis has three important aspects: First, it is a major, unpredictable event that threatens organizational survival. Second, it has a low probability of occurring and includes an element of surprise. Finally, it is characterized by time pressures, requiring quick responses to minimize its impact. Crises are classified based on their nature. For example, natural crises are attributable to natural disasters or other unpredictable natural events such as hurricanes, earthquakes, and pandemic diseases. On the other hand, human-induced crises are disastrous events caused by human beings, such

as financial and economic crises, wars, terrorist attacks, political instability, social movements, and industrial accidents (Jurdana et al., 2020; Martens et al., 2016). Therefore, a crisis can generally be rooted in economics, socio-cultural, environmental and political problems (Senbeto & Hon, 2020b).

Although common practice among organizational crisis management teams is to plan and prepare scenarios for different crises, it is argued that 'black swan' events (Taleb, 2007), which are unpredictable, rare, and have a catastrophic impact, cannot be predicted. The COVID-19 pandemic was unique compared to previous crises, even considering similar health-related crises. First, due to the unknown virus, global health systems failed to find immediate medication or vaccines to control the spread of the SARS-CoV-2 virus. As a result, the outbreak of the virus made COVID-19 as one of the long-lasting global crises. The World Health Organization (WHO) declared the novel coronavirus (COVID-19) outbreak a global pandemic and on March 11, 2020, which lasted until May 5, 2023. Second, the COVID-19 pandemic had a larger scope compared to previous crises since its effects have been global rather than national or regional. Third, the COVID-19 pandemic negatively affected national and global economies apart from health-related threats. Finally, as a prolonged crisis, the COVID-19 pandemic evolved gradually, with unknown changes that led to higher levels of uncertainty, impacting businesses' survival (Sarkar, 2020).

Research has shown that small enterprises had been heavily affected by the COVID-19 pandemic (Sobaih et al., 2021). Uncertainty induced by the COVID-19 pandemic represented a combination of state, effect, and response uncertainties (Etemad, 2020). In addition, a large increase in macroeconomic and financial uncertainty was evident since the onset of the COVID-19 pandemic (Carriero et al., 2022). Apart from impacts the COVID-19 pandemic had on economic and financial indicators, and increased risk and uncertainty measures, it also had sizeable distributional effects and hit most harshly those industries that rely on face-to-face interactions (Miescu & Rossi, 2021). Thus, the COVID-19 pandemic represents a prime example of a prolonged global crisis that increased uncertainty and affected MSME managers' DML. Consequently, it was adopted as the crisis setting of this study.

The restaurant industry is fragile in the face of adversity. Several crises have affected the restaurant industry during the past two decades, namely economic crises (K. Lee & Ha, 2014, 2012), natural disasters (C. Becker, 2009), terrorist attacks (Green et al., 2004), food safety issues (Seo et al., 2014, 2018), and epidemic diseases (J. Kim et al., 2020; Tse et al.,

2006; Yang et al., 2020). Furthermore, it is argued that crises can be interconnected, and the occurrence of one type can lead to other crises. For instance, although the COVID-19 pandemic is a health-related crisis, its negative impacts on the global economy resulted in a second crisis in the form of an economic crisis worldwide (Yang et al., 2020).

2.3.2. Restaurants During COVID-19

The COVID-19 pandemic affected both the tourism-linked and dependent restaurants negatively (Dube et al., 2021; J. Kim et al., 2020), and rapidly transformed into an economic downturn (Madeira et al., 2021). Scholars have studied the effects of the COVID-19 pandemic in relation to factors that may affect customers' risk perception (Byrd et al., 2021), strategic responses by restaurants (J. Kim et al., 2021), and collaboration among stakeholders to improve business resilience (Bufquin et al., 2021). Table 2.1 shows a comprehensive overview of restaurants and COVID-19 crisis studies.

Due to pandemic control regulations, restaurants were forced to close or reduce their seating capacity (J. Kim & Lee, 2020; Madeira et al., 2021). As a result, restaurants lost their core business and needed to be innovative and create new revenue streams with no prior experience. In addition, the fear of getting infected reduced customers' willingness to use dine-in services, instead seeking to use delivery services and private dining rooms or tables (J. Kim & Lee, 2020). For instance, Yang et al. (2020) found that an increase of daily new COVID-19 cases led to a 0.056% decrease in daily restaurant demand, while stay-at-home orders were collectively associated with a 3.25% drop in demand. They argue that the reduced demand varied based on the country, eat-in habits, and restaurant diversity.

Small and medium-sized restaurants in Malaysia experienced and faced challenges such as a decline in their earnings that made it difficult for them to remain open during the pandemic (H. B. J. Lai et al., 2020). In addition, Nhamo et al. (2020) investigated impacts of the COVID-19 pandemic on the global restaurant sector and reported that millions of restaurant employees lost their jobs.

Table 2.1 *Restaurants and COVID-19 Studies*

Authors	Country	Details/Results
Gkoumas (2022)	Taiwan	This study investigated the impact of the health crisis management plan on the economic sustainability of small restaurants. Seven key factors for restaurant viability during the COVID-19 pandemic were identified.
Brizek et al. (2021)	USA	The results showed that during the two-month closure, 25% of the restaurants were unable to survive, and less than a quarter of the respondents were able to rehire their employees to pre-pandemic levels.
Türkeș et al. (2021)	Romania	This study explored restaurant managers' attitudes and intentions to use food delivery platforms in Romania during the COVID-19 pandemic.
Madeira et al. (2021)	Portugal	They identified restaurant entrepreneurs' perceptions about the future, government measures, strategies, and lessons learned for the future after COVID-19.
J. Kim et al. (2021)	China	This study found positive impacts of delivery, discounts, service type, and brand as uncertainty-minimizing factors amid distinctive business shutdowns and restrictions.
Song et al. (2021)	USA	This study provided insights into drivers of restaurant firms' stock returns during the COVID-19 shock.
Li et al. (2021)	China	A crisis management model was synthesized from a micro-level perspective by adopting the life cycle model to dynamically measure the innovative strategies applied by restaurant enterprises in their emergency responses and recovery efforts.
Sung et al. (2021)	Taiwan	This study found that media exposure and media attention can enhance restaurant guests' preventive behaviors during the pandemic.
Bufquin et al. (2021)	Global	This study examines the relationships between employees' work status (working, furloughed, or laid-off), mental health (psychological well-being and psychological distress), substance use (drug and alcohol use), and career turnover intentions during the pandemic.
Chen and Eyoun (2021)	USA	This study investigated the relationships among restaurant frontline employees' fear of COVID-19, job insecurity, and emotional exhaustion. The study also examined the moderating role of employee mindfulness and perceived organizational support.
Hu et al. (2021)	China	This study explored how organizations can facilitate employees' deep compliance with safety regulations and procedures.
Zapata-Cuervo et al. (2021)	Colombia	This study examined how restaurants in Colombia responded, recovered, and renewed their businesses after the COVID-19 outbreaks.
Kim et al. (2020)	USA	This study confirmed the negative influence of epidemic disease outbreaks on the restaurant industry. They found brand reliability, advertising effects, and service types as risk-mitigating factors.
Lai et al. (2020)	Malaysia	This study reviewed the significant adaptations made by restaurants through multiple primary and secondary literature utilizing a pragmatic approach.

Authors	Country	Details/Results
Yang et al. (2020)	USA	This study evaluated the early effects of the COVID-19 pandemic and accompanying stay-at-home orders on restaurant demand.
Dube et al. (2021)	Global	This study investigated the impact of COVID-19 on the global restaurant industry. The study found that sit-in guests dropped to zero in many countries as governments across the world instituted social distancing initiatives, movement restrictions, and lockdowns.
Kim and Lee (2020)	USA	This study investigated the effects of the perceived threat of COVID-19 and the salience of the virus on consumers' preference for private dining facilities.
Hallak et al. (2018)	Australia	This study examined the relationship between restaurant operator resilience, creative self-efficacy, firm innovation and performance and performance in the context of upscale restaurants.
Neise et al. (2021)	Germany	This study analyzed the impact of the COVID-19 crisis on owner's assessment of resilience in the German restaurant and bar industry.
Li et al. (2021)	China	This study analyzed textual information sources to explore Chinese restaurants' innovative activities during and after COVID-19.
Liu et al. (2022)	China	This research utilized textual analytics to analyze consumption patterns and detect fluctuations in restaurant sales by examining online customer reviews from Dianping.com, an online-to-offline platform in China.
Motoc (2020)	Romania	This research investigated the alignment between crisis management and strategic planning in four distinct restaurants, with a specific focus on examining their leadership styles and organizational cultures.
Moraga et al., (2024)	Philippines	This study investigated how organizational resilience, specifically crisis anticipation, sense-making, problem-solving, and learning, influences the economic sustainability of small and medium-sized restaurants.
Harcourt & Ateke (2018)	Nigeria	The study focused on assessing the degree to which employee empowerment contributes to the resilience of Quick Service Restaurants.
Liu et al. (2023)	Hong Kong	This study investigated how the catering industry of Hong Kong withstands crises from a macro-view, which can give a global and spatial insight.
Harms et al. (2021)	Germany	This study investigated configurations of causation and effectuation components associated with a high business model innovation level during the first wave of COVID-19.
Simms et al. (2022)	UK	This research explores the influence of effectuation and causation logic on firm resilience within a specific context of horticultural food production. It conducts a longitudinal case analysis, focusing on the disruptions caused by the COVID-19 pandemic, the strategies adopted in response to these disruptions, and the resulting outcomes.
Delladio et al. (2023)	Italy	This study investigated the interplay between causation and effectuation logic in fostering organizational resilience in the hospitality sector.

Numerous studies highlighted the uncertainty of industry players about the future, difficulties managers faced to ensure their restaurant survives during the COVID-19 pandemic (Nhamo et al., 2020; Zapata-Cuervo et al., 2021), and the vulnerability of restaurants during prolonged crises (J. Kim et al., 2021). Bartik et al. (2020) investigated the probability of restaurants' survival relative to the duration of a crisis. They found that the chance of survival significantly decreased from 72% during a 1-month crisis to 15% during a 6-months crisis, highlighting their fragile nature in the face of a prolonged crisis.

The growth in COVID-19 infections in urban regions resulted in regional and national authorities significantly limiting the business activity of bars and restaurants (Kuckertz et al., 2020), forcing them to pursue new business models and enhance their services and products. In Tainan City, Taiwan, Gkoumas (2022) examined the impact of the health crisis management plan on the economic sustainability of small restaurants. They found strategy, simplicity, surveillance, solidarity, support, sharing, and speed represented the seven important restaurant sustainability factors during the COVID-19 pandemic.

Li et al. (2021) addressed how the restaurant industry actively responded to, adapted, and innovated during the COVID-19 pandemic. They note that the resilient behavior of restaurants is based on innovative processes that will contribute to achieving a new balance in this sector of activity. It is argued that MSME restaurant decision-makers must evaluate market conditions, adaptively allocate their employees and funds, adjust their menu pricing, and modify menu production specifications to reduce the impact of a crisis (H. B. J. Lai et al., 2020).

Lai et al. (2020) identified three areas that restaurants have made adaptations to cope with the impacts of COVID-19: nurture creativity, sustain reputation and maintain profitability. In addition, restaurants in Colombia depended on four survival strategies during the COVID-19 pandemic: 1) operational transformation and challenges, 2) social responsibility, 3) government support, and 4) precautionary measurement practices (Zapata-Cuervo et al., 2021). Firm characteristics such as brand reliability, advertising effects, and service types also served as risk-mitigating factors (J. Kim et al., 2020).

Studies have also examined the resilience of restaurants during the COVID-19 crisis. For instance, Neise et al. (2021), analyzing the German restaurant and bar industry, found that “ex-ante business problems, and financing by loans or credit, reduce the likelihood of owners perceiving their business as resilient; while delivery and takeaway service, ownership of

property and higher age of owners, increase the likelihood of enterprise resilience" (p. 1). As a result, managers of restaurants and bars had to deal with uncertainties and threats quickly and flexibly (Neise et al., 2021). In addition, they highlighted the dependence of restaurants' resilience on their positive financial situation before the COVID-19 pandemic and emphasized the importance of managerial experience and knowledge in overcoming crisis situations. However, apart from negative impacts and vulnerability to external shocks, there are opportunities to alter or adapt business models to minimize customers' uncertainty toward the restaurant industry during the pandemic. For example, due to fear of infection, people preferred to stay home and use delivery services to purchase restaurant meals (J. Kim et al., 2021).

In addition, Hallak et al. (2018) found that upscale restaurant owners' resilience has a positive impact on their creative self-efficacy and firm innovation. They also noted that creative self-efficacy positively impacts innovation and performance. Purnomo and colleagues (2021) examined responses of five creative MSMEs (including a restaurant) to the challenges posed by the COVID-19 pandemic. Their research revealed that these MSMEs adapt their strategies for creating, delivering, and capturing value based on changing circumstances. They propose that utilizing a combination of bricolage, effectuation, and causation methods can enhance the resilience of MSMEs, leading to survival, continuity, and growth outcomes. In addition, Liu and colleagues (2022) proposed a framework outlining business resilience within the restaurant sector in the context of the COVID-19 pandemic. They identified four key factors influencing resilience: social capital, physical capital, economic capital, and natural capital.

Motoc (2020) discovered that for a restaurant to demonstrate resilience and flourish amidst a crisis, it must effectively combine crisis management with strategic planning. The study concludes that the extent of integration between crisis management and strategic planning is determined by several factors, including "an attentive, communicative, flexible, and motivating leader; and decentralized culture, commitment among employees, and creative culture of a restaurant" (p. 447). Moraga et al. (2024) found that organizational resilience, encompassing crisis anticipation, sense-making, problem-solving, and learning capabilities, significantly impacts the economic sustainability of SME restaurants. A notable discovery was that crisis anticipation had a negative effect on economic sustainability, contrary to expectations.

In addition, some scholars have explored the application of effectual and causal DMLs within the restaurant industry during the COVID-19 pandemic (e.g., Simms et al., 2022; Harms

et al., 2021; Delladio et al. (2023). Simms et al. (2022) identified a process wherein firms initially adopt an effectual learning approach in their response to the disruptions caused by the pandemic. Subsequently, as they gain experience and knowledge during the crisis, they transition into a causal rebuilding process, enabling them to make decisions based on accumulated experience. Furthermore, it has been shown that different configurations of causation and effectuation components are associated with a high business model innovation level during crises in the gastronomy industry (Harms et al., 2021). Moreover, Delladio et al. (2023) found that both effectuation and causation had a direct effect on the resilience of Italian hospitality businesses during COVID-19. Their findings showed that preparedness mediated the relationship between causation and resilience, and agility mediated the relationship between effectuation and resilience.

2.3.3. Hong Kong Restaurants During COVID-19

Hong Kong announced its first confirmed case of COVID-19 in late January 2020. Since then, the city experienced different waves of infections (Figure 2.1). In response to the pandemic, the Hong Kong government did not enforce a complete lockdown; instead, a series of comprehensive measures were implemented, including public-gathering limits, border restrictions, quarantine and isolation, suspended schools, and special work arrangements such as work from home. Studies have shown that these comprehensive pandemic control regimes reduced the transmission of COVID-19 in Hong Kong (Cowling et al., 2020).

However, they had negative impacts on MSMEs and affected their survival. As a result, the Hong Kong Government launched a few rounds of measures to assist affected industries and the public, including the following:

1. The first round of the HK$30 billion Anti-epidemic Fund on 21 February 2020
2. The HK$120 billion relief package in the 2020-21 Budget on 26 February 2020
3. The second round of the HK$137.5 billion Anti-epidemic Fund on 18 April 2020
4. The third round of HK$24 billion Anti-epidemic Fund on 15 September 2020
5. The fourth round of HK$6.4 billion Anti-epidemic Fund on 21 December 2020
6. The fifth round of HK$3.57 billion Anti-epidemic Fund on 14 January 2022
7. The sixth round of the HK$27 billion Anti-epidemic Fund on 15 February 2022

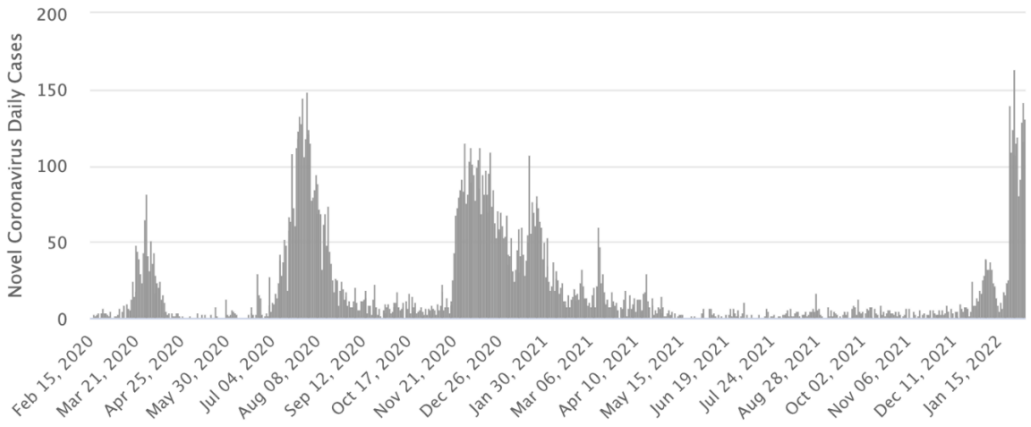

Figure 2.1 *Daily COVID-19 Cases in Hong Kong*

Despite these stimulus packages supporting various sectors, including public and private property management, travel agencies, restaurants and food establishments, schools, manufacturers of personal protective equipment, tourism, hospitality, event businesses, and hospitals, most of the sectors experienced substantial losses during the pandemic due to very restrictive pandemic control measures.

Among all sectors, restaurants were most affected. For instance, it is estimated that more than 2,500 of the city's 17,000 restaurants were forced to shut down or close temporarily during the pandemic due to several restrictions such as operating at half capacity and a ban on dining after 6 p.m. (Yau, 2022). Overall restaurant receipts for 2020 shrank to HK$79.4 billion (US$10.24 billion), down from HK$112.5 billion (US$14.5 billion) in 2019 (The Census and Statistics Department, 2020).

As of March 2021, Hong Kong had approximately 340,000 MSMEs, constituting over 98% of all businesses in the region and employing over 1.2 million individuals (SUCCESS, 2022). According to the Food and Environmental Hygiene Department's list of licensed restaurants (2021), there were around 13,000 registered general restaurants in Hong Kong.

Despite the adverse impact of COVID-19 on the restaurant industry in Hong Kong, surprisingly, there have been no studies conducted thus far to investigate the restaurant industry challenges and responses during COVID-19 in the region. While Tse et al. (2006) conducted a study on Hong Kong's restaurant industry response during the SARS outbreak in 2003, it is crucial to note that the dynamics and challenges posed by COVID-19 differ significantly. Moreover, Liu et al. (2023) proposed a point of interest (POI)-based index to evaluate an industry's resilience in Hong Kong. Their findings showed that the local central area, regardless

of whether it was residential or business-based, was more resilient. They primarily focused on city and COVID-19 related indicators (e.g., density of hospitals, urbanization levels, accessibility, and confirmed cases) to assess their impact on resilience.

However, the study did not explore the resilience of individual restaurants during the COVID-19 pandemic. Therefore, there is a clear need for further research to investigate the resilience of MSME restaurants in Hong Kong. This thesis aims to uncover the underlying processes and influential factors contributing to their resilience.

2.4. Chapter Summary

Chapter 2 provided an in-depth exploration of the complexities faced by restaurants during crises, with a specific focus on COVID-19. A crisis was defined and restaurant industry challenges during crises, with a particular focus on COVID-19, were examined. Finally, restaurant industry challenges during COVID-19 in Hong Kong, including its specific effects and problems, were discussed. Reviews identified a lack of studies on Hong Kong's restaurant industry during times of crisis, including the COVID-19 crisis.

Chapter 3 presents the conceptual framework of this thesis, including the concepts, assumptions, and theories that support this research. Literature relating to organizational resilience and entrepreneurial Decision-Making Logic (DML) is reviewed to synthesize a model that explains the antecedent of effectual/causal DML and the effects of these DMLs on MSME restaurants' resilience. Finally, a preliminary conceptual framework that explains the antecedents and outcomes of managers' DML during a prolonged crisis is presented.

3. CHAPTER THREE: CONCEPTUAL FRAMEWORK

3.1. Introduction

Chapter 2 highlighted the importance of studying restaurants during crises in Hong Kong, with reference to the complexities faced by restaurants during crises in general.

Chapter 3 presents the conceptual framework of this thesis, together with the concepts, assumptions and theories that support this research. Drawing from two different literature streams, organizational resilience and entrepreneurship (Entrepreneurial DML), chapter 3 offers a comprehensive understanding of managers' DML by exploring effectual/causal DML, as an entrepreneurship theory, its antecedents and its effects on MSMEs' resilience during prolonged crises.

First, organizational resilience is introduced as an outcome of adopted DMLs in MSMEs. To achieve this, organizational resilience literature is assessed by reviewing literature pertaining to organizational resilience, its outcomes, indicators, and measurements. In addition, resilience in MSMEs is explained. Then, the discussion shifts towards the importance of managerial decision-making in MSMEs resilience. Effectuation/causation, as an entrepreneurial DML, is introduced, and its importance during crises is explained. Finally, MSME resilience is introduced as a possible effectual/causal DML outcome for MSMEs during a prolonged crisis. In addition, factors that may mediate this relationship are discussed, and corresponding hypotheses are advanced.

Second, the chapter presents the key antecedents that potentially influence the adoption of effectual/causal DML at three levels: individual, organizational, and environmental. Then, it articulates the rationale for selecting the antecedents under investigation, followed by a comprehensive discussion and the formulation of relevant hypotheses. Ultimately, the chapter presents a preliminary conceptual framework that examines the antecedents of the adoption of effectual and causal DML and the effects of effectual and causal DML on the resilience of MSMEs. Figure 3.1. describes the literature review approach in this study.

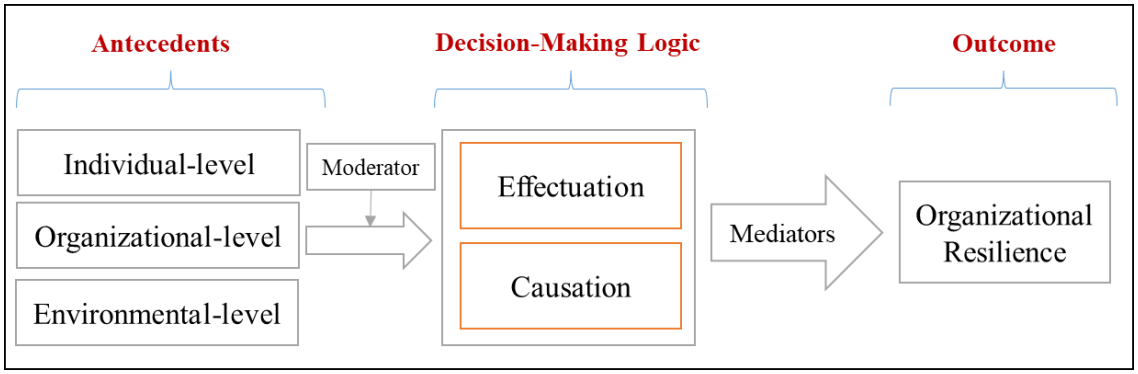

Figure 3.1 *Approach to Literature Review*

3.2. Organizational Resilience

3.2.1. Resilience

The term ‘resilience’ has its roots in the Latin word ‘resilio,’ which means ‘to jump back’ (Klein et al., 2003). Although the concept has been adopted and utilized in different fields, such as environmental science, medicine, psychology, computer systems, social sciences, business studies, and tourism (Hall et al., 2017), there is no single accepted definition of resilience. Amore et al. (2018) argue that the definition of resilience differs not only by field but also within the same discipline due to scholars' different perspectives towards the concept. However, differences between engineering and ecological approaches to resilience have had a significant role in framing resilience within different disciplines (Holling, 2012). Based on the engineering approach, resilience is the ability of a system to return to its previous equilibrium. Physical scientists use it to assess a material’s ‘breaking point’ or the ability of materials and structures to resist physical stress (Hall et al., 2017; Melián-Alzola et al., 2020a).

On the other hand, even though resilience entered the ecology field in the 1960s from engineering studies (Davoudi et al., 2012), the ecological approach to resilience has a contrasting view of stability that focuses on “abilities to maintain, resume, or adaptively change in face of external disturbances” (Amore et al., 2018, p. 237). Resilience, in this perspective, refers to the different factors that affect a system’s ability to absorb the impacts of external disorders, without changing its structure, identity, and functions (Melián-Alzola et al., 2020a). So, bouncing back to a previous stability stage may not be possible “in complex systems because they can shift between multiple stable states” (Hall, 2019, p. 38).

As an influential element of resilience, the presence of human beings added different elements such as adaptive capacity and innovation to the concept (Broker, 2020). Therefore, social-ecological resilience considers the human impact on the "analysis of the system, their power to shape the ecosystem and adapt to different sets of stressors" (Basurto-Cedeño & Pennington-Gray, 2018). Based on the adaptive resilience approach, "the system experiences the impact of changes without losing the ability to manage its resources" (Melián-Alzola et al., 2020a, p. 2). Holling (2001) suggested that the resilience of social-ecological systems is cyclical and non-linear, and the adaptive cycle has four stages: reorganization, exploitation, conservation, and release. People play an important role in this process, affecting the probability and impacts of the change on a system (Maguire & Cartwright, 2008).

In addition, considering different perspectives on resilience in the literature, Woods (2015) recognizes four different forms of survival in studies: rebound, robustness, graceful extensibility, and sustaining adaptability. 'Rebound' resilience refers to returning to previous or normal activities after a disruption. 'Robustness' is about absorbing disturbances, 'graceful extensibility' refers to extending adaptive capacity in the face of troubles, and 'sustaining adaptability' refers to adapting to future disruptions as the conditions change and evolve.

External disruptions such as political crises, climatic and natural disasters, plane crashes, and pandemics can affect the survival of any system, including tourism (Prayag et al., 2020). Social and public policy researchers have used the concept of resilience to identify global threats and assess the response of social systems to these events (P. Jones & Comfort, 2020). Although some researchers define a crisis and a disaster as two different situations, these two are closely linked and share many factors that significantly affect the tourism system. The main difference between crisis and disaster is that the latter is outside anyone's control. In contrast, in an organizational context, a crisis is associated with ongoing change and the lack of adaptation to organizational changes (Faulkner, 2001). Thus, managing the effects of internal and external crisis events and how organizations can continue to grow during unexpected events has become vital among company managers and decision-makers.

The following sections review resilience at the organizational level by defining organizational resilience, highlighting its importance and important indicators that affect the resilience of organizations. Finally, resilience measurement scales are discussed briefly.

3.2.2. Organizational Resilience (OR)

OR has been studied in different fields, such as positive psychology (Luthans et al., 2006), disaster management (A. V. Lee et al., 2013; McManus et al., 2008), and tourism (Biggs et al., 2012; Dahles & Susilowati, 2015; Hall et al., 2017; Orchiston et al., 2016; Prayag et al., 2018) to discuss the responses of organizations in the face of unexpected shocks.

Researchers have conceptualized and assessed resilience by drawing on various frameworks and methodologies. For instance, over the past two decades, OR has been an important concept in the disaster management literature, where resilience is seen as the capability of organizations to respond to disasters (McManus et al., 2008). The focus of OR studies has been mainly on defining, identifying indicators, mechanisms of operation, and examining the effects of OR on businesses (R. Chen et al., 2021). Raetze and colleagues (2022) noted that scholars have utilized a wide array of terms to describe organizational resilience, including "ability," "capacity," and "capability." While each term may carry slightly nuanced meanings, they have frequently been employed interchangeably in the literature.

OR has been conceptualized as an organization's ability to rebound from a crisis, bounce back to the previous stage, and restore normal functioning (e.g., Sheffi, 2007; Vogus & Sutcliffe, 2007). This perspective is associated with basic survival levels, in which the emphasis is mainly on “coping strategies and a quick ability to resume expected performance levels” (Lengnick-Hall et al., 2011, p. 244). On the other hand, some scholars have investigated OR beyond restoration and considered it as an organization’s capacity to develop new capabilities and identify opportunities to bounce forward, grow or become even stronger after a crisis (e.g., Fiksel, 2006; Seville et al., 2008; Vogus & Sutcliffe, 2007). This perspective is closely connected to the socio-ecological resilience approach studies (e.g., Lengnick-Hall et al., 2011) and provides an active definition for OR (Nilakant et al., 2016). In addition, studies have considered the link between adaptive capacity and organizations’ competitiveness in defining resilience. For instance, it has been found that an organization is resilient if it “aligns its strategy, operations, management systems, governance structure, and decision-support capabilities so that it can uncover and adjust to continually changing risks, endure disruptions to its primary earnings drivers, and create advantages over less adaptive competitors” (Starr et al., 2003, p. 3). Conz and Magnani (2020) proposed that OR is characterized by two dynamic paths that are equally effective for achieving a positive adjustment after a shock: absorptive resilience and adaptive resilience.

From a different perspective, organizational resilience can be understood either as a desired outcome or alternatively, as a process to reach a desired outcome. Studies that consider organizational resilience as a process highlight its dynamic and temporal aspects (Linnenluecke et al., 2012). These studies regard organizational resilience as a phenomenon that develops over time. Researchers focused on resilience as processes do not consider resilience as an outcome of this evolution but rather as the process itself (Williams et al., 2017). These process-oriented studies aim to illustrate the stages and phases involved in the development of organizational resilience (Duchek et al., 2020).

On the other hand, Duchek et al. (2019) suggest that resilience as an outcome is associated with the capacity to recover, and it can only be assessed following disruptive events. Thus, resilience as an outcome would be a target state, and resilience as a process refers to the organizational mechanisms that enable reaching that state (Melián-Alzola et al., 2020a). While both perspectives offer valuable insights into resilience, they differ in their focus, underlying assumptions, and implications for organizational practices. Outcome-oriented studies focus on identifying the factors influencing an organization's resilience level (Duchek, 2020). Such studies offer valuable insights into the specific practices (DesJardine et al., 2019), and organizational behaviors (Horne & Orr, 1997) that contribute to organizational resilience enhancement.

Ruiz-Martin and colleagues (2018) describe resilience as an outcome of an organization, referring to what a resilient organization does. As an example, resilience could be the adaptation to changing situations, where the organization is strengthened (Sutcliffe & Vogus, 2003; Vogus & Sutcliffe, 2007). A resilient organization, in this case, can restore its performance to previous levels across (Sheffi, 2007). It can effectively achieve its goals and exploit opportunities during anticipated or unforeseen events (Hilton et al., 2012). Furthermore, given that bouncing back to the state prior to disruptive events may be neither feasible nor desirable (Brown et al., 2017), organizations must attempt to reach a new state, one that signifies an improved status compared to the previous stage (Melián-Alzola et al., 2020a). Therefore, the present study follows Melián-Alzola and colleagues' (2020a) approach and considers organizational resilience as a result or outcome that an organization aims to achieve. Organizational resilience is defined as a status or "the degree of operational and strategic organizational adaptation to new environment conditions, reaching a new equilibrium point at which organizations emerge strengthened" (p. 7).

In addition, the approach that the present study follows is further aligned with studies that view resilience as a transformation to a new stage, characterized by bouncing forward, growing, or becoming even stronger after a crisis (Fiksel, 2006; Seville et al., 2008; Vogus & Sutcliffe, 2007), instead of studies that consider resilience as an organization's ability to rebound from a crisis, bounce back to the previous stage, and restore normal functioning (Sheffi, 2007; Sutcliffe & Vogus, 2003). Resilience has also been conceptualized with respect to different timeframes, including before and after an adverse event. Raetze and colleagues (2022) categorize functions occurring before an adverse event under the category of detection and preparation, while functions occurring after an adverse event fall under adaptation and learning.

Therefore, some scholars have divided organizational resilience into two main categories based on pre- and post-crisis stages and activities: planned and adaptive resilience (Lee et al., 2013; Prayag et al., 2018). On the one hand, planned resilience aims to reduce the probability of failure, mitigate the negative consequences of failures, and ensure effective organizational functioning (Lee et al., 2013; Nilakant et al., 2014). It involves pre-existing, predetermined planning and capabilities to manage risks, focusing on pre-disaster mitigation activities (Nilakant et al., 2014). Furthermore, proactive planning before crises enhances resilience by facilitating the appropriate allocation of resources (Sobaih et al., 2021). Thus, planned resilience aims to mitigate the negative impacts of predictable and well-understood crises, proving beneficial when organizations anticipate potential crises and develop contingency plans in collaboration with their networks (Wishart, 2018). On the other hand, adaptive resilience emerges in the aftermath of crises (Sobaih et al., 2021), referring to the organization's ability to adapt to, learn from, and manage unexpected changes during the post-crisis phase (Biggs et al., 2012). Organizations develop new capabilities that enhance their resilience (Hall et al., 2018; Lee et al., 2013; Prayag, 2019).

3.2.2.1. The Importance of OR

While the concept of resilience has faced criticism for its perceived vagueness and inconsistency in definition (Hillmann & Guenther, 2021), the consensus among most scholars is that resilience typically involves two fundamental aspects: the experience of adversity and the ability to maintain positive functioning (Raetze et al., 2022). This ability to maintain positive functioning led scholars to explore its positive consequences at an organizational level.

As a result, scholars have identified several consequences to OR, such as survival (Gao et al., 2018), reduced organizational failure and decline (Carmeli & Markman, 2011), competitive advantage (Marwa & Milner, 2013), and organizational performance (Melián-Alzola et al., 2020a). For instance, Prayag et al. (2018) examined the effects of OR on the financial performance of tourism firms by applying both planned and adaptive resilience. They found that resilience of tourism firms positively influences their financial performance. However, this was true only for the adaptive dimension of OR (Prayag et al., 2018). Similarly, Chowdhury et al. (2019) found a significant influence that adaptive resilience has on tourism business performance through exploring the links between social capital (structural, relational, and cognitive), adaptive resilience, and business performance of tourism organizations (e.g., accommodation, tourist attractions). In addition, findings of Melián-Alzola and colleagues' (2020a) study confirm that the strategy and change dimensions (as a resilience process) have a considerable effect on hotel resilience, which positively influences hotel performance.

3.2.2.2. Indicators of OR

As OR is considered a multi-dimensional construct with complex perspectives and interactions that can be developed, measured, and managed within an organization (Lengnick-Hall & Beck, 2005), studies have explored the concept from different angles and provided different factors that may affect OR. For instance, Scarpino and Gretzel (2015) suggest that resilient organizations have four characteristics: centralization of internal controls, adaptation, learning, and creativity.

In addition, Chen et al. (2021) proposed five OR dimensions: capital, strategic, relationship, cultural, and learning. Capital resilience is the ability of an organization to function normally and recapitalize against risk in a crisis. Strategic resilience refers to the ability of an organization to have strategic consistency over time and choose a suitable growth model. Relational resilience is the mutual relationship between an organization and its stakeholders. Cultural resilience is an organizational climate that forms the creativity of employees and the commitment of the employees to the organization. Finally, learning resilience is an organization's capacity to handle the stresses and challenges of learning.

Studies have also identified various attributes and capabilities that may promote OR. Table 3.1 shows the most frequent factors mentioned in the literature. For example, highly resilient organizations can monitor and detect internal and external events to anticipate adverse

situations and learn from experiences to adapt proactively (Lengnick-Hall et al., 2011; Seville et al., 2008).

Table 3.1 Organizational Resilience Indicators

Factors	Studies
Anticipation	(Duchek, 2020; Linnenluecke et al., 2012; Kamalahmadi & Parast, 2016; Hardy, 2014; Rerup, 2001; Wright et al., 2012).
Adaptability	(Limnios et al., 2014; Burnard et al., 2018; Koronis and Ponis, 2018; Linnenluecke et al., 2012; Duchek, 2020; Conz & Magnani, 2020).
Agility	(Gibson & Tarrant, 2010; Ismail et al., 2011; Megele, 2014; Starr et al., 2003; Thomas et al., 2016)
Collaboration	(Nilakant et al., 2014; Ehrenhuber et al., 2015; Alonso & Bressan, 2015; Alonso & Bressan, 2015; Boza & Poler, 2013; Proper & Pienaar, 2011; Winston, 2014)
Flexibility/ Openness	(Kantur & İşeri-Say, 2012; Chewning et al., 2013; Burnard and Bhamra, 2011; Pal et al., 2014; Sabatino, 2016; Conz and Magnani, 2020; Berman, 2009; Kendra & Wachtendorf, 2002; Megele, 2014; Pal et al., 2014; Proper & Pienaar, 2011; Seville, 2018; Cutter et al., 2008; Fiksel, 2006)
Innovation and creativity	(Seville, 2018; Lee et al., 2013; Ehrenhuber et al., 2015)
Resourcefulness	(Conz & Magnani, 2020; Pal et al., 2014)
Resource availability	(Duchek, 2019; Pal et al., 2014; Aleksic, et al., 2013; Ates & Bititci, 2011; Orchiston et al., 2016; Hall, 2018; Dahles & Susilowati, 2015; Crichton et al., 2009)
Redundancy	(Conz & Magnani, 2020; Chopra & Khanna, 2014; Yao Hu et al., 2008; Johnsen & Veen, 2012; Powley, 2009; Tierney, 2003; Winston, 2014)
Changeability	(Ehrenhuber et al., 2015)
Coping capabilities	(Becken, 2015; Duchek, 2019)
Organizational change capabilities	(Linnenluecke et al., 2012; Duchek, 2019; Limnios et al., 2014; Xu & Kajikawa, 2018)
Positive perception	(Kantur & İşeri-Say, 2012)
Preference for cooperation	(Andersson et al., 2019)
Preparation capability	(Duchek, 2019; Burnard et al., 2018; Koronis & Ponis, 2018).
Risk awareness	(Andersson et al., 2019)
Robustness	(Conz & Magnani, 2020; Heinicke, 2014; S. Jackson, 2007; Kendra & Wachtendorf, 2002; Pal et al., 2014; Tierney, 2003; Tompkins, 2007)
Sense of reality	(Kantur and İşeri-Say, 2012)
Tolerance	(Kantur and İşeri-Say, 2012)
Transparency/visibility	(Ehrenhuber et al., 2015)
Building situation awareness	(Braes & Brooks, 2010; C. Brown et al., 2017; McManus et al., 2008; Seville, 2018)
Managing an organization's vulnerabilities	(Erol et al., 2010; McManus et al., 2008)
Improvisation capacity	(Coutu, 2002; Kendra & Wachtendorf, 2002; Mallak, 1997; Rerup, 2001)
Learning capacity	(Aguirre et al., 2005; Burnard & Bhamra, 2011; Hilton et al., 2012; Robb, 2000; Zhang & Van Luttervelt, 2011)
Resiliency of individuals	(Doe, 1994; Mallak, 1997; Riolli & Savicki, 2003)
Leadership (resilient leadership)	(Morales et al., 2019; Seville, 2018)

Furthermore, they can adjust following crises and provide a quick organizational response when dealing with turbulences (agility) (Andersson et al., 2019; Conz & Magnani,

2020; Erol et al., 2010). Resilient organizations can improve internal and external communication and collaboration to respond to unexpected events (Ehrenhuber et al., 2015). In addition, they are flexible and open to new ideas and can adapt routines and strategies to changing conditions (Conz & Magnani, 2020; Ehrenhuber et al., 2015; Sabatino, 2016). It is also suggested that continuous innovation and renewal are essential factors for long-term resilience in organizations (Ehrenhuber et al., 2015).

Furthermore, capabilities, such as access to adequate resources (financial, material, social, and network), resourcefulness, and redundancy, play a vital role in the resilience of organizations (Dahles & Susilowati, 2015; Orchiston et al., 2016; Pal et al., 2014; Ruiz-Martin et al., 2018). Redundancy refers to the ability of organization to keep some resources in reserve to be used in case of necessity (Conz & Magnani, 2020). In contrast, resourcefulness refers to the capability to accumulate different diversified assets and resources (Pal et al., 2014). However, Koronis and Ponis (2018) argue that organizations need a culture that supports a preparedness mentality, responsive capabilities, adaptation skills, and learning processes to be resilient. In addition, studies have investigated the influence of resilient leadership and organizational culture on the relationship between OR and organizational performance (Suryaningtyas et al., 2019; Tibay et al., 2018). Similarly, Seville (2018) argues that quality leadership and culture, networks and relationships, and readiness to change can affect OR.

Current literature distinguishes different attributes or capabilities of OR from the resilience concept. For instance, it is argued that a robust organization can absorb disturbances, yet it does not automatically bounce back and recover from disruptions (Ruiz-Martin et al., 2018). In addition, although OR has some elements in common with organizational attributes such as flexibility, agility, and adaptability, there are still distinguishing elements. For example, Lengnick-Hall et al. (2011) argue that flexibility and agility are often part of the ongoing strategies and deal with daily changes, while resilience is mainly associated with crisis events, which can include a significant transformation of the organization (Wishart, 2018).

Furthermore, while characteristics such as flexibility, improvisation, and agility may contribute to an organization's capacity for resilience, none of these capabilities is sufficient on its own to achieve it. Also, Duchek (2020) argues that adaptation aspects of resilience make organizations stronger after a crisis, while robustness is only the ability of organizations to maintain functions despite disruptions. However, Korber and McNaughton (2018) believe that

the definitions and boundaries between resilience and related concepts such as adaptability, transformability, and vulnerability remain fuzzy.

OR literature has mainly focused on defining resilient organizations, identifying resilience indicators, mechanisms of operation, and the effects of OR on performance of organizations (R. Chen et al., 2021). It is understood as an outcome or a process to reach the desired outcome (Giancotti et al., 2020). Yet, considering resilience as an outcome/result is limited to the post-crisis stage, which is described as the ability to recover. In contrast, resilience as a process focuses on effective responses to adverse events before, during, and after such events (Duchek et al., 2020).

3.2.2.3. Measuring OR

Scholars have provided various OR measurement scales that indicate a lack of agreement on measuring OR (Borekci et al., 2014; A. V. Lee et al., 2013; Wicker et al., 2013). McManus's (2008) study is one of the first studies that suggested a resilience management process. She conducted a qualitative study using semi-structured interviews with 10 case study organizations from different industries and found "situation awareness, management of keystone vulnerabilities, and adaptive capacity" as three main factors for OR. On the other hand, Lee et al. (2013) proposed an adjusted OR measurement, adding 'resilience ethos' as an additional element to the three elements of McManus's model to measure OR quantitatively. However, based on empirical results, they finally suggested a model with two factors (adaptive capacity and planning). Their measurement has 13 indicators and 53 items. Although this measurement is a comprehensive scale to measure OR, due to the lower response rate of a lengthy questionnaire, Whitman et al. (2013) proposed a shorter version of the scale by suggesting 13 items, only one item per indicator, to measure resilience in organizations.

In addition to the mainstream management and organizational literature, tourism and hospitality studies have also developed frameworks to assess the resilience of tourism enterprises. For instance, the framework developed by Orchiston et al. (2016) has two factors: 1) planning and culture and 2) collaboration and innovation. In addition, 'vulnerability, business planning and operations, preparedness and recovery planning, communications, and workforce' are the main factors of a framework developed by Usher et al. (2019) to assess tourism OR. In addition, Chen et al. (2021) developed a 20-item scale for measuring OR

considering five main factors: capital resilience, strategic resilience, relationship resilience, cultural resilience, and learning resilience. Brown et al. (2018) developed a Disaster Resilience Framework for Hotels (DRFH) by adopting economic, social, human, physical, natural, and cultural capitals as individual groups of predictors.

The scales mentioned previously mainly adopt a process-oriented view of organizational resilience, focusing on the capabilities and capacities that contribute to an organization's resilience. Rather than viewing resilience as a static trait or outcome, these scales emphasize the dynamic nature of resilience, highlighting the ongoing processes that enable organizations to effectively respond to and recover from disruptions. These scales typically assess various dimensions of organizational resilience by identifying and measuring factors such as situation awareness, management of vulnerabilities, adaptive capacity, planning, culture, collaboration, innovation, preparedness, recovery planning, communication, workforce, capital resilience, strategic resilience, relationship resilience, cultural resilience, and learning resilience.

Alternatively, researchers have approached the measurement of organizational resilience by focusing on organizations' recovery following a crisis or consider it as an outcome. For instance, Henry and Ramirez-Marquez (2010) suggested using the recovery-to-loss ratio as a quantitative measure. Watanabe et al. (2004) proposed employing the Operating Income to Sales ratio for this purpose. Markman and Venzin (2014) proposed assessing resilience using Return on Equity (ROE) and volatility. Jackson (2007) suggested evaluating resilience potential based on statistical correlations between minor and major incidents. Melián-Alzola et al. (2020a) introduced a construct to evaluate hotel resilience as an outcome, measuring the extent of operational and strategic organizational adaptation to new environmental conditions, resulting in strengthened organizations. These approaches are typically applicable post-crisis (Ruiz-Martin et al., 2018). Despite ongoing debates regarding the absence of a robust measurement scale (Saad et al., 2021; Chen et al., 2021), Melián-Alzola et al.'s (2020a) scale is employed in this study due to its retrospective survey design and outcome-oriented perspective on organizational resilience. Furthermore, this scale focuses on the adaptability of an organization, which aligns with the approach often observed in SMEs, as they typically exhibit a reactive response to crises.

In the next section, the focus shifts to the resilience of MSMEs, with an emphasis on the distinctions between MSME resilience and that of larger organizations. Key concepts from

the entrepreneurship literature, such as effectuation and causation, are introduced into OR, as important concepts that affect resilience of MSMEs.

3.2.3. Resilience in MSMEs

Scholars believe that resilience in MSMEs should be considered differently (Aggrey et al., 2021; Bartik et al., 2020; Eggers, 2020). For example, some scholars believe that large organizations can respond to crises more effectively by acquiring more resources. Conversely, others argue that small organizations adapt quickly to crises due to their flexibility (Eggers, 2020; Ratten, 2020). Therefore, resilience in entrepreneurial firms has been explored from different perspectives, such as 1) resilience as traits or characteristics of entrepreneurial firms or individuals, 2) entrepreneurial behavior enhancing OR, 3) entrepreneurial firms fostering macro-level resilience, and 4) resilience as a process of recovery and transformation (Korber & McNaughton, 2018, p. 1129).

OR factors, such as planning, resource availability, highly developed formal processes, and redundancy, are associated with characteristics of large organizations and are not applicable in small organizations since these are the areas where MSMEs have weaknesses (L. J. Branicki et al., 2018). MSMEs usually have lower cash flow and fewer equity reserves. As a result, they "lack resources and are overloaded with short-termism" (Pal et al., 2014, p. 411). According to resource-oriented research, MSMEs lack resilience due to their limited resources (L. J. Branicki et al., 2018). However, behavioral research highlights several relative advantages of MSMEs that promote resilience. For instance, it is argued that flexibility, adaptability, and innovation are the characteristics of MSMEs due to their relatively small size (Pal et al., 2014), which can help them during a crisis. Moreover, they have little bureaucracy, are rapid in decision-making, their internal communications are fast and effective, and decision chains are shorter, they have the capacity for fast learning, and can adapt routines and strategies quickly (Sullivan-Taylor & Branicki, 2011). In addition, as decision-makers are close to their customers and other stakeholders in small organizations, they have better access to market information in reacting to crises (Eggers, 2020). However, the ability of decision-makers to create new actions can be limited to only common solutions in the face of crises (Shirokova et al., 2020). Moreover, they exhibit higher tolerance for ambiguity and are adaptable to evolving conditions (de Vries & Shields, 2006).

Small entrepreneurial firms may follow different approaches in their responses to a crisis based on the availability of slack resources. In situations where slack resources are present, organizations are inclined towards routine responses, as they have the necessary resources to sustain regular operations. Conversely, when resources are limited, organizations tend to rely more on frugal responses, improvising with the resources at their disposal (Manfield & Newey, 2018).Therefore, due to the limited available resources in MSMEs in general (Herbane, 2010), and limited access to external resources during and after a crisis, it is more likely for them to embrace adaptive resilience even if they have low levels of planned resilience (Laskovaia et al., 2019; Vargo & Seville, 2011).

Branicki et al. (2018) argue that a lack of formal planning in crisis management does not mean MSMEs lack resilience because they use an emergent approach to manage crises. Instead, they suggest four key sources of resilience for MSMEs: 1) the importance of social connections in producing informal support mechanisms, 2) emphasizing the value of autonomy and high locus of control of MSMEs manager, 3) the tolerance toward uncertainty and failure, and 4) muddling through make-do strategy. Therefore, MSMEs build resilience through positive adjustments (Pal et al., 2014) and strategic and operational readiness or rapidity (Sullivan-Taylor & Branicki, 2011). However, this may make them highly agile but unsystematic in their approach (Vargo & Seville, 2011).

The difference between MSMEs resilience and resilience of large organizations can be identified in the literature through the most common characteristics that scholars use to define the phenomenon in MSMEs. These attributes are adaptability, sustaining positive performance, competitiveness, responsiveness, the ability of firms to minimize vulnerabilities, and their swift recovery from a disruptive event (Saad et al., 2021), which focus more on the post-crisis responses.

Sullivan-Taylor and Branicki (2011) examined managers' perceptions of their small, medium-sized enterprises' coping capabilities with extreme events using Weick and Sutcliffe's (2001) four-category framework (Resourcefulness, Technical, Organizational, Rapidity). Resourcefulness refers to the capacity of managers to identify potential problems, establish priorities and mobilize resources to avoid damage or disruption. Technical capability is the ability of managers to ensure that organizational systems perform at high levels when subject to extreme stress. Organizational relates to the preparedness of managers to make decisions and take actions to reduce disaster vulnerability and impacts. Finally, rapidity capabilities

reflect the capacity of managers to make decisions on threats without undue delay. MSMEs showed limited evidence concerning resourcefulness, technical, and organizational capabilities. However, a notable advantage was identified in terms of rapidity (Sullivan-Taylor & Branicki, 2011).

Pal et al. (2014) studied Swedish MSMEs resilience and identified four key capabilities: 1) investment finance and cash flow, 2) material assets and networking, 3) strategic and operational flexibility, and 4) attentive leadership. Zighan et al. (2021) propose a five-pillar framework of MSMEs' resilience capability: efficiency-based capability, adaptive-capability, collaborative-capability, change-capability, and learning-capability. They believe that these capabilities reduce the sources of vulnerabilities and help MSMEs with preparedness and adaptation in the face of major disruptions.

Portuguez Castro and Gómez Zermeño (2020) reviewed entrepreneurship, resilience, and crises studies. They identified six important resilience factors: 1) attitudes toward the crisis, 2) entrepreneurial characteristics, 3) business characteristics, 4) relationships with institutions, 5) human and social capital, and 6) strategic management. Wishart (2018) suggests that organizations must develop contingency plans, build networks and examine their adaptive behaviors to prepare for crises. However, managers in small organizations tend to reactive responses in the face of crises instead of proactively planning for them, primarily because of the cost of planning (Herbane, 2010). In summary, resilience in small organizations arises from a complex interplay of resilience at individual and organizational levels (Purnomo et al., 2021).

The current study focuses on MSMEs' adaptability as the main part of their resilience during a prolonged crisis for several reasons. First, the focus of the study is mainly on the post-crisis stage DML by considering COVID-19 as a prolonged crisis. Therefore, the difference between pre- and post-crisis activities makes adaptability more relevant in this context. Second, due to the limited available resources and the lack of planning in most MSMEs (Herbane, 2010), they are more likely to adopt adaptive strategies with reactive responses to the crises (Laskovaia et al., 2019; Vargo & Seville, 2011) through positive adjustments (Pal et al., 2014). Finally, the present study aims to understand the effects of effectual/causal DML on the resilience of MSMEs during a prolonged crisis. Therefore, although it is acknowledged that organizational resilience is a multidimensional construct that involves preparedness, responsiveness, adaptability, and learning (Koronis & Ponis, 2018), utilizing a unidimensional construct that focuses on the adaptability of organizations best suits the purpose of this study

because the post-crisis DML in managing a crisis can mainly affect reactive responses and strategies that may make them adaptable and as a result more resilient.

The following section discusses managerial decision-making and then connects managers' effectual and causal DML with resilience of their MSMEs.

3.3. Managerial Decision-Making and Crises

Decision-making in organizations has always been an important phenomenon in management studies, especially during crises and uncertainty (Bonn & Rundle-Thiele, 2007; Pappas & Brown, 2020; Tabesh & Vera, 2020). First, this section reviews the general approaches to decision-making from a historical point of view. Then, it provides the rationale behind studying MSME managers' DML during a prolonged crisis.

Literature on managerial decision-making divides the phenomenon into two main systems: System 1 is considered as “a fast, intuitive and more emotional” process. Decisions are made through intuition in this system. However, it is argued that expertise is necessary for intuition. System 2 is “a slower, more deliberative, rational” process. It is argued that “statistical reasoning and logic” is necessary for optimal decision outcomes in this system (Norris et al., 2020, p. 2122).

A long-standing discussion on ‘planning versus learning’ in management studies has introduced different perspectives, particularly in decision-making logic (Shirokova et al., 2020). Managerial decisions are considered a process in the management literature (e.g., Kotler, 1991; Sarasvathy, 2001), mainly focusing on top managers' comprehensive and intuitive strategic decision-making process in response to unknown risks and uncertainty (Tabesh & Vera, 2020). The former represents the rationality of strategic decision-making processes and is defined as “the extent to which top managers systematically gather and process information in making strategic decisions” (Tabesh & Vera, 2020, p. 2237). In contrast, intuitive decision-making is based on managerial judgment or gut feeling (Elbanna & Fadol, 2016). Both approaches have been identified as effective approaches across various contexts

Kotler emphasizes the resources required to attain a specific outcome, whereas Sarasvathy (2001) prioritizes the outcomes that can be accomplished with the resources currently available (Coudounaris & Arvidsson, 2021). Although the logic is reversed, the ultimate goal remains the same, such as maximizing outcomes utilizing the internal resources

of the company (Sarasvathy, 2001). Literature on crisis management argues that forecasting systems, contingency plans, exercises and simulations, and the allocation of human and organizational resources are necessary to respond to a crisis (Linnenluecke et al., 2012). However, after a crisis, the situation limits the ability of managers to apply such a formal and in-depth analysis, and a more intuitive approach is likely to form the basis for strategic decisions (Bonn & Rundle-Thiele, 2007; Burnard et al., 2018).

Burnard et al. (2018) argue that responses by organizations in the face of unexpected events vary based on their preparedness and their ability to adapt by reallocating resources quickly after a disruption. In addition, the effectiveness of leadership, decision-making, and teamwork have been identified as challenges to effective crisis response (Alves et al., 2020). Decision-making during an unexpected event is characterized by risk, uncertainty, high consequence, low probability, ambiguity, and time pressure (Herbane, 2010; R. C. Runyan, 2006). These conditions push managers to follow various paths to cope with the same event (Burnard et al., 2018). Furthermore, scholars believe that "uncertainty and a threatening business environment decrease rationality" (Bakonyi, 2018, p. 1193). As a result, the decision-making process is assumed to differ in a stable environment and following an unexpected event. Table 3.2 highlights differences in decision-making during stable or unexpected events.

Table 3.2 *Decision-Making Under Stable and Unstable Conditions*

	Stable environment	**Unexpected events**
Use of analysis	In-depth analysis of data, broad range of alternatives considered	Little analysis of data, small number of alternatives considered
Use of intuition	Limited use of intuition	Greater use of intuition and ''gut feel''
Management involvement	CEO and senior management team	CEO and selected members of the senior management team
Board involvement	Predominantly strategy approval, limited involvement in setting strategy	Heavily involved in setting strategy, responsible for strategy approval
Decision-making approach	Consultation	Limited consultation
Decision-making process	Comprehensive	Simplified
Speed of decision-making	Slow	Fast
Role of regulations	Major drawback	Can be quickly overcome

Note: adopted from Bonn and Rundle-Thiele (2007)

Brinks and Ibert (2020) state that the term crisis "encompasses the elements of uncertainty, urgency and threat" (p. 284). The following section reviews effectuation, and causation DMLs as entrepreneurial DML theories that managers may adopt to cope with uncertainty and risk following an unexpected event in their organization.

3.3.1. Entrepreneurship Theory – Effectuation and Causation

Entrepreneurship and decisions associated with its process have received attention in the literature, where scholars initially started to ask how, and via which processes expert entrepreneurs start their new businesses (Sarasvathy, 2001). Two different decision-making logics that entrepreneurs may use in a new venture development process were identified in the entrepreneurship literature (Fisher, 2012; Sarasvathy, 2001). Sarasvathy (2001), in her effectuation theory, termed these two logics as causation and effectuation. The increasing number of papers investigating this entrepreneurial theory confirms the attention from scholars toward it in the past decade (Grégoire & Cherchem, 2020; Karami et al., 2020).

Effectuation as a theory of entrepreneurship was initially developed and expanded by Sarasvathy (2001), Sarasvathy and Dew (2005), and Sarasvathy (2008). Effectuation is defined as DML that "takes a set of means as given and focuses on selecting between possible effects that can be created with that set of means" (Sarasvathy, 2001, p. 245). Furthermore, it assumes that "to the extent we can control the future, we do not need to predict it" (Sarasvathy, 2001, p. 251). In addition, the availability of resources rather than predetermined objectives leads to decisions and behaviors under uncertainty in effectuation. Thus, entrepreneurs adopt a DML different from the traditional, more rational model (causation) (Chandler et al., 2011). The main differences between effectual and causal logics are highlighted in Table 3.3.

Causation, on the other hand, is defined as "processes that take a particular effect as given and focus on selecting between means to create that effect" (Sarasvathy, 2001, p. 245). Its underlying logic is that "to the extent we can predict the future, we can control it" (Sarasvathy, 2001, p. 251). Causation differs from effectuation as there are predetermined goals, and the process to achieve those goals is carefully planned according to a set of given resources in causal logic. In contrast, the fundamental world view for effectuation is called the 'Pilot-in-the-plane,' describing the future as something people can influence by their actions. Causation begins with desired ends.

Table 3.3 *Differences Between Effectuation and Causation*

Issue	Causation	Effectuation
View of the future	*Prediction:* The causal logic views the future as a continuation of the past that can be acceptably and usefully predicted.	*Creation:* The effectual approach views the future as contingent on actions by willful agents, largely nonexistent and a residual of actions taken. Prediction is unimportant as a result.
Basis for Commitment	*Should:* Commit as a course of maximizing, analysis, and what should be done.	*Can:* The effectual approach is to do what you can (what you are able to do) rather than what your prediction says you should.
Basis for actions	*Goal-oriented*: In the causation, goals, even when constrained by limited means, determine sub-goals. Goals determine actions, including which individuals to bring on board.	*Means-oriented:* In the effectuation, goals emerge by imagining courses of action based on given means. Similarly, who comes on board determines what can be and needs to be done. And not vice versa.
Predisposition toward risk and resources	*Expected return:* Causal logic frames the new venture creation problem as one of pursuing the (risk-adjusted) maximum opportunity and raising required resources to do so. The focus here is on the upside potential.	*Affordable loss:* Effectual logic frames the problem as one of pursuing adequately satisfactory opportunities without investing more resources than stakeholders can afford to lose. The focus here is on limiting downside potential.
Attitude toward outsiders	*Competition:* Causal frames promulgate a competitive attitude toward outsiders. Relationships are driven by competitive analyses and the desire to limit dilution of ownership as far as possible.	*Partnerships:* Effectual frames advocate stitching together partnerships to create new markets. Relationships, particularly equity partnerships, drive the shape and trajectory of the new venture.
Planning	*Commitment:* Path selection is limited to those that support a commitment to an existing goal.	*Contingency:* Paths are chosen that allow more possible options later in the process, enabling strategy shift as necessary.
Attitudes toward unexpected	*Avoiding:* Accurate predictions, careful planning and unwavering focus on targets form hallmarks of causation. Contingencies, therefore, are seen as obstacles to be avoided.	*Leveraging:* Eschewing predictions, the imaginative rethinking of possibilities, and continual transformations of targets characterize effectuation. Contingencies are seen as opportunities for novelty creation.

Note. Dew et al. (2009); Read and Sarasvathy (2005)

Chandler et al. (2011) argue that causation is consistent with planned strategy approaches while effectuation is consistent with emergent or non-predictive strategies (Wiltbank et al., 2006). The former requires planning and analysis and considers conditions in which the outcomes are predictable through calculation or statistical inference (Sarasvathy, 2001). In addition, uncertainty in the environment makes it impossible to calculate an expected return for a given course of action (Chandler et al., 2011). Effectuation is based on four basic principles:

1) *Bird-in-Hand:* Effectuators begin the process by identifying the means that are under their control. Thus, the solutions are created with available resources. Three questions that help them to identify their intellectual, human and social capital (Akinboye, 2020) are: who I am, what I know, and whom I know (Sarasvathy 2001, 2008). At the individual level, these means are considered as personal knowledge, skills, and social networks. Moreover, when it comes to the firm level, means include physical, human, and organizational resources (Fisher, 2012).
2) *Lemonade principle* refers to leveraging uncertainty by treating surprises as opportunities instead of avoiding them (Reyes-Mercado & Verma, 2019; Sarasvathy, 2001). So, contingencies are considered as resources to be exploited (making lemonade out of lemons) (Nelson & Lima, 2020).
3) *Crazy Quilt:* The establishment of strategic alliances brings new resources and new directions (Chandler et al., 2011). So, those who use effectual logic tend to co-create the solutions with other actors, even competitors, to a higher degree than those applying causal logic (Sarasvathy, 2008).
4) *Affordable loss:* Entrepreneurs prioritize their actions within maximum affordable loss. Therefore, entrepreneurs focus on minimizing costs instead of maximizing earnings (D'andria et al., 2018).

While some scholars consider causation and effectuation as opposites (Brettel et al., 2012) or independent logics (Chandler et al., 2011; Perry et al., 2012), it is argued that these two logics can overlap and "are integral parts of human reasoning and can occur simultaneously" (Sarasvathy, 2001, p. 245) in different contexts. However, scholars contend that the best possible decisions arise from a combination of both (Harms et al., 2021; Jiang & Tornikoski, 2019; Reymen et al., 2015). For instance, Reymen et al. (2015) have proposed a hybrid perspective on strategic decision-making by demonstrating how DML shifts and re-shifts over time. Causation helps entrepreneurs to predict what is predictable, whereas effectuation helps entrepreneurs to be flexible and able to exploit opportunities as they arise (Frese et al., 2020). Therefore, Figure 3.2 shows the causal and effectual processes.

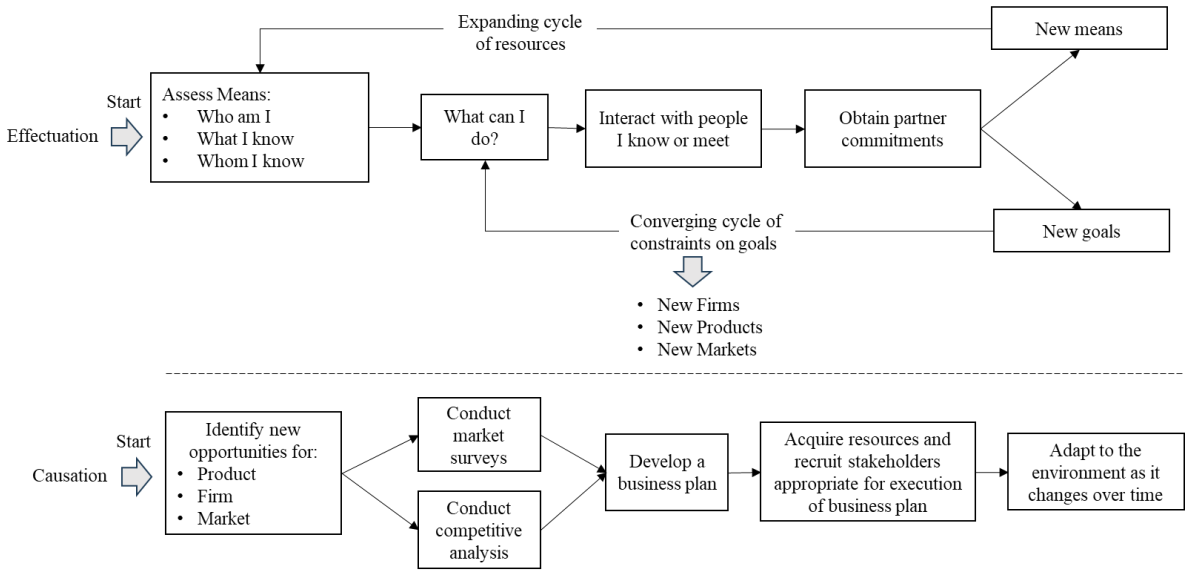

Figure 3.2 *Effectual and Causal DML Processes - Adopted from Read et al. (2009)*

Alzamora-Ruiz et al. (2021) investigated the 'direct and ambidextrous effects' of causal and effectual DMLs on innovation in technology-based SMEs. Their findings showed that using both logics simultaneously (ambidextrous approach) does not impact product innovation positively. However, their positive impact is superior to the independent use of a single logic in process innovation (Alzamora-Ruiz et al., 2021). In sum, the literature shows that effectuation and causation are not opposing strategies but rather complementary (Frese et al., 2020).

Sarasvathy (2001) argues that shifts in logic happen due to the different levels of uncertainty and resource availability. It is also suggested that entrepreneurs use these logics simultaneously when they perceive different types of uncertainties (Jiang & Tornikoski, 2019). Studies have also examined the synergetic effects of both logics on venture performance and suggested that businesses can benefit from applying both DMLs (Smolka et al., 2018). It has been shown that different configurations of causation and effectuation components are associated with a high business model innovation level during crises (Harms et al., 2021). In addition, the choice of the decision model is also shaped by the strategic business context and not by firm size (Hauser et al., 2020). Finally, the interplay between different antecedents can affect the choice and shift between logics (Stroe et al., 2018).

3.3.1.1. Measuring Effectuation and Causation

Chandler et al. (2011) used effectuation conceptualization to develop a measurement scale for effectuation and causation. They used slightly different terminologies for principles from those originally proposed by Sarasvathy (2001) for effectuation. First, *experimentation* manifests means orientation in effectuation versus goal orientation in causation (Chandler et al., 2011). Second, *flexibility* regarding unforeseeable events in effectuation has been contrasted with carrying out a planned strategy under causal logic (Reymen et al., 2015). Flexibility is about leveraging uncertainty by treating unexpected events as an opportunity to exercise control of the emerging situation (Sarasvathy, 2009). Third, *pre-commitments* emphasize entrepreneurs' prior and emerging ties to other actors in the marketplace (Frese et al., 2020). Finally, *affordable loss* reflects the limited financial means of a new venture and the environment's inherent unpredictability (Chandler et al., 2011). Therefore, effectuation was measured as a second order construct with four dimensions.

In contrast, causation processes have been characterized as 'planned business strategy,' and measured as a first order unidimensional construct. In their study, Chandler et al. (2011) measured the concept of causation by drawing from the seminal work of Sarasvathy (2001) and her conceptualization of the causation process in entrepreneurial decision-making. Sarasvathy identified several key components that characterize the causation approach, each of which provides insights into how entrepreneurs pursue opportunities in a deliberate and planned manner. *Envisioning the end from the beginning*: This component emphasizes the importance of having a clear vision or goal in mind from the outset of the entrepreneurial venture. Entrepreneurs adopting a causation approach are focused on defining specific objectives and outcomes they aim to achieve, providing a roadmap for their actions and decisions. *Maximizing expected returns*: Causation-oriented entrepreneurs are motivated by the pursuit of maximizing returns on their investments. They carefully evaluate potential opportunities based on their expected profitability and seek to make decisions that will yield the highest financial rewards. *Business planning and competitive analyses*: Entrepreneurs employing a causation approach engage in detailed business planning and thorough analyses of the competitive landscape. This involves assessing market dynamics, identifying competitors, and developing strategies to gain a competitive advantage. By conducting rigorous analyses, entrepreneurs aim to mitigate risks and increase the likelihood of success. Table 3.4

illustrates effectuation and causation and related measurement constructs by Chandler et al. (2011).

Table 3.4 *Effectuation and Cassation*

DML	Sarasvathy (2001) conceptualization		Chandler et al.' (2011) measurement scale	
	Principles	**Explanation**	**Related dimension**	**Explanation**
Effectuation	Means-driven action	"Only some means or tools are given; decision-making [...] given specific means, choice of effect is driven by characteristics of the actor and his or her ability to discover and use contingencies." (p. 251)	Experimentation	"a focus on short-term experiments to identify business opportunities in an unpredictable future" (p. 377)
	Focus on affordable loss	"Effectuation predetermines how much loss is affordable and focuses on experimenting with as many strategies as possible with the given limited means." (p. 252)	Affordable loss	"a focus on projects where the loss in a worst-case scenario is affordable" (p. 377)
	Focus on partnerships	"Effectuation emphasizes strategic alliances and pre-commitments from stakeholders as a way to reduce and/or eliminate uncertainty and to erect entry barriers." (p. 252)	Precommitments	"an emphasis on pre-commitments and strategic alliances to control an unpredictable future" (p. 377)
	Leveraging contingencies	"Effectuation [...] would be better for exploiting contingencies that arose unexpectedly over time." (p. 252)	Flexibility	"exploitation of environmental contingencies by remaining flexible" (p. 377)
Causation	construct	"Causation processes take a particular effect as given and focus on selecting between means to create that effect." (p. 245)	Unidimensional construct	"entrepreneurial opportunities are driven by exogenous forces, and the role of the entrepreneur is to examine the environment and existing projects in the marketplace, utilize a sequential screening process, and choose the project with the highest expected return" (p. 377).

3.3.1.2. Effectuation Beyond Entrepreneurship

Effectuation is a theory that was initially developed to explain the process of new venture creation by expert entrepreneurs (Sarasvathy, 2001). However, Sarasvathy (2008) explains that "effectuation is not a theory about entrepreneurs per se; it is a theory of entrepreneurial expertise." It is "a set of internally consistent decision criteria for guiding action." Thus, it can be learned and used by "all human beings, irrespective of whether they are entrepreneurs or not, whether to build new ventures or for other purposes" (p. 732). Studies

have found that effectuation can be used not only by expert entrepreneurs but also by novice entrepreneurs and even managers in their decision-making (Brettel et al., 2012; Engel et al., 2014). It is also argued that 'effectuators' achieve the best possible results by creating markets, products, and opportunities with available resources (Shirokova et al., 2020).

Apart from scholars who have focused on venture creation or early stages of venture development (e.g., Chandler et al., 2011), effectuation has also been studied within different contexts, such as the internationalization process (D. N. Coudounaris & Arvidsson, 2021; Prashantham et al., 2019; Sarasvathy et al., 2014), disaster recovery (Nelson & Lima, 2020), crisis management (Aggrey et al., 2021), new product process and innovation (Berends et al., 2014; Brettel et al., 2012; Szambelan & Jiang, 2020), business model innovation (Harms et al., 2021) and venture performance (Laskovaia et al., 2019). Thus, it is proposed that effectuation theory can be a fruitful decision-making logic within established organizations if "organizations adapt entrepreneurial behavior toward innovation and proactiveness" (Szambelan & Jiang, 2020).

3.3.1.3. Outcomes of Effectuation and Causation in Established Enterprises

This section addresses the outcomes of effectual/causal DML, exploring its implications in relation to 1) new product development, 2) business performance, and 3) cross-national contexts.

In response to critics regarding the limited knowledge of outcomes of effectual logic (Arend et al., 2015), scholars have examined different possible impacts of effectuation in different stages of business operations. In terms of transferring the concept from the original field of entrepreneurship to other contexts, scholars have investigated the role of new product development (Brettel et al., 2012; Wu et al., 2020). For instance, Brettel et al. (2012) examined the impact of effectuation on the performance of different corporate Research and Development (R&D) projects. Their findings showed that using effectual dimensions in corporate R&D projects can positively affect R&D performance when innovation is high. In contrast, causation can positively affect R&D performance when innovativeness is low. Hauser et al. (2020) found that effectuation is used not only to deal with existing artifacts but also to create new products, services, or processes. Moreover, effectuation acts as a positive mediator

in the relationship between resource combination activities and the growth of new ventures (Yang et al., 2021).

In addition, Wu et al. (2020) investigated the effects of effectuation on new product development speed and quality. They found that effectuation facilitates new product development speed. Furthermore, low to intermediate levels of effectuation can improve new product development quality, but excessive effectuation can reduce the quality of new products.

Moving from the different outcomes of effectuation or causation on new product development to performance of businesses, scholars have examined associations between effectual and causal logics and new venture performance (Aggrey et al., 2021; An et al., 2020; Cai et al., 2017; Eyana et al., 2018; Laskovaia et al., 2017; Smolka et al., 2018; Yu et al., 2018) as well as MSME performance (Shirokova et al., 2020). For instance, Wiltbank et al. (2009), comparing control and prediction processes, found that angel investors who emphasized control strategies encountered fewer investment failures. Effectuation has also been applied to investigate internal corporate venturing in small, medium-sized enterprises (Evald & Senderovitz, 2013). McKelvie et al. (2013) examined the effects of causation and effectuation on firm-level performance. Their results showed that effectuation principles have various influences on performance. For instance, pre-commitment was a positive predictor of profitability and financial performance. In addition, flexibility also positively predicted financial performance and the use of affordable loss was a positive predictor of achieving first sales. However, Smolka et al. (2018) found that combining two logics and using them in tandem improves venture performance (sales, market share, and profit).

Roach and colleagues (2016) indicated that ‘means’ and ‘leverage contingencies’ dimensions positively mediate innovation orientation and product/service innovation leading to increased firm performance. Moreover, by assessing the relationship between effectual control orientation and a firm’s innovation performance with entrepreneurial orientation as a mediator, Szambelan and Jiang (2020) found that effectual control orientation positively affects innovation performance.

Considering the application of effectuation and causation in cross-national contexts, several studies have investigated links between DML and venture performance in a cross-national context (Laskovaia et al., 2017; Smolka et al., 2018). However, findings from these studies are more ambiguous. For instance, in the context of small tourism firms in Ethiopia, Eyana et al. (2018) found a positive relationship between causation and change in employment

size. In contrast, only experimentation was an indicator for a change in employment size among the dimensions of effectuation. Regarding financial performance indicators, findings showed that not all dimensions of effectuation are significantly associated with financial performance indicators, even though causation is associated with none of the indicators (Eyana et al., 2018). However, they argue that there is no strong evidence to support the claim that effectuation is superior to causation in a non-Western context.

Eijdenberg et al. (2017) investigated the effects of effectuation and causation on the performance of small businesses in Burundi. Findings showed that small business owners favor effectuation more than causation, but the direct effects of both causation and effectuation on performance were non-significant. Moreover, Ebegbetale (2021) examined how entrepreneurs deal with uncertainty, revealing that Nigerian retail business entrepreneurs use causation more than effectuation when dealing with uncertainties. Shirokova et al. (2021) argue that "studies exploring the direct impact of effectuation and causation on performance have reported inconclusive results" (p. 169). They proposed that the effectiveness of DML on performance is likely to be affected by the level of development of regulatory, normative, and cultural-cognitive institutions in cross-national contexts.

In summary, effectuation fits well with MSMEs characteristics. For instance, limited resources in MSMEs often lead to a focus on one or a few projects, relying more on the flexibility inherent to these enterprises (Berends et al., 2014). Furthermore, Berends et al. (2014) found that small firms rarely formalize their new product development and engage in little planning. However, they argue that "product innovation in small firms cannot be dismissed as merely unplanned, chaotic, improvisational, or ad hoc" (p. 632), and the process can still be considered as effectuation.

3.3.2. Effectual/Causal DML During Crises

Flexible business planning activities are needed to allow managers to respond to a crisis by limiting the downside risk and existing resources (Giones et al., 2020). On the other hand, it is argued that insisting on pre-committed plans and causal logic, and ignoring the changing situation and uncertainty in the environment leads to unreliable outcomes (Shirokova et al., 2020).

Several scholars (e.g., Nelson & Lima, 2020; Randerson, 2016) argue that entrepreneurial effectuation should be studied as a method and theoretical lens to understand how individuals (Monllor et al., 2020) and organizations solve problems in response to crises (Morrish & Jones, 2020). During a crisis, a direct approach is required to cope with uncertainty by applying what is at hand instead of rational decision-making, which is a logical and bureaucratic approach that needs time for information and analysis (Ratten, 2020). Thus, effectuation can be a suitable concept in the crisis response stage in organizations since managers may face high levels of uncertainty. For instance, studies show that managers facing uncertainty and resource constraints associated with crises make do by adapting effectual decision-making in their practices (Laskovaia et al., 2019; Ratten, 2020; Shirokova et al., 2020).

Aggrey et al. (2021) investigated how decision-making can affect business performance during crises. Studying the economic uncertainty caused by the COVID-19 pandemic and its effect on the crisis performance of agricultural businesses in a developing economy, they found that effectual decision-making logic positively affects firms' performance during an economic crisis. Furthermore, the flexibility, affordable loss, and experimentation dimensions of effectuation are essential to MSMEs as they respond to the crisis (Aggrey et al., 2021). Moreover, Shirokova et al. (2020), studying Russian firms in adverse conditions, showed that causation brings marginal performance improvements even though it is highly unreliable, whereas effectuation leads to performance improvements linked with higher reliability.

Despite recent research findings on DML and its relationship with business performance, less attention has been paid to the effects of DML on the resilience of MSMEs (Purnomo et al., 2021; Delladio et al., 2023). For instance, Delladio et al. (2023) found that both effectuation and causation have a direct and indirect effect on organizational resilience. Furthermore, Simms et al. (2022) identified a process wherein firms initially adopt an effectual learning approach in their response to the disruptions caused by the pandemic. Subsequently, as they gain experience and knowledge during the crisis, they transition into a causal rebuilding process, enabling them to make decisions based on accumulated experience. Thus, this study aims to fill this gap by answering the following question:

RQ1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?

RQ2: What are the indirect impacts (mediators) of effectual/causal DML on MSME resilience during a prolonged crisis?

To address this research question, a comprehensive literature review was conducted, involving a thorough examination of existing research on effectuation/causation DML and their relationship with business performance in general, and DML's impact on the resilience of MSMEs in particular. It also led to the identification of potential mediator factors, and the advancement of a preliminary conceptual model, together with corresponding hypotheses of direct and indirect effects of DML on MSME resilience. Figure 3.3 illustrates the direct and indirect effects of DMLs and MSME resilience during a prolonged crisis.

Section 3.4.1 details the direct effects of effectual/causal DML on MSME resilience while section 3.4.2 discusses indirect effects of effectual/causal DML on MSME resilience, and provides justification for the selection of two mediators, organizational resourcefulness and organizational agility.

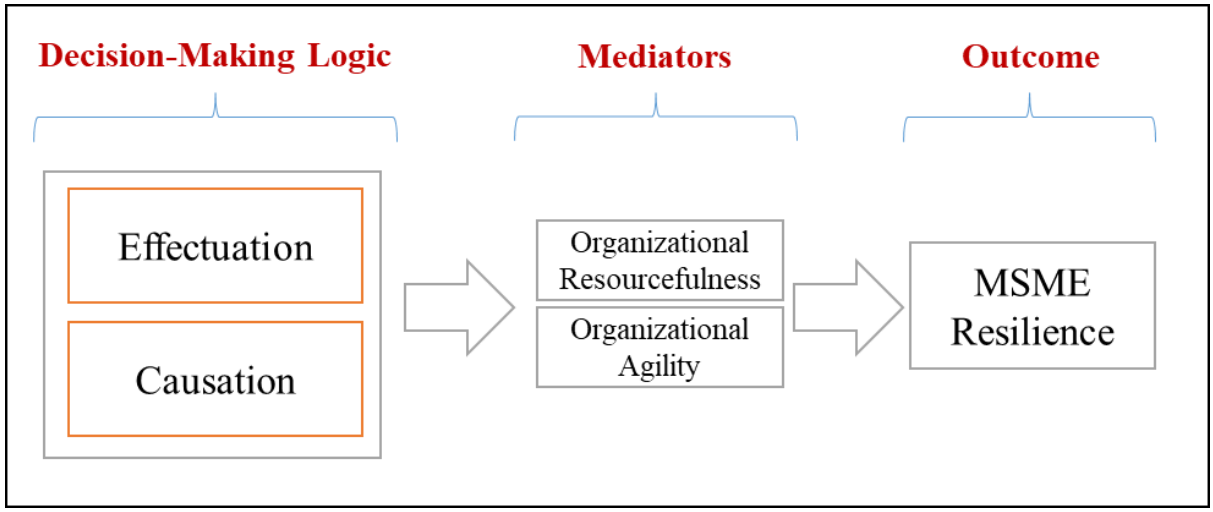

Figure 3.3 *Effectual/Causal DML and MSME Resilience*

3.4. Effectuation, Causation and Resilience of MSMEs

The Upper Echelons Theory posits that characteristics of top managers significantly impact their decisions and affect organizations' strategic choice and organizational performance (Hambrick and Mason, 1984; Hambrick, 2007; Carmeli et al., 2011). This theory suggests that top managers view their situations through their own highly personalized lenses (Hambrick, 2007). As a result, organizations become reflections of their top managers, as their characteristics drive decision-making processes and subsequently impact organizational

outcomes (Hambrick, 2007). However, it is essential to acknowledge that executives with varying levels of control may exert differing degrees of influence on their organizations' strategies (Haleblian & Finkelstein, 1993). Those with greater discretion and power are more likely to see their characteristics reflected in organizational outcomes (Bekos & Chari, 2023).

When considering MSMEs as units of analysis, the entrepreneur's role as a decision-maker becomes paramount in contributing to organizational outcomes such as resilience (Santoro et al., 2020). This perspective aligns with the Upper Echelons Theory's premise that top managers significantly shape organizational outcomes (Hambrick and Mason, 1984; Hambrick, 2007; Carmeli et al., 2011). Moreover, the UET underscores the importance of understanding psychological processes and individual characteristics that drive strategic actions and decisions (Hambrick, 2007). These insights are particularly relevant in MSMEs contexts, where entrepreneurs' experiences, values, and personalities remain central to decision-making processes (Kelliher and Reinl, 2006). Therefore, in MSMEs, both managers and owners are considered as the upper echelons, and their behaviors significantly influence behaviors and actions of individuals within the organization (Iborra et al., 2019). This is particularly notable in MSMEs due to their relatively smaller size and less pronounced hierarchy compared to large firms.

Scholars have applied Upper Echelons Theory to determine characteristics of top managers that influence organizational outcomes. Individual demographic and psychological traits have been identified as factors impacting organizational level performance (Hambrick and Mason, 1984). However, it is suggested that cognitive processes can mediate the effect of upper echelon characteristics on strategic decisions and performance (Bekos & Chari, 2023). These cognitive processes may include managerial attention, decision-making processes, and attention allocation in decision-making (Cho & Hambrick, 2006; Papadakis & Barwise, 2002).

In addition, studies, based on the Upper Echelons Theory, have explored how factors such as top managers' future temporal depth, family ownership, ambidexterity, self-oriented perfectionism, and entrepreneurs' psychological resilience impact organizational resilience (Weis and Klarner, 2022; Wang et al., 2023; Iborra et al., 2019; Tagliazucchi et al., 2023).

Thus, while it is acknowledged that managers' entrepreneurial decision-making logic and organizational resilience are distinct concepts at personal and organizational levels, according to Upper Echelons Theory, it is suggested that managers' decision-making logic can affect strategic choices during a crisis and influence organizational resilience in MSMEs.

In the following sections, the direct and indirect effects of effectuation and causation DMLs on organizational resilience are explained. Then, relevant hypotheses are advanced.

3.4.1. Direct Effects

Since effectuation presents an alternative approach to traditional managerial thinking by promoting experimentation based on the current situation while also controlling the downside risks of taking action (Matalamäki, 2017; Perry et al., 2012; Sarasvathy et al., 2014), effectuation, in response to a crisis, can affect organizational resilience as it result in different responses to environmental challenges (Henninger et al., 2020). Moreover, it is believed that organizations' approach in their responses influences their ability to survive in the face of environmental uncertainty (Ratten, 2020). For instance, a study in an emerging market context during adverse economic conditions shows that effectuation improves performance in unpredictable contexts. However, it is unreliable in a stable environment (Shirokova et al., 2020).

Organizations need to have certain capabilities and go through various actions to cope with crises and become resilient, including experimenting with different strategies while minimizing potential losses (An et al., 2019; Berends et al., 2014), relying on their available resources and trying to acquire new resources through partnerships (Orchiston et al., 2016; Conz & Magnani, 2020; Pal et al., 2014), cooperating and collaborating with their networks (Nilakant et al., 2014; Andersson et al., 2019), being flexible and open to new opportunities (Pal et al., 2014; Sabatino, 2016; Conz and Magnani, 2020), learning (Simms et al., 2022), and managing their vulnerabilities (Erol et al., 2010). Schonfeld and Mazzola (2015) discovered that entrepreneurs tend to rely more on problem-focused than emotion-focused strategies. Effectuation is a problem-focused coping strategy (Ahmed et al., 2022) that can help organizations, particularly MSMEs, navigate uncertainty and resource constraints.

Effectuation offers a promising framework that can affect different aspects of an organization and enhance organizational resilience. For example, an essential aspect of organizational resilience in times of crisis is the ability to experiment with different strategies while minimizing potential losses (Berends et al., 2014). Effectuation dimensions such as experimentation and affordable loss advocate for a flexible approach to strategy formulation, encouraging organizations to take manageable risks and pivot if necessary (Sarasvathy, 2001).

By leveraging existing resources and iterating their strategies based on experimentation, organizations can enhance their resilience and adaptability in the face of uncertainty and crises.

Furthermore, organizations often rely on their available resources and seek to acquire new resources through their networks to cope with crises and increase their resilience (Conz & Magnani, 2020; Pal et al., 2014). Effectuation emphasizes the importance of leveraging existing resources, such as human capital and networks, to create value (Sarasvathy, 2001). It advocates for leveraging available resources and collaborating with others to expand resource bases, thereby enhancing organizational resilience (Sarasvathy, 2001). Moreover, cooperation and collaboration with networks play a crucial role in enhancing organizational resilience during crises (Andersson et al., 2019). Effectuation emphasizes the importance of co-creating value with stakeholders and leveraging their contributions (Sarasvathy, 2001). By engaging with stakeholders and building relationships, organizations can access additional resources, information, and support, thereby strengthening their resilience and adaptive capacity.

In addition, flexibility and openness to new opportunities are essential for organizational resilience in times of crisis (Conz & Magnani, 2020). Effectuation promotes flexible approaches that allow organizations to adapt and seize emerging opportunities (Sarasvathy, 2001). By remaining open-minded and leveraging their existing resources, organizations can capitalize on unexpected events and innovate, thereby enhancing their resilience. Moreover, learning is critical for organizational resilience and adaptation (Simms et al., 2022). Crisis responses that emerge from innovation and learning can improve the resilience of individuals and MSMEs (Korber & McNaughton, 2018). Effectuation encourages organizations to reflect on their experimentation and use them to inform future actions (Sarasvathy, 2001). Therefore, effectuation promotes iterative learning, enabling organizations to refine their strategies and improve their resilience through experimentation (Sarasvathy, 2001). Management of vulnerabilities is also an important aspect for enhancing organizational resilience (Erol et al., 2010). Effectuation acknowledges the presence of uncertainties but advocates for proactive management rather than avoidance (Sarasvathy, 2001). Finally, by focusing on affordable loss and relying on available resources, effectuation promotes a pragmatic approach to managing vulnerabilities. It focuses on practical actions and leverage existing resources to mitigate uncertainty (Sarasvathy, 2001). Therefore, effectuation enables organizations to respond to crises and seize opportunities by promoting experimentation, learning, and resource reconfiguration (Simms et al., 2022).

On the other hand, although causation improves performance during stability, it is marginal and highly unreliable in adverse conditions (Shirokova et al., 2020). Purnomo et al. (2021) explored the responses of Indonesian MSMEs to the COVID-19 pandemic. Their findings showed that MSMEs modify their business models' value creation, value delivery, and value capture during evolving opportunities and constraints. They suggest that an appropriate selection and use of bricolage, effectuation, and causation approaches will result in the resilience of MSMEs in the forms of survival, continuity, and growth, respectively. These findings support the importance of product diversity and business model adaptation in response to adversity (Portuguez Castro & Gómez Zermeño, 2020). Delladio et al. (2023) found that both effectuation and causation have a direct effect on the resilience of Italian hospitality businesses during COVID-19. Their findings showed that preparedness mediated the relationship between causation and resilience, and agility mediated the relationship between effectuation and resilience.

Causation prioritizes detailed planning and analysis over experimentation. Organizations may become overly reliant on predictive models and predetermined strategies (Sarasvathy, 2001), which can limit their ability to adapt quickly to changing circumstances. Moreover, instead of actively engaging with stakeholders and seeking opportunities for collective problem-solving, they may focus narrowly on their own capabilities and objectives according to causation. This inward-looking approach can hinder the exchange of information and resources critical for resilience (Pal et al., 2014).

Therefore, since resilience emerges from the ability of firms to adapt to new environments and reconfigure their resources in novel ways to address unpredictable events (Li et al., 2015), it is suggested that effectuation and causation may affect this process differently. Therefore, the following research question and related hypotheses are advanced:

Research Question 1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?

Research Question 1a: Does effectual DML lead to high levels of resilience in MSMEs during a prolonged crisis?

Hypothesis 1a: Managers' effectual DML has a positive direct impact on MSME resilience during a prolonged crisis.

Research Question 1b: Does causal DML lead to low levels of resilience in MSMEs during a prolonged crisis?

Hypothesis 1b: Managers' causal DML has a negative direct impact on MSME resilience during a prolonged crisis.

3.4.2. Indirect Effects – Mediators

It is argued that effectuation and causation can have different effects on different aspects of a business during a crisis since these two distinct logics to decision-making represent fundamentally different mindsets. As presented in section 3.2.2.2, literature identifies series of indicators that can affect organizational resilience. Effectuation and causation may have varying effects on these organizational factors during a crisis.

For instance, MSMEs rely more on *collaboration*, extending their social networks, and accessing resources from different sources during a crisis (Doern, 2016). Networks have high importance in the resilience of MSMEs (Herbane, 2019), and managers can reduce 'silo mentalities' and complexities within the organization if they involve different stakeholders within and outside their organizations in the resilience-building process (Pal et al., 2014). Therefore, since effectuation focuses on establishing strategic alliances (Pre-commitments dimension), it brings new resources and develops solutions in a co-creative environment. Moreover, the partnership enables businesses to control the unknown future with stakeholders, reducing risk and uncertainties (Cai et al., 2017). In addition, managers can develop collaborative experiments and prosocial support by applying effectuation in their crisis responses (Björklund et al., 2020). Thus, focusing on collaboration in effectuation instead of competition and competitive analysis (causation) provides more diverse solutions. Thus, effectuation may increase collaboration during a crisis.

In addition, scholars highlight the role of *innovation* in OR (Dahles & Susilowati, 2015; A. V. Lee et al., 2013; Orchiston et al., 2016). Moreover, continuous innovation and renewal are vital factors for long-term resilience (Ehrenhuber et al., 2015). Effectuation affects MSME innovation performance positively (e.g., Roach et al., 2016; Szambelan & Jiang, 2020). Guo (2019) found that effectuation promotes the development of innovation strategies through opportunity-shaping mechanisms. It has also been found that effectuation promotes innovation

by leveraging the unexpected (Alzamora-Ruiz et al., 2021). Thus, organizations may be more innovative by adopting effectuation over causation during a crisis.

Furthermore, ***organizational resourcefulness and agility*** are the main components of adaptability (Cahyanto & Pennington-Gray, 2017). Resourceful organizations attempt to cope with problems or opportunities despite inadequate available resources (Powell & Baker, 2014) by identifying novel and clever ways to bring, assemble, and deploy resources (Michaelis et al., 2020). Agile organizations can lead the market after a crisis (Curley et al., 2020) by their quick responses to environmental changes.

In this study, organizational resourcefulness and agility are selected for further analysis as mediators between DML and MSME resilience for two key reasons.

First, agility and resourcefulness are crucial for the resilience of MSMEs, as their combination forms a pool of alternatives that broadens the scope of possible future actions (Ferrier et al., 1999). Both agility and resourcefulness are recognized as drivers of resilience, as identified by Ponis and Koronis (2012). In addition, Conz and Magnani (2020) suggested that resourcefulness and agility play important roles in organizational resilience through different resilient paths. For instance, resourcefulness is essential to enhance resilience in a resilient adaptive path. On the other hand, agility is a crucial capability that characterizes a resilient absorptive path. Therefore, agility and resourcefulness can synergistically contribute to enhancing the resilience of MSMEs. Furthermore, resourcefulness is considered to be a key barrier or limitation to the resilience of MSMEs, while its availability can be a potential enabler as well (Sullivan-Taylor and Branicki, 2011). Hence, the choice between effectuation and causation, each with distinct perspectives on resources and flexibility, may yield varying impacts on organizational resourcefulness or agility, consequently influencing adaptive resilience differently. This underscores the notion that MSMEs should leverage their strengths (e.g., agility) while also mitigating their limitations (e.g., resourcefulness) to enhance resilience.

Second, narrowing the focus to resourcefulness and agility, this study achieves a more manageable and in-depth exploration of these crucial factors. This is particularly relevant in Study 2, which is a quantitative survey-based study since including too many mediating factors (constructs) in the survey would substantially increase its completion time, and thereby, potentially reduce the survey's overall response rate.

In the following section, organizational resourcefulness is first defined. Then the relationship between managers' DML and organization resourcefulness, the relationship between organization resourcefulness and the resilience of MSMEs, and finally the mediating role of organizational resourcefulness on the relationship between managers' DML and the resilience of MSMEs are explained. Finally, relevant hypotheses are advanced.

3.4.2.1. Organizational Resourcefulness

Being resourceful, means "the creative assembly and use of individual, team, organization, and ecosystem capabilities and resources to act and react to events in the external environment" (McCann & Selsky, 2012, p. 131). It refers to the ability to accumulate and raise different, diversified assets and resources - financial, physical, human, technological, organizational and even reputational (Pal et al.,2014). Organizational resourcefulness has been discussed in the literature from different perspectives. Some scholars consider resourcefulness as a dimension of organizational resilience because high levels of slack resources are critical to resilience (Schulman, 1993). Others consider it as a separate element that can enhance resilience through an adaptive path (Conz & Magnani, 2020).

The present study considers resourcefulness as a distinct organizational-level characteristic that can drive organizational resilience. It is defined as "the capacity to identify problems, establish priorities, and mobilize resources when conditions exist that threaten to disrupt some element, system, or other unit of analysis" (Bruneau et al., 2003, p. 737). This perspective allows us to investigate how organizations can cultivate a culture of resourcefulness, leverage existing capabilities, and adaptively respond to changing conditions to enhance their resilience in the face of uncertainty and adversity.

3.4.2.1.1. DMLs and Organizational Resourcefulness

Effectuation is a more resource-driven entrepreneurial behavior than causation, starting with available resources at individual and organizational levels (i.e., bird-in-hand principle) (Michaelis et al., 2020). Moreover, slack financial resources have significant moderation effect on effectuation and crisis performance relationship, and effectuation thrives in low slack reserves (Aggrey et al., 2021).

Thus, in situations characterized by a lack of resources, which is the case in most MSMEs, effectual DML results in a better performance to improve the adaptability of MSMEs. Furthermore, according to effectuation, existing means that might not be valuable at the beginning are turned into valuable resources during the effectuation process (Read et al., 2016), which can help MSMEs cope with existing resource constraints (Sullivan-Taylor & Branicki, 2011). In addition, managers seek external networks for partnerships in effectuation (pre-commitments). This makes more resources available for organizations to react and adapt to new situations, while also reducing potential losses in the event of failure (Sarasvathy et al., 2014).

Organizations need to reduce the negative consequences of failures to operate well during adverse times (A. V. Lee et al., 2013; Nilakant et al., 2014). Studies have shown that effectual management decisions result in fewer failed investments (Wiltbank et al., 2009). In addition, according to the affordable loss dimension of effectuation, entrepreneurs set a maximum acceptable loss that they can afford in case of failure instead of focusing on earnings (Villani et al., 2018) in creating new artifacts. As a result, they do not experience significant resource losses in the face of failure. The affordable loss dimension of effectuation allows managers to cope with risks and efficiently use their limited resources. This enables organizations to handle uncertain environments with minimal costs (Aggrey et al., 2021; Cai et al., 2017).

Wicker et al. (2013) argue that “a resilient system should display reduced failure probabilities, reduced consequences from failures, and reduced time to recovery” (p. 9). Effectuation may effectively reduce these consequences. Furthermore, effectuation reduces the risk of failure as managers attempt to share risk through pre-commitments with their network and stakeholders. In addition, those entrepreneurs with effectual DML use behaviors such as bricolage, improvisation, and bootstrapping to be more resourceful (Alsos et al., 2020). As a result, effectuation can positively affect MSMEs' adaptability during crises by reducing the possibility of losses from failed actions. In addition, it can deal with one of the key barriers to MSME resilience, which is limited access to resources (Sullivan-Taylor & Branicki, 2011).

Conversely, causation, being a more traditional and planned approach, typically involves allocating resources based on predefined plans and objectives (Chandler et al., 2011). While this can provide clarity, it may limit resourcefulness by restricting the ability to reallocate resources swiftly in response to unexpected needs. In addition, causation often

prioritizes risk mitigation through careful planning. While this can protect resources, it may hinder resourcefulness by discouraging organizations from exploring new opportunities that involve risk (Read et al., 2009).

3.4.2.1.2. Organizational Resourcefulness and MSME Resilience

Table 3.5 illustrates the connection between resilience, effectual/causal DML, and how these logics act under certain conditions such as risk and uncertainty. According to resource-based theory, internal resources are critical for a firm's overall competitiveness (Barney, 2001). Moreover, a lack of resources is considered a major cause of failure for new businesses (He et al., 2020). Nilakant et al. (2014) argue that the availability of resources and the dynamism of its environment (markets/suppliers/resource streams) are two aspects of an organization that influence its adaptation significantly.

Conversely, resource availability and access to various resources are frequently mentioned as essential factors for resilience-building activities that sustain the organization's competitiveness (Conz & Magnani, 2020; Doern, 2016; Duchek, 2020; Swann et al., 2015). Financial status, for example, is a key component in OR and may also enable utilizing other resources of an organization (Fang et al., 2020).

In addition, keeping some resources in reserve to be used in case of disruption (redundancy) affects the resilient capacity of an organization in case of an emergency (Conz & Magnani, 2020; Sheffi & Rice, 2005). Also, access to alternative resources is suggested as an important factor for tourism organizations to be resilient through innovation (Dahles & Susilowati, 2015).

However, MSMEs mainly lack resources like control, cash and compressed time to respond (Pal et al., 2014), and have less bargaining power, making them vulnerable (Doern, 2017; Eggers, 2020), in coping with emergencies and responding to the unknown future of crises. Therefore, it is also a major issue for MSMEs to allocate limited resources to address unexpected events in uncertain situations (Helgeson et al., 2020). However, it is argued that resilient organizations can create change and opportunities even with available resources during a crisis (Martinelli et al., 2018) by using different entrepreneurial behaviors.

Table 3.5 *Resilience Indicators and DMLs in MSMEs*

Resilience	Effectuation	Causation
Planning	There is no formal planning for the future based on predictions.	Causation can affect planned resilience since it involves future prediction, information analysis, and setting plans for achieving determined goals in normal time.
Adaptability	Adaptive resilience can be affected by effectual decision-making logic since it uses available resources and focuses on selecting possible effects created with that set of means to control the future in uncertainty.	Rational and logical approaches need more time for information search and analysis, which may affect the pace of MSMEs' response and adaptability.
Survival	It focuses on affordable loss in decisions. So, it can decrease the negative consequences of failure.	It focuses on expected earnings that may not be possible in the uncertainty. Failure can affect the business heavily during crises.
Risk	Effectual principles of affordable loss and cooperation with all interested stakeholders (including competitors) allow for de-risking competition.	It is based on market and competitor analysis. Therefore, future risk analysis and predictions are necessary.
Uncertainty	Effectuation logic is applied under high uncertainty, goal ambiguity, and information isotropy conditions.	Causation is less preferred logic in uncertainty.
Resource availability	Effectuation starts with the available resources to explore the unintended means-oriented strategies to solve the problems in uncertainty. Then, it focuses on accessing new resources through collaboration and relationships.	Causation is a goal-driven approach based on research, analysis, and planning aspects. It acquires the necessary resources to achieve the goals. It can affect planned resilience in the environment with less uncertainty.
Networks/collaboration	Networks and collaboration are essential principles to co-create the future and decrease the risk.	Causation relies on conducting market research.
Opportunities and innovations	Effectuation is a means-driven entrepreneur-centric process of opportunity discovery and creation that results in new products, new ventures, or/and new markets.	It is based on analysis, trends, and future results.
Fast decision-making	Decision-making is less complicated in MSMEs, passes through a few management levels, and is, therefore, more centralized. It enables quick actions.	Decision-making is based on research and analysis. So, it may affect the fact response negatively.
Flexibility	Effectuation seeks all possibilities in the process. Therefore, it may help businesses to consider all options.	Causation considers only options that help in achieving the pre-determined goals. Therefore, some actions may not be possible during crises.

*Note: A*uthor's illustration

Studies on emergency management during natural disasters have identified the importance of resourcefulness in coping with such events (Cimellaro et al., 2010; Zona et al., 2020). However, resourcefulness is not only about resource availability but also the capability to use them at the right time and in the right way (K. Brown, 2016). In addition, resilience is considered "the potential to exhibit resourcefulness by using available internal and external recourses in response to different contextual and developmental challenges" (Braes & Brooks, 2010). Thus, resourcefulness effectively links pre-existing resources and capacities to external resources to cope with new challenges (K. Brown, 2016).

As a capacity to identify problems, establish priorities, and mobilize resources to avoid or cope with damage or disruption, resourcefulness is the ability to apply human and material resources to meet priorities and achieve goals (Tierney, 2003). As a result, this ability at organizational level can help MSMEs to cope with limited resources during crises and uncertainty. Organizational resourcefulness attempts to cope with problems or opportunities despite inadequate available resources (Powell & Baker, 2014). Therefore, it is getting more from less by identifying novel and clever ways to bring, assemble, and deploy resources (Michaelis et al., 2020). In addition, resourcefulness is one of the main components of adaptability (Cahyanto & Pennington-Gray, 2017). In this context, resourceful organizations can prioritize challenges and implement solutions by identifying and mobilizing different resources, and ultimately adapt to changes environment (Cahyanto & Pennington-Gray, 2017).

It is necessary to distinguish between resources and resourcefulness (Wicker et al., 2013). Studies have shown that resource limitations increase resourcefulness by exploring more creative solutions using flexible decision-making logic (Baker & Nelson, 2005; Reymen et al., 2015). Therefore, resourcefulness allows doing more with fewer available resources by creating value with reduced consumption of resources (Santos et al., 2020).

Burnard et al. (2018) identified "resourceful" as resilience configurations "which focus on the development of processes that are sufficiently flexible to deal with unexpected disruptions, i.e., they are agile, but reactive" (p. 358). The aim is to ensure enough flexibility in the organizational systems to deal with any unexpected disruptions and allocate resources accordingly. More emphasis is thus placed on flexibility and less on prediction and planning (Burnard et al., 2018).

A highly resourceful organization can adapt to changing conditions and effectively navigate crises, thereby increasing its overall adaptive resilience. Organizational

resourcefulness may operate as a crucial mediator between DML and organizational resilience. The chosen DML, whether effectual or causal, may shape resource allocation within an organization. This allocation, in turn, may influence how resourcefulness is exercised. Effectual DML encourages flexible resource utilization and adaptation to circumstances, aligning well with a highly resourceful approach. Conversely, causal DML may lean towards more rigid resource allocation strategies. Therefore, it is proposed that organizational resourcefulness mediates the relationship between DML and MSME resilience, and the following research question and related hypotheses are advanced:

Research Question 2.1: Does organizational resourcefulness mediate the relationship between managers' effectual/causal DML and MSME resilience during a prolonged crisis?

Hypothesis 2.1a: Organizational resourcefulness mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.

Hypothesis 2.1b: Organizational resourcefulness mediates the relationship between causal DML and MSME resilience during a prolonged crisis.

In the next section, the second mediating factor - organizational agility - is discussed, following the same approach as that adopted for the discussion of organizational resourcefulness.

3.4.2.2. Organizational Agility

Organizational agility refers to an organizational ability to react quickly and effectively to radical environmental changes by creating product and service value (Darvishmotevali et al., 2020; Kale et al., 2019; Nouri & Mousavi, 2020). Being agile is important for organizations to achieve goals and avoid disruption while minimizing losses in timely manner (Bruneau et al., 2003). Organizational agility is a fundamental quality for organizations to stay competitive and survive during rapid environmental change and uncertainty (Teece et al., 2016) by adjusting tactics and operations (Gligor et al., 2015) and integrating processes (Li et al., 2008).

Agility has been examined in relation to organizational resilience from two distinct perspectives: (1) as a component of resilience itself (e.g., Bouaziz & Hachicha, 2018); and (2) as an independent driver of resilience (e.g., Soni et al., 2014). For instance, Wieland and Wallenburg (2013) proposed that resilience encompasses two dimensions: (1) The proactive

dimension, emphasizing robustness, and (2) the reactive dimension, focusing on agility. Conversely, Yağmur and Myrvang (2023) identified organizational agility as an enabler of organizational resilience.

Given that the aim of this study is to investigate the mediating role of organizational agility in the relationship between effectual/causal DML and organizational resilience, agility is treated as a distinct factor (Ehrenhuber et al., 2015) capable of positively enhancing the resilience of MSMEs.

3.4.2.2.1. DMLs and Organizational Agility

Effectuation allows managers to react quickly and increase the pace of their responses to external shocks associated with uncertainty since effectuation focuses on what can be done with available resources, instead of spending time searching and analyzing information and predicting an unknown future (Dew et al., 2009). Therefore, effectuation may affect agility of MSMEs and their resilience by emphasizing available resources in reacting to the impacts of a prolonged crisis on time (Okuwa et al., 2016). Therefore, effectuation enhances the core concepts of organizational agility, namely, an organization's capacity to recognize and utilize opportunities quickly, and tackle threats in an unstable environment.

Scholars believe that organizational agility is rooted in adaptability and flexibility (M. Zhang et al., 2022). However, Swafford et al. (2006) draw a distinction between organizational agility and flexibility in the context of supply chains. Ponis and Koronis (2012) argue that flexibility is an antecedent for agility. Furthermore, some scholars even consider flexibility as a component or dimension of agility (Scholten et al., 2014). Thus, the flexibility dimension of effectuation can affect the agility of organizations. In addition, strategic partnerships also effectively ensure agility (Kale et al., 2019). Therefore, effectuation via focusing on precommitment and partnership can positively affect an organization's agility in times of crisis.

Managers of MSMEs should focus on agility, as one of the key strengths of MSMEs, to frame their resilience strategies (Sullivan-Taylor & Branicki, 2011). By adopting approaches that are tailored to their specific context, managers can better cope with uncertainty and respond more effectively to unforeseen challenges. On the other hand, causation may have negative effects on organizational agility. While its emphasis on careful planning can help MSMEs anticipate potential challenges and develop strategies to address them quickly, the rigidity

associated with causation can hinder agility when organizations become locked into predetermined plans (Chandler et al., 2011).

3.4.2.2.2. Organizational Agility and MSME Resilience

Top management decision-making is one of the main enablers of resilience during rapid changes and shocks (Dahles, 2018). Moreover, decision-making in a stable environment is different from the decision-making process following shocks (Bonn & Rundle-Thiele, 2007). Organizations' decision-making speed allows them to quickly adapt to changes in the environment (Wu et al., 2020). For instance, research suggests that only agile companies can lead the market after a crisis (Curley et al., 2020). In addition, decision-making speed, decision-making flexibility, and resource construction options are critical sources of positional advantage in firms (Wu et al., 2020).

Organizations can be rigid or agile based on their flexibility and response speed. However, it is challenging for managers to make decisions quickly and accurately in times of unexpected events (Bonn & Rundle-Thiele, 2007). Therefore, they need to balance acting and thinking. Moreover, simplified and fast decision-making processes with little data analysis are adopted following adverse events (Bonn & Rundle-Thiele, 2007), making causal thinking less applicable in these situations.

Agility helps organizations to act effectively and quickly as they a) simplify and integrate business activities to reduce unnecessary activities, leading to less organizational complexity and operating costs, b) focus on transforming and innovating to identify opportunities and use them as competitive strategies to grow their market share, c) integrate resources and capabilities continuously and rapidly to incorporate new capabilities resulting from mergers, acquisitions, and strategic alliances, and d) achieve long-range strategic plans through shorter implementation cycles, meeting both immediate and long-term needs (Darvishmotevali & Tajeddini, 2020).

Agility has been considered as both an OR indicator and an OR dimension in literature. For instance, Gibson and Tarrant (2010) identified creativity and agility as important characteristics that create a resilient state by helping all aspects of an organization to better operate in a non-routine environment. Some scholars (Bouaziz & Smaoui Hachicha, 2018; Kantur & Iseri-Say, 2015) consider agility as one of the OR dimensions, together with

robustness and integrity. The agility dimension refers to the items assessing how easily and rapidly firms adapt to changing circumstances (Kantur & Iseri-Say, 2015). However, others believe that resilience may be an antecedent to strategic agility (Melián-Alzola et al., 2020b).

Moreover, Darvishmotevali et al. (2020) found that organizational agility, in the hospitality context, moderates the negative impacts of environmental uncertainty (competitive and technological) on organizational creativity. It is suggested that agility may play an important role in managing uncertain environments during a prolonged crisis since agility allows organizations to act flexibly and replace current procedures with new processes by reconfiguring resources and redesigning structures (Teece et al., 2016). Organizations must reduce bureaucracy to manage the challenges of uncertainty (Darvishmotevali et al., 2020).

DMLs adopted by managers during a crisis can affect the agility of their organizations which is a critical source of resilience since it allows organizations to quickly adapt to changes in the environment (Wu et al., 2020). As previously discussed, different DMLs can lead to different levels of agility in MSMEs. In addition, organizational agility can affect MSME resilience. Therefore, it is proposed that organizational agility mediates the relationship between DML and MSME resilience, and the following research question and related hypotheses are advanced:

Research Question 2.2: Does organizational agility mediate the relationship between managers' effectual/causal DML and MSME resilience during a prolonged crisis?

Hypothesis 2.2a: Organizational agility mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.

Hypothesis 2.2b: Organizational agility mediates the relationship between causal DML and MSME resilience during a prolonged crisis.

Figure 3.4 displays the proposed relationships between DMLs, MSME resilience and the two mediators.

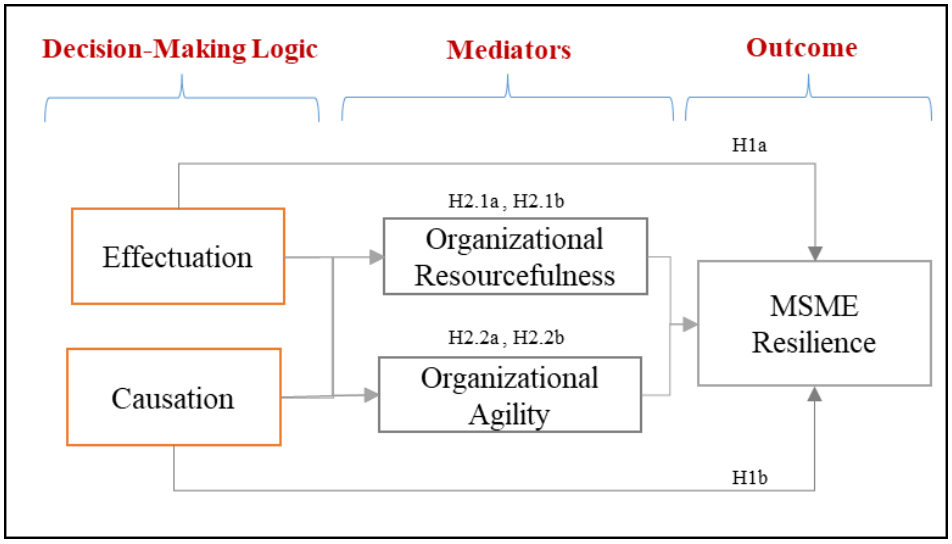

Figure 3.4 *Effectual, Causal DMLs Outcome*

Having discussed the different DMLs, MSME resilience and potential mediators of the relationship between DMLs and MSME resilience, the chapter will now turn to a discussion of antecedents of the adoption of DMLs at various levels, namely individual, organizational, and environmental levels.

3.5. Antecedents of DML

Entrepreneurship literature identifies and discusses antecedents of the adoption of effectuation and causation at different levels. These antecedents, in an organizational setting, can be categorized as follows: 1) individual level (Frese et al., 2020; Gabrielsson & Politis, 2011; Harms & Schiele, 2012), 2) organizational level (Deng et al., 2021; Schmidt & Heidenreich, 2019), and 3) environmental level (Frese et al., 2020; Laskovaia et al., 2017; Read & Sarasvathy, 2005). Yet, scholars also underlined the need for further studies to understand the antecedents of the adoption of effectuation and causation (Arend et al., 2015; Grégoire & Cherchem, 2020) in different contexts. Table 3.6 details different antecedents of the adoption of DML, corresponding authors and study contexts.

Table 3.6 *Antecedents of Effectuation and Causation in Entrepreneurship*

Antecedents	Authors	Context of the study
Individual level		
Expertise (entrepreneurial expertise)	(Sarasvathy, 2001)	New venture creation
Perceived uncertainty	(Frese et al., 2020)	New venture creation
Entrepreneurial experience	(Frese et al., 2020)	New venture creation
Prior corporate entrepreneurship experiences	(Schmidt & Heidenreich, 2018)	Causation or Effectuation by corporate entrepreneurs
Prior start-up experiences	(Schmidt & Heidenreich, 2018)	Causation or Effectuation by corporate entrepreneurs
International experience	(Harms & Schiele, 2012)	International new venture creation
Internationalization Experience	(Harms & Schiele, 2012)	International new venture creation
Management experience	(Frese et al., 2020)	New venture creation
Original aspirations: social-centric, commercial-centric, and autonomy-centric	(Lui, 2019)	Start-ups
Passion (Harmonious passion, Obsessive passion)	(Stroe et al., 2018)	Nascent entrepreneurial decision-making
Passion for product	(Cannatelli et al., 2019)	New venture creation
Passion for growth	(Cannatelli et al., 2019)	New venture creation
Self-efficacy	(Y. Zhang et al., 2019)	Entrepreneurs
Entrepreneurial Self-Efficacy	(Stroe et al., 2018)	Nascent entrepreneurial decision-making
Optimism	(Y. Zhang et al., 2019)	Entrepreneurs
Discovery skills	(Schmidt & Heidenreich, 2018)	Causation or Effectuation by corporate entrepreneurs
Prior knowledge	(Schmidt & Heidenreich, 2018)	Causation or Effectuation by corporate entrepreneurs
Prior knowledge as moderator on the relationship between the discovery skills and effectuation/causation	(Schmidt & Heidenreich, 2018)	Causation or Effectuation by corporate entrepreneurs
Risk perceptions	(Stroe et al., 2018)	Nascent entrepreneurial decision-making
Perspective-taking	(Y. Zhang et al., 2019)	Entrepreneurs
Patterns of opportunity discovery: Systematic search & Fortuitous discovery	(Long et al., 2017)	New venture creation
The innovativeness of opportunity		
Organizational level		
Slack resources (SR)	(Deng et al., 2021)	New product creativity
Psychological empowerment	(Schmidt & Heidenreich, 2018)	Fictional entrepreneurial task (corporate entrepreneurship)
Investor influence	(Frese et al., 2020)	New venture creation
Managerial ties	(W. Zhang et al., 2020)	New established businesses
Environment level		
Environmental dynamism (ED)	(Deng et al., 2021)	New product creativity
Family financial support	(Braun & Sieger, 2021)	New venture creation
Uncertainty of environment: Dynamism Psychic distance	(Harms & Schiele, 2012)	The international new venture creation

Social Cognitive Theory (SCT), as proposed by psychologist Albert Bandura (1986), provides a robust framework for understanding how individuals learn, develop, and engage in various behaviors within the context of their social and cognitive environment (Lin, 2020). At its core, SCT emphasizes the dynamic interaction between personal factors, environmental influences, and behavior, suggesting that individual behaviors, beliefs, and attitudes are shaped by internal cognitive processes as well as external factors and social interactions.

In the context of entrepreneurial decision-making, SCT offers valuable insights into the processes underlying the adoption of effectuation and causation decision-making logic. The effectuation process, which typically begins with questions such as "Who am I?", "What do I know?", and "What do I have?," aligns closely with the tenets of SCT (Sarasvathy, 2001). By reflecting on their own identity and resources, and resources available for them in their environment, entrepreneurs gain valuable insights into their capabilities and potential avenues for action (Sarasvathy, 2001) - a process that is central to Social Cognitive Theory's understanding of dynamic interaction between personal factors, environmental influences, and behavior.

Moreover, questions posed in the effectuation process inherently refer to the resources that managers have at their disposal. At the personal level, managers possess a unique set of skills, experiences, and personal characteristics that shape their decision-making and behavior. These personal factors interact with environmental influences and social factors, as posited by SCT, to influence entrepreneurial behavior and decision-making (Liu & Huang, 2019). Furthermore, managers operate within organizational contexts where they have access to various resources, including financial capital and human capital. SCT emphasizes the reciprocal interaction between personal factors and environmental factors, suggesting that organizational contexts can shape managerial behaviors and decisions (Lin, 2020). By considering how organizational resources and structures influence managerial decision-making, researchers can gain insights into the organizational antecedents that may predispose managers towards adopting specific decision-making approaches, such as effectuation or causation. In addition, managers are influenced by their external environment, including market conditions, regulatory, and societal norms. SCT suggests that external environmental factors can impact managerial perceptions and behaviors, further influencing decision-making processes (Liu and Huang, 2019). Therefore, it provides a foundation to understand environmental antecedents that may affect the adoption of effectuation and causation.

Thus, by drawing on SCT as a basis for understanding the effect of three-level antecedents on the adoption of effectuation and causation, this study aims to expand the effectuation theory by exploring complex interplay between individual, organizational, and environmental factors that influence the adoption of entrepreneurial behavior (effectuation and causation).

The following three sections discuss antecedents of the adoption of effectuation and causation. First, based on the entrepreneurship literature, important factors are introduced briefly at each level (individual, organizational, and environmental). The aim is to provide an overview of each level and identify factors that are relevant to the context of this study or have been overlooked. Then, antecedents under investigation in this study are discussed in greater detail, and hypotheses are advanced accordingly.

3.5.1. Individual-level Antecedents

Entrepreneurial expertise was the original condition of effectuation decision-making logic, combined with uncertainty in the process of new venture creation (Dew et al., 2009; Engel et al., 2013; Frese et al., 2020). However, entrepreneurship literature has investigated other individual-level factors such as passion (Cannatelli et al., 2019; Stroe et al., 2018), aspirations (Liu, 2019), self-control and frugality (Michaelis et al., 2020), career motives (Gabrielsson & Politis, 2011), prior knowledge, skills in the corporate entrepreneurship setting (Schmidt & Heidenreich, 2018), self-efficacy (Engel et al., 2014; Stroe et al., 2018; Y. Zhang et al., 2019), risk perception (Stroe et al., 2018), entrepreneurial identity (Alsos et al., 2016; de la Cruz et al., 2018), and networks (W. Zhang et al., 2020) as influencing factors that affect the choice of effectuation or causation DMLs.

Despite all contributions by scholars to investigate individual-level antecedents of decision-making logic in the entrepreneurship literature, Grégoire and Cherchem (2020) argue that the current literature examining individual-level antecedents is still ‘fragmented.’ Moreover, studies have shown that factors may affect effectuation dimensions differently (Frese et al., 2020). For instance, Frese et al. (2020) noted that all their study antecedents influenced only experimentation and causation, and flexibility was not significantly affected by any antecedent.

Entrepreneurial firms respond to adverse conditions in diverse ways because of their founders' identities (Korber & McNaughton, 2018). Zhang et al. (2019) focused on a psychological approach to explore the factors that can affect entrepreneurial decision-making. They found self-efficacy as an important antecedent of DML. They also found optimism to be a discriminating psychological factor. Entrepreneurs who had a high level of optimism would have the tendency to abandon the causation. Therefore, a psychological approach can help to deepen our understanding about effectuation and causation DML (Frese & Gielnik, 2014).

Doern (2016) argues that the owner's mindset is central to MSMEs resilience. She distinguishes between containment and anticipation mindsets, suggesting that managers with a containment mindset tend to respond to crises rather than anticipating and planning for them. Battisti and Deakins (2017) argue that a proactive attitude and the ability to mobilize and integrate external resources are crucial in coping with adversity in MSMEs. Managers, as key decision-makers, are responsible for guiding organizations through adversity.

While prior research has explored the positive influence of psychological capital factors such as optimism and self-efficacy on the adoption of effectuation and causation (Zhang et al., 2019), there is no study that examines other factors such as psychological resilience of managers as an antecedent. Therefore, this study aims to examine psychological resilience of managers as an influential psychological factor on the adoption of effectual or causal DMLs.

3.5.1.1. Psychological Resilience of Managers

Psychological resilience encompasses two key components: firstly, encountering adversity or significant challenges, and secondly, demonstrating positive adaptation despite facing these adversities (Masten, 2001). Previous studies have approached resilience through various conceptual lenses, considering it as either a stable personality trait, a state-like developable capacity, process, or an outcome (Hartmann et al., 2022; Fisher et al., 2019). In this study, psychological resilience of managers is defined as "the capability of an individual to maintain core values and integrity; and continue to function appropriately when there is sudden shock or disruption (Barbhuiya & Chatterjee, 2023, p. 4). Studies have followed different approaches to measure psychological resilience. First, resilience has been measured as a dimension of Psychological Capital (Luthans et al., 2007). This scale measure psychological resilience as a state-like capacity or stable trait. Second, the brief resilience

coping scale (Sinclair & Wallston, 2004) was adopted in studies, which uses four items to assess resilience as a positive coping behavior. Third, the Connor–Davidson Resilience Scale (Connor & Davidson, 2003) was developed to treat resilience as a malleable capacity. Finally, the brief resilience scale, provided by Smith et al. (2008), which conceptualizes psychological resilience as a person's ability.

Resilience at individual level is essential in entrepreneurial crisis management (Doern et al., 2019). Studies have examined resilience and crises in the context of entrepreneurship (e.g., Doern, 2016; Martinelli et al., 2018). For instance, several studies found that entrepreneurs' mindsets, resilience and lifestyles affect organizational resilience (Biggs et al., 2012, 2015; Prayag et al., 2020). Furthermore, a direct link has been identified between the resilience of leaders, employees, and OR (Lengnick-Hall et al., 2011; Van Der Vegt et al., 2015; Prayag, Muskat, et al., 2023). In addition, psychological resilience of the leader affects strategic and tactical post-crisis decisions adopted by MSMEs. Strategic responses such as brand building and revenue generation show a positive correlation with higher levels of psychological resilience, contrasting with tactical responses, as indicated by Barbhuiya and Chatterjee (2023). It is suggested that owners and managers may have to rely on their own resilience to manage their businesses after a disaster (Prayag et al., 2020). Resilient managers are better able to adapt their business strategies (Sharma & Rautela, 2022) and are more optimistic about their ventures' future success during crises (Stephens et al., 2021). Therefore, they can adapt and contribute more effectively to changing situations during crisis (Prayag et al., 2020).

Managers with higher psychological resilience are more likely to have a higher tolerance for risk and uncertainty. They are willing to experiment with new approaches and opt for long-term strategies to gain a strategic advantage over their competitors (Barbhuiya & Chatterjee, 2023). In addition, managers with higher psychological resilience show high-level learning (Corner et al., 2017) and innovation (Hallak et al., 2018). As a result, they are in a better position to apply learning from failure. Furthermore, individuals with higher psychological resilience are more emotionally stable during adversity and are more open to new experiences (Tugade & Fredrickson, 2004). Resilient managers create change and opportunities based on the availability of resources rather than on predetermined objectives at the time of adversity (D'andria et al., 2018; Martinelli et al., 2018). They may focus on available resources instead of pre-determined goals to cope with uncertainty and adverse

situations by identifying and developing new products, processes, or markets (Ahmad & Seymour, 2008), which aligns with the principles of effectuation. In addition, phycological resilience of managers affects their self-confidence, commitment to action, and network-building actions (Hallak et al., 2018), which can affect their intention to control adverse situations by approaching control-based logic such as effectuation.

Within the framework of SCT (Bandura, 1986), psychological resilience can be considered as a key personal resource or internalized characteristic (Smith et al., 2010; Taylor & Carr, 2021) that influences entrepreneurial decision-making. Effectuation encourages the use of existing resources and the exploration of new opportunities based on what is available. Managers with higher psychological resilience are better equipped to navigate these resource challenges and find innovative solutions. Managers of MSMEs are under substantial day-to-day pressures. However, instead of planning beforehand, they respond to the dynamic, uncertain external events as needed (L. J. Branicki et al., 2018). Effectuation is characterized by a higher tolerance for uncertainty and an acceptance of affordable loss, which aligns with a psychological resilience of managers in the face of potential setbacks. Therefore, managers with higher psychological resilience may select a DML that aligns best with the nature of the crisis they face. If the crisis is more chaotic and unpredictable, they might opt for effectuation to maintain some level of control. Conversely, if it is a crisis where a structured approach is required, they might opt for causation. As a result, it is assumed that managers with higher psychological resilience are more likely to adopt effectuation than causation to cope with a prolonged crisis. Therefore, the following research question and related hypotheses are advanced:

Research Question 3.1: Does psychological resilience of managers affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 3.1a: Psychological resilience of managers has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 3.1b: Psychological resilience of managers has a negative impact on the adoption of causal DML during a prolonged crisis.

3.5.2. Organization-level Antecedents

Scholars have explored factors within established organizations that may affect decision-making logic in the context of corporate entrepreneurship. For instance, the innovativeness of a project, business case application, and portfolio monitoring are antecedents for selecting a particular DML in teams (N. M. Nguyen et al., 2018). In addition, scholars suggest that team conflict or team cooperativeness can be possible factors in selecting predictive versus non-predictive decision-making logics (Stroe et al., 2018). Schmidt and Heidenreich (2019) found that providing work discretion, top management support, time, and rewards encourage employees while increasing effectual and decreasing causal DML during corporate entrepreneurship projects.

Moreover, managerial ties with external entities affect their DML. For instance, business ties increase the use of effectuation by prompting entrepreneurs' over-confidence, while institutional ties enable entrepreneurs to use both causation and effectuation by prompting their illusion of control (W. Zhang et al., 2020). In their qualitative research, Henninger et al. (2020) identified three factors that can affect the implementation of effectuation in established companies, namely 1) high flexibility and willingness to change goals, 2) using a company's available means and resources to pursue new goals, and 3) an open and transparent culture that encourages the identification and admittance of mistakes. In addition, considering organizations' internal and external conditions, slack resources are considered an internal condition that positively correlates with effectual DML (Deng et al., 2021).

Managers of MSMEs face financial, technological, and human resources constraints in their organizations. However, so far, only financial and slack resources have been identified as important factors affecting the DML of managers. No research has investigated the role that employees can play in affecting the DML of their managers. OR literature emphasizes employees' role in organizational resilience whereby highly qualified, specialized, flexible, and adaptable staff can affect OR (Portuguez Castro & Gómez Zermeño, 2020).

Human capital is one of the key organizational factors that play an important role in all strategic decisions. As Boudreau and Ramstad (2007, p. 4) argue: "Whether it is called "people," "labor," "intellectual capital," "human capital," "human resources," "talent," or some other term, the resource that lies within employees and their skills and characteristics are recognized as critical to strategic success of organizations.

Scholars have explored the effect of employee resilience in OR (Prayag et al., 2023; Prayag & Dassanayake, 2022). While these studies have provided valuable insights into how resilient employees cope with challenges and contribute positively to organizational outcomes, they have not extensively explored employee resilience as an important organizational resource that can affect managers' decision-making logic with subsequent effects on organizational resilience. Exploring how employees' resilience affects their managers' decision-making logic can provide deeper insights into how resilient employees initiate and drive positive changes within organizations. Therefore, this thesis aims to investigate managers' perceptions of their employee resilience as organizational-level antecedent of DML during a prolonged crisis.

3.5.2.1. Perceived Employee Resilience

The importance of human capital for enterprise success during crises is widely recognized in the literature (Becken, 2013; Biggs, 2011; Ivkov et al., 2019; J. Kuntz et al., 2016; A. V. Lee et al., 2013; Nilakant et al., 2014). OR is built "on the foundation of the resilience of members of that organisation" (Riolli & Savicki, 2003, p. 228). Moreover, the importance of internal social capital as a facilitator of resilience in tourism MSME resilience has been recognized (Ozanne et al., 2022; Tanner et al., 2022). Therefore, employees' characteristics, such as their skills, abilities, and behaviors, affect OR (Y. Kim, 2020; Lengnick-Hall et al., 2011). In addition, individuals perceive different levels of personal risk and may feel better prepared to deal with some crises than others (J. C. Kuntz, 2021).

Scholars argue that the psychological resilience of individuals and employee resilience are two related but different concepts (Näswall et al., 2019; Prayag, 2019, 2023; Prayag et al., 2020). Individual resilience has its origins in the medical and psychology literature (Hall et al., 2018), and is studied in relation to individuals' well-being and emotional aspects (L. Branicki et al., 2019). Therefore, individual resilience is defined as "the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma using assets and resources within individuals, their life, and environment that facilitate this capacity for adaptation and bouncing back in the face of adversity" (Windle, 2011, p. 163).

Conversely, employee resilience is considered as an adaptive behavioral capacity towards organizational resources (Näswall et al., 2019), defined as "the capacity of employees to utilize resources in order to continually adapt and flourish at work, even when faced with

adversity" (J. Kuntz et al., 2016, p. 460). Moreover, Näswall et al. (2015) defined employee resilience "as a transformational process in which individuals not only cope and successfully deal with change but also learn from it and adapt accordingly to thrive in the new environment" (p. 1). During a crisis, it is a behavioral capability and a capacity to identify opportunities during daily challenges by proactively utilizing and developing personal and workplace resources (Y. Kim, 2020; J. Kuntz et al., 2016).

Employee resilience is an important factor in fostering service innovation (Senbeto & Hon, 2020a). It is necessary to adapt to new technologies (Senbeto & Hon, 2021), which is an essential aspect of responding to a challenging environment. Therefore, it is suggested that organizations capable of building and developing a resilient workforce will be more adaptive (Prayag, 2018). However, Senbeto and Hon (2020a) argue that "pursuing service innovation without enhancing resilience is risky, and this could expose organizations to more shocks and stresses" (p.1124). Studies on resilience of hotel employees showed that resilient employees respond more positively to adverse situations (Jung & Yoon, 2015). In addition, resilient employees are more inclined to change and solve disruptions, and they can address changes and find new ways to recover from disruptions quickly (Senbeto & Hon, 2021).

Therefore, resilient employees can affect how organizations respond to, survive, and thrive during crises (Q. Nguyen et al., 2016). As a result, drawing on SCT, having resilient employees can be considered as an organizational resource (an environmental factor in Social Cognitive Theory) that can influence the adoption of effectuation and causation, as outcome behaviors.

Managers who perceive their employees as resilient are more likely to adopt an adaptive decision-making approach, such as effectuation. Employee resilience grows new ideas and innovation with the help of past experiences and brings more effective work and adaptable changes in future (Panpakdee & Limnirankul, 2018; Anser et al., 2022). Therefore, managers may trust in their employees' ability to overcome obstacles and embrace uncertainty, leading them to empower employees to take initiative and pursue innovative opportunities under effectuation. Conversely, managers who perceive their employees as lacking resilience may adopt a more cautious and risk-averse decision-making logic, such as causation. They may rely on structured plans and established procedures to mitigate potential risks and ensure predictable outcomes.

Managers' perception of their employees' resilience as important resources in their organization can affect their DML during a prolonged crisis. Thus, the following research question and related hypotheses are advanced:

Research Question 4.1: Does managers' perception of their employee resilience affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 4.1a: Perceived employee resilience has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 4.1b: Perceived employee resilience has a negative impact on the adoption of causal DML during a prolonged crisis.

3.5.3. Environment-level Antecedents

Environmental factors can affect the choice of effectuation and its impact on the speed of new product development in new ventures under conditions of competitive intensity (Deng et al., 2021; Wu et al., 2020). It is also argued that the cultural context can shape entrepreneurial reasoning (Laskovaia et al., 2017). For instance, "performance-based" cultures are conducive to causation, while "socially supportive" cultures are promoting effectuation among young entrepreneurs (Laskovaia et al., 2017).

Hubner et al. (2021) suggest new predictors of effectuation and causation in the entrepreneurship context by considering an ecosystem-focused perspective. They found that national culture, market characteristics, available resources, and networks in an ecosystem create ecosystem-specific narratives, which shape tendencies towards effectuation and causation in entrepreneurship. For example, narratives in Silicon Valley encourage effectuation while narratives in Munich encourage causation. However, a careful balance of both was found in narratives in Singapore (Hubner et al., 2021). Moreover, cultural aspects such as, avoiding uncertainty, individualism, long-term orientation, and distribution of power lead to decisions made using effectuation (EstradaCruz et al., 2019).

Effectuation was introduced under "Knightian uncertainty" (Sarasvathy, 2001), where the approach is to act first in an unpredictable environment (Dew et al., 2009). Uncertain situations are defined by the absence of perfect foresight, where the full set of states, their consequences, or the probabilities are not known or knowable (Luan et al., 2019). It is also

explained as “state uncertainty, which describes the unpredictability of relevant future states of the world” (Frese et al., 2020, p. 643).

Since uncertainty is an important condition in effectuation theory, it can be an important environmental condition facilitating effectuation in different contexts, such as a prolonged crisis associated with high uncertainty levels. The COVID-19 pandemic, as a long-lasting crisis, dramatically impacted many economic sectors worldwide. Ambiguity and unpredictability of some crises, such as the COVID-19 pandemic, expose MSME managers to uncertainty (Berbekova et al., 2021; R. Brown & Rocha, 2020; Haneberg, 2021; Ratten, 2020). Moreover, uncertainty induced by the COVID-19 pandemic represented a combination of all three types of uncertainty (state, effect, and response) (Etemad, 2020), since managers could not assign probabilities to questions such as how long the crisis would last, when and at what pace economies would reopen, and whether trade would return to pre-crisis levels (Namatovu & Larsen, 2021). Consequently, this study considers environmental uncertainty as an environmental-level antecedent facilitating effectuation.

3.5.3.1. Environmental Uncertainty

Literature considers environmental uncertainty as individuals’ perception of organization’s environment (Eijdenberg et al., 2017). Scholars showed a positive association between uncertainty about the market, technology, or resources and effectuation (Read et al., 2009; Wiltbank et al., 2006). Effectuation was found to be a more effective logic than causation in an environment with higher uncertainty (Deligianni et al., 2017; Perry et al., 2012; Smolka et al., 2018; Yu et al., 2018). Causal DML focusing on prediction cannot provide stable outcomes in an uncertain environment (Shirokova et al., 2021), suggesting that businesses should replace or complement causal with effectual logic.

However, others, such as Harms and Schiele (2012), found that uncertainty does not systematically influence adoption of effectuation in the international entrepreneurship context. Scholars have also considered different types of uncertainties (state, response, effect) and their development sequences and impact on DML. Milliken (1987) defines *state uncertainty* as the “perception by an individual that a particular component of the environment is unpredictable; more specifically, that one does not understand how the components of the environment are changing” (p. 137). Therefore, it is difficult to predict the future state of the environment with

higher levels of state uncertainty (McKelvie et al., 2011). *Effect uncertainty* refers to the perception by an individual that he/she is unable to predict how environmental events or changes will impact their organizations. Finally, *response uncertainty* refers to the perception by an individual that there is lack of knowledge about available options and a lack of ability to foresee possible consequences of a response choice (Milliken, 1987).

Entrepreneurs with perceived response uncertainty are less likely to shift from causation to effectuation, while those with perceived effect and response uncertainty are more likely to use effectuation. Moreover, in response to both state and effect uncertainty, entrepreneurs engaged to a greater extent in effectuation (Yi Jiang & Tornikoski, 2019). These results indicate how different uncertainties may affect managers' DML differently.

Different uncertainty sources have been identified in MSMEs. Sopha et al. (2021) differentiated three categories of uncertainty sources: organization-related uncertainty, supply chain-related uncertainty, and external uncertainty. They investigated the effects of these uncertainty sources on the performance of MSMEs and found a significant negative impact of external uncertainty on their performance. Three indicators, including inflation, competitor behavior, and natural disaster, are significant sources of external uncertainty (Sopha et al., 2021).

As discussed previously, uncertainty induced by the COVID-19 pandemic represents a combination of all three types of uncertainty (state, effect, and response) (Etemad, 2020). Therefore, a prolonged crisis like the COVID-19 pandemic can affect the adoption of effectual or causal DML of managers. Furthermore, it has been found that crisis conditions considerably affect entrepreneurs' decision-making (Pappas & Brown, 2020). Moreover, during crises, the critical external threat can force entrepreneurial decision-making to concentrate on prospective losses (Osiyevskyy & Dewald, 2018). However, how individuals perceive uncertainty can also influence their decisions, regardless of the nature and degree of uncertainty (Eijdenberg et al., 2017). Furthermore, Ashill and Jobber (2010) highlighted that environmental uncertainty is considered as "a perceptual phenomenon and a property of the individual faced with a decision in an environment" (p. 1279).

Unique situations such as crises with their inherent levels of high uncertainty may affect the balance between DMLs (Laskovaia et al., 2019). Therefore, state, effect, and response uncertainty can be viewed as external environmental factors within Social Cognitive Theory, influencing the adoption of effectuation and causation decision-making logics, as an outcome

behavior. State, effect, and response uncertainty shape individuals' perceptions of their environment and their beliefs about the efficacy of different approaches, thereby influencing the choice of a DML (Yi Jiang & Tornikoski, 2019).

Therefore, considering conflicting results on the effects of uncertainty on effectuation and causation in different settings, this study aims to investigate three types of uncertainty (state, effect, and response) to examine possible effects of each uncertainty on managers' DML during a crisis. Different levels of perceived state, effect and response uncertainties may drive effectual or causal DML differently. It is suggested that, during high levels of state, effect, and response uncertainty, managers may be more inclined to adopt effectuation. Conversely, in environments characterized by lower levels of uncertainty or greater predictability, managers may lean towards causation. Thus, the following research question and related hypotheses are advanced:

Research Question 5.1: Does managers' perception of environmental uncertainty (state, effect, and response uncertainty) affect the adoption of effectual/causal decision-making logic during a prolonged crisis?

State Uncertainty:

Hypothesis 5.1a: Perceived state uncertainty has a positive impact on the adoption of effectual DML a prolonged crisis.

Hypothesis 5.1b: Perceived state uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.

Effect Uncertainty:

Hypothesis 5.1c: Perceived effect uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 5.1d: Perceived effect uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.

Response Uncertainty:

Hypothesis 5.1e: Perceived response uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 5.1f: Perceived response uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.

In summary, this thesis investigates the impact of 1) psychological resilience of managers as an individual-level antecedent, 2) perceived employee resilience as an organizational-level antecedent, and 3) environmental uncertainty (state, effect and response uncertainties) as an environmental-level antecedent on the adoption of DML during a prolonged crisis.

3.6. Control Variables

Business age and business size were used as control variables for MSME resilience, in line with Shirokova and colleagues' (2016) suggestion for MSMEs, for two reasons: First, business age plays a pivotal role in shaping adaptability. Younger businesses often possess certain advantages, such as flexibility and a willingness to embrace change, that can enhance their adaptability. These qualities may stem from the absence of deeply ingrained organizational routines and a greater openness to experimentation. On the other hand, older businesses may exhibit greater stability and accumulated industry knowledge, which can be advantageous in certain situations. However, they may also be more resistant to change due to entrenched practices and established norms. By including business age as a control variable, age-related factors that influence adaptability can be controlled.

Second, the size of a business can significantly impact its adaptability. Smaller businesses may have a more streamlined decision-making process and greater agility due to fewer layers of bureaucracy. This agility can enable them to respond rapidly to market changes and adopt novel strategies. Conversely, larger businesses may have access to more resources and a broader customer base, which can provide them with a degree of stability during uncertain times. However, they may also encounter challenges related to coordination and the need for more elaborate decision-making procedures. Incorporating business size as a control variable allows to analyze the role of size in adaptability and determine whether it influences organizational resilience.

3.7. Conceptual Framework

Figure 3.5 illustrates the conceptual framework of this thesis. It details the critical components leading to MSME resilience during crises, and identifies key antecedents of the adoption of effectual and causal DMLs during a prolonged crisis, including psychological

resilience, perceived employee resilience, and environmental uncertainty. In addition, outcomes of DML are highlighted, including organizational resourcefulness and agility as key outcomes of managerial DML that mediate the relationship between DML and MSME resilience.

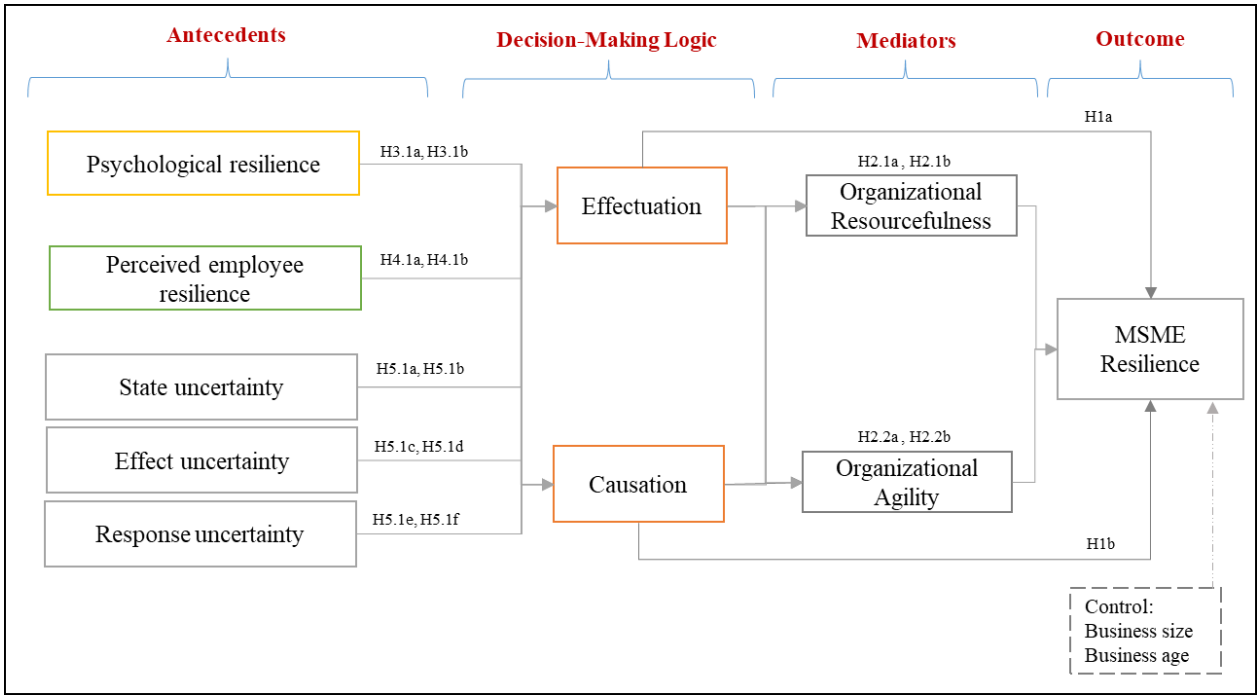

Figure 3.5 *Preliminary Conceptual Framework*

3.8. Research Approach

3.8.1. Research Paradigm

Paradigm refers to "the progress of scientific practice based on people's philosophies and assumptions about the world and the nature of knowledge" (Collis & Hussey, 2003, p.46). In other words, people's beliefs about the world will impact research designs and procedures of research (Collis & Hussey, 2003). There are four types of the research philosophy based on researchers' views about the research process: positivism, interpretivism, realism, pragmatism (Saunders et al., 2009).

This study aims to explore and understand the DML of MSME managers during a crisis associated with uncertainty as well as antecedents of that DML and connect the phenomenon to MSME resilience as an outcome. This research reflects the pragmatism paradigm for several reasons. First, as a research paradigm, pragmatism is based on the proposition that researchers

should use the philosophical and/or methodological approach that works best for the particular research problem that is being investigated (Tashakkori & Teddlie, 1998). It is often suggested as a framework, with the potential of embracing both qualitative and quantitative approaches (Tashakkori and Teddlie, 1998). The focus is on the consequences of research and on the research questions rather than on the methods (Kaushik & Walsh, 2019). It seeks to employ an approach that helps understanding and resolution of the problem (Creswell & Poth, 2016).

Second, "pragmatism argues that the most important determinant of the research philosophy adopted is the research question – one approach may be 'better' than the other for answering particular questions" (Saunders et al., 2009, p. 110). Therefore, researchers can utilize various approaches within a single study when circumstances require, without being constrained by allegiance to a specific philosophical perspective (Morgan, 2007).

Third, three widely shared ideas of pragmatism highlight that pragmatists focus on the nature of experience, unlike other philosophies that emphasize the nature of reality. (1) Actions cannot be separated from the situations and contexts in which they occur. This world is a world of unique human experiences in which, instead of universal truths, there are warranted beliefs, which take shape as we repeatedly take actions in similar situations and experience the outcomes. (2) Actions are linked to consequences in ways that are open to change, meaning that, if the situations of the action change, their consequences would also change, despite the actions being the same. (3) Actions depend on worldviews that are socially shared sets of beliefs. Pragmatists believe that no two people have identical experiences, so their world views can also not be identical. However, there are always varying degrees of shared experiences between any two people that lead to different degrees of shared beliefs (Kaushik & Walsh, 2019). Therefore, "pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis" (Creswell & Creswell, 2017, p. 52).

3.8.2. Mixed Methods Design

This thesis utilized qualitative and quantitative studies in a mixed-method approach to answering the research questions. Qualitative research gains its strength from the quality and depth of collected data, whereas quantitative research stand out in its quantity and volume of data obtained. Integrating these distinct strengths undeniably enhances the quality of a study

(Yin, 2006). Therefore, mixed-method approaches can offer more profound insights into the phenomena. “Mixed methods research is the type of research in which a researcher or team of researchers combine elements of qualitative and quantitative research approaches for the broad purposes of breadth and depth of understanding and corroboration” (Johnson et al., 2007, p. 123).

The exploratory mixed-method design was used in this thesis. It is a two-phased approach, referred to as an exploratory sequential design (Creswell et al., 2003). This design starts with qualitative data collection and analysis to explore a phenomenon and then builds to a second, quantitative phase (Creswell & Clark., 2007).

First, qualitative data (Study 1 - in-depth interviews) contributes to this thesis investigation by exploring managers' experiences during COVID-19. Findings from Study 1 are used to identify additional potential factors that may influence the adoption of DMLs by managers. Furthermore, Study 1 aimed to identify potential factors that can moderate the impacts of organizational and environmental level antecedents on the adoption of DMLs. Qualitative research helps to answer new questions, particularly in a field and phenomenon at its intermediate level (D’andria et al., 2018). Therefore, since the DML literature is at the intermediate level, especially in corporate settings and during a crisis, qualitative research can provide deeper insights into both antecedents and consequences of DML in MSMEs. In addition, findings from the qualitative study, together with a comprehensive literature review, resulted in a comprehensive conceptual model explaining the antecedents of the adoption of DML, and DML impact on MSME resilience.

Second, a quantitative study (Study 2) contributes to this thesis investigation by assisting and providing grounds to evaluate the advanced conceptual model. The quantitative approach emphasizes standard measures, replicable findings, comparison to accepted good standards, minimization of bias, and successful prediction (Fielding & Schreier, 2001). This thesis draws on quantitative data to empirically verify theoretical relationships in larger samples (Wacker, 1998). Specifically, it examines the effects of proposed antecedents on the adoption of effectual/causal DMLs, together with the effects of effectual/causal DMLs on MSME resilience directly, and indirectly through organizational resourcefulness and organizational agility.

3.8.3. Research Stages

This research follows the sequence of literature review, in-depth interviews, pilot test and data analysis, and main survey and data analysis.

In the first stage, based on a comprehensive review of relevant literature, hypotheses regarding the direct and indirect effects of DML on MSME resilience during a crisis were advanced. Moreover, possible antecedents of the adoption of DML were identified, and relevant hypotheses were advanced. On that basis, a conceptual framework was developed. In the second stage, Study 1, in-depth interviews with restaurant managers were utilized to explore the phenomenon under investigation (Chapter 4). Findings led to a revised conceptual model, which is discussed in Chapter 4. In addition, the questionnaire was developed in English and translated into Traditional Chinese. In the third stage, a pilot test and the main survey were conducted. First, a pilot test was used to test the reliability and validity of the measurements. Then, after necessary adjustments, main survey data was collected. Data were analyzed using SmartPlS software. Partial Least Square Structural Equation Modeling (PLS-SEM) was employed to test the hypothesized relationships of latent variables and the overall model predictability. In the final stage, results were discussed and concluded. Figure 3.6 illustrates the general research design of this thesis.

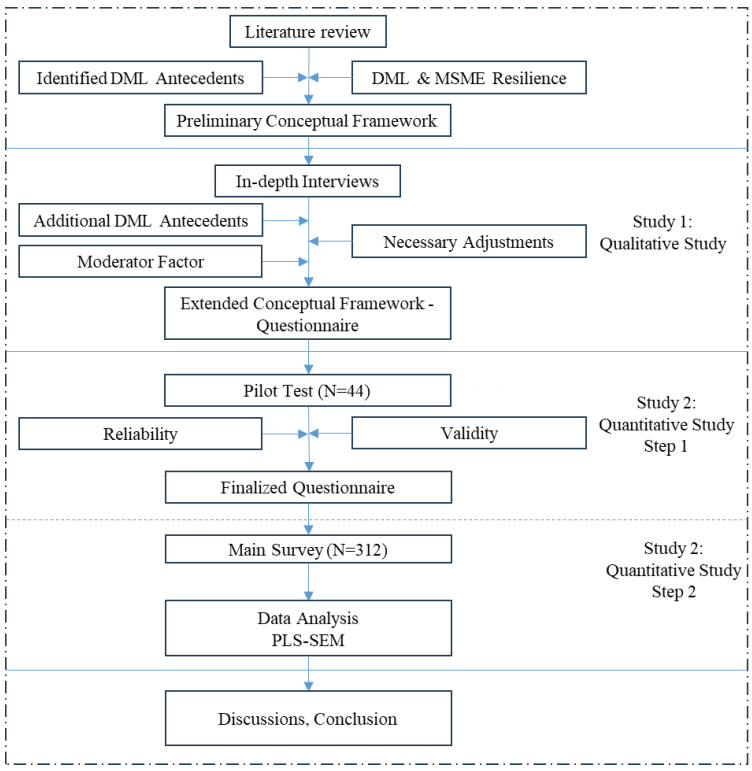

Figure 3.6 *Research Design*

Chapter Summary

This chapter presented literature relating to organizational resilience and DML. Then, the possible effects of each DML on the resilience of MSMEs directly and indirectly through organizational resourcefulness and agility were discussed. In addition, drawing on Social Cognitive Theory, antecedents of the adoption of DML were provided at three individual (psychological resilience), organizational (perceived employee resilience), and environmental (state, effect, and response uncertainty) levels. A preliminary conceptual model and relevant hypotheses were advanced. In addition, a mixed strategy, combining both qualitative and quantitative approaches, was adopted and the rationale for research design was detailed.

However, since less is known in the literature about the conditions that may affect managers' effectual/causal DML in responding to a prolonged crisis, a decision was made to gather additional insights from restaurant managers using qualitative research. Therefore, a qualitative study (Study 1) was conducted to explore managers' perceptions of COVID-19 and their business responses during the prolonged crisis through in-depth semi-structured interviews. Findings from Study 1 (Chapter 4) are used to identify additional potential factors that may influence the adoption of DMLs by managers. Furthermore, Study 1 aimed to identify a key factor that may moderate the relationship between antecedents under investigation and adoption of DML. Further methodological considerations and findings of interviews are reported in chapter 4. In addition, chapter 4 presents the final conceptual framework.

4. CHAPTER FOUR: STUDY 1 - QUALITATTIVE STUDY

4.1. Introduction

Chapter 3 presented the conceptual model of this research by drawing on effectual/causal DML theory and organizational resilience, which aimed to test the direct and indirect effects of DML on MSME resilience through the mediation of organizational resourcefulness and agility. This model also considered psychological resilience, perceived employee resilience and environmental uncertainty as antecedents of the adoption of DML at individual, organizational, and environmental levels respectively to provide a comprehensive understanding of how restaurant managers employ effectuation and causation (see Figure 3.5). A mixed-method strategy, incorporating both qualitative and quantitative methods, was proposed to enrich and test the advanced model.

Chapter 4 reports on the qualitative research in the form of in-depth interviews that were conducted to gain insights into managers' experiences and their business responses during a crisis, and thereby 1) provide an empirical grounding for the relations between variables hypothesized in the conceptual model, 2) explore additional potential factors that may influence the adoption of DMLs by managers, and 3) identify potential factors that moderate the relationship between organizational and environmental level antecedents and the adoption of effectual/causal DML.

In this chapter, methodological considerations of the in-depth interview technique, data collection and analysis strategies are presented, together with findings in sections 4.2 and 4.3 respectively. In the process, the conceptual framework proposed in chapter 3 will be revisited to incorporate additional antecedents and a moderating factor identified in the interviews into the finalized conceptual framework before a summary of all research issues, questions and corresponding hypotheses concludes this chapter.

4.2. Method

4.2.1. In-depth Interviews - General Considerations

An in-depth interview approach was employed as the major qualitative method. Its primary purpose was to gain insights into managers' perceptions of COVID-19 and their business responses during this crisis. Qualitative research comprises a variety of methods such as interviews, focus groups, and participant observation (Denzin & Lincoln, 2011). Following

an evaluation of the advantages and disadvantages of each method, the in-depth semi-structured interview method was selected as the most appropriate method to address the study objectives for several reasons.

Many researchers promote qualitative research as it facilitates the exploration of potential antecedents and factors about which little is known or has been explored (Strauss & Corbin, 1998). In addition, qualitative research provides deep descriptions of processes (Richards, 2014), and appears amenable to further quantitative research (Eisenhardt & Graebner, 2007; Yin, 2009). Qualitative approaches are an accepted method of inquiry in organizational studies. In-depth interviews have been utilized in numerous studies investigating organizational aspects, including organizational resilience and business crisis response (Ahmed El-Said et al., 2023; Fuchs, 2021; Ghaderi et al., 2022; Shi et al., 2021; Williams et al., 2020). For instance, Shi et al. (2021) employed in-depth interviews with managers of five-star hotels to obtain insights into hotels' response measures during a crisis. In-depth interviews are ideal for clarifying concepts and relationships (Strauss & Corbin, 1998). According to Patton (1990), flexibility is a critical advantage of in-depth interviews. The flexible nature of in-depth interviews allows the interviewer to return to a topic several times during an interview if necessary to ensure that all scheduled questions are explored (Bailey, 1994).

The in-depth semi-structured interview approach was selected for a number of reasons. First, the semi-structured interview is a method for collecting facts, attitudes, and opinions (Ashleigh & Mansi, 2012), making it an appropriate method as this study aimed to investigate individual managers' perceptions and experiences during a prolonged crisis by focusing on their DML. Second, due to the complexity of situations involving business decisions and the resilience of organizations during a crisis, in-depth interviews are useful when exploring complex phenomena, allowing for probes and unstructured questions to explore, deepen understanding, and clarify answers to questions (Wilson, 2014). Third, in-depth, semi-structured interviews are useful when researchers know the relevant topics but want to allow participants to raise new issues through open-ended questions. Therefore, unlike structured interviews that follow a predetermined and standardized list of questions (Clifford et al., 2010), in the semi-structured interview, the researcher asks interviewees a series of predetermined but open-ended questions by following a predeveloped written interview guide. However, the topics of the interview guide follow the research question and phenomenon that underlies the research (Given, 2008). Therefore, semi-structured interviews have some degree of

predetermined order but still ensure flexibility. In addition, semi-structured interviews are more appropriate than unstructured interviews in this study since the focus of the study is clear, and semi-structured interviews can address more specific issues (Cooper et al., 2006). Although semi-structured interviews are similar to focus groups in that they have a conversational and informal tone (Clifford et al., 2010), the focus group method's disadvantage is that other participants can affect individuals' answers (Minichiello et al, 1995).

Finally, semi-structured interviews are useful when the behavior cannot be observed directly due to different factors such as spatial and temporal constraints (Wilson, 2014), with this study following a retrospective approach to understand managers' behavior and logic regarding their past crisis responses. Therefore, methods like participant observation are not suitable for this research context.

4.2.2. Sample

A total of 8 managers or managing owners of MSME restaurants in Hong Kong operating during the COVID-19 pandemic were interviewed. They were considered qualified as interviewees for the following reasons. They are decision-makers that significantly affect strategic and operational practices during a crisis (H. B. J. Lai et al., 2020). In addition, they are considered as entrepreneurs in the gastronomy industry since they lead their enterprises in times of uncertainty through their entrepreneurial actions (Harms et al., 2021). Furthermore, MSMEs are more owner-manager centric (Williams et al., 2020). Therefore, the distinction between MSMEs and their managers is often a challenge as "the small business firm is simply an extension of the individual who is in charge" (Lumpkin & Dess 1996, cited in Hallak et al., 2015, p. 36). Finally, managers or managing owners of MSMEs can provide the most appropriate insights to questions about their perceptions and business situations (Frese et al., 2020). In addition, the following criteria were considered in selecting eligible restaurants:

1. Restaurants must be categorized under the MSMEs definition by the Hong Kong government, referring to manufacturing businesses that employ fewer than 100 persons or any non-manufacturing business that employs fewer than 50 persons. Micro-enterprises are businesses that employ fewer than ten people (SUCCESS, 2022). Thus, restaurants with less than 50 employees are eligible for participation in this study.

2. Since this study investigates managers' DML and MDME resilience in response to COVID-19, only restaurants that were established prior to the COVID-19 pandemic, i.e., prior to January 2020, were eligible.
3. Restaurants must be independent or privately owned, as these enterprises are less resilient (Neise et al., 2021). In addition, chain restaurants go out of business less often than individual restaurants (H. G. Parsa et al., 2011). Moreover, independent, or privately owned restaurants are entrepreneurial enterprises, where DML of managers/owners can play a significant role in their business directions.
4. Only restaurants with registered general restaurant licenses were selected in this study. Under the Food Business Regulation in Hong Kong, a general restaurant license permits the licensee to sell any kind of food for consumption on the premises (FEHD, 2022).

Data collection was stopped at the 'theoretical saturation' point (Glaser & Strauss, 1998) whereby data collection reaches the point where information obtained tends to be repetitive. In addition, the number of participants in generic qualitative studies of all fields may vary contingent on the mode of the approach, ranging from 6 to 60 (Morse, 2000).

Table 4.1 shows the key characteristics of informants (gender, age, business experience, position, restaurant size) and the order in which they were interviewed. The age of interviewees ranged from 32 to 50 years, with most of them being male. Informants were almost equally divided between managers and owner-managers, with one co-owner/manager. They had more than 10 years of experience in the restaurant industry, and had been working in their current restaurant for an average of 5 years. Moreover, the sample was equally divided in terms of restaurant size between micro and small/medium-sized restaurants.

Table 4.1 *Informant Profile*

Informant	Gender	Age	Business Experience*	Position	Restaurant Size
1	Male	40s	18	Manager	Small/Medium
2	Male	30s	13	Owner/manager	Micro
3	Male	50s	20	Co-owner/ Manager	Small/Medium
4	Male	30s	9	Owner-manager	Micro
5	Female	30s	10	Owner-manager	Micro
6	Male	40s	13	Owner-manager	Micro
7	Male	40s	14	Manager	Small/Medium
8	Male	50s	22	Manager	Small/Medium

Note. * experience in years

4.2.3. Instrument

An interview guide was developed prior to conducting interviews. Its purpose was to provide the focus of the interview to ensure that important areas are covered while at the same time allowing for flexibility to explore additional aspects of interest (Lietz, 2010; Oppenheim, 1992). The sample interview guide was designed based on the research questions identified to ensure that all concepts were covered in the interview. Relevant questions centered on informants' perceptions, experience and responses during the COVID-19 pandemic. Each section contained a set of general and possible probing questions, which allowed for the exploration of different aspects. A copy of the interview guide is provided in Appendix A.

4.2.4. Procedures

Informants were selected using a purposive snowball sampling method. They were recruited using personal recommendations/referrals. In addition, the researcher contacted owners and managing owners of restaurants via phone calls, emails, and social media and invited them to participate in face-to-face or online interviews. Then, online or in-person meetings were scheduled based on their willingness and availability to participate (Campbell et al., 2004). Study objectives were explained prior each interview and anonymity was assured. All interviews were audio-recorded, subject to approval by informants. Informants were offered to receive a summary of the study results upon completion of the study as a token of appreciation. In addition, this research study was reviewed and received ethical clearance through the PolyU Institutional Review Board (Reference Number: HSEARS20220620004). Each interview was conducted in English and lasted between 45 to 80 minutes, with average of about 60 minutes. All interviews were labeled and transcribed verbatim. Transcripts were used for content analysis. The qualitative data analysis software program NVivo was used to store, manage data, and track codes, themes, and key concepts of the interviews.

4.2.5. Data Analysis

Content analysis was employed to analyze the interview transcripts. Content analysis is "any technique for making inferences by systematically and objectively identifying special characteristics of messages" (Holsti, 1969, p. 14). By conducting content analysis, words can be categorized into fewer content-related groups. It is assumed that words or phrases classified into the same categories share the same meaning (Elo & Kyngäs, 2008). Its aim is to make

replicable and valid inferences from data to their context, with the purpose of providing knowledge, new insights, a representation of facts, and a practical guide to action (Krippendorff, 2018).

Content analysis is a method that may be used in an inductive or deductive way. An approach based on inductive data moves from the specific to the general, so that instances are observed and then combined into a larger whole or general statement. A deductive approach is based on an earlier theory or model, and therefore moves from the general to the specific (Mayring, 2015). Qualitative data were analyzed using both inductive and deductive ways. Deductive analysis helped to focus on the phenomenon under investigation by using effectuation/causation theory as the underlying theory during the data analysis process as a "frame of interpretation" (Nordqvist et al., 2009, p. 299). Inductive analysis helped to identify emerging interpretations, meanings, language, and the DML of managers during the COVID-19 pandemic.

Steps recommended by (Berg, 2001) were followed to analyze the interviews. First, a code scheme was developed to guide the remainder of the process. Data were coded using the concepts under investigation and new emerged categories were labeled. Second, themes related to these constructs were identified. These themes were coded using statements that were similar to the concepts in the DML literature. Third, similar words, phrases and relationships were identified and grouped under the same themes. Fourth, these similar phrases were compared and counted; the quotation that was the most comprehensive and clear in meaning was chosen as a representative comment from respondents. Last, the themes were interpreted and compared with literature to identify factors to be used in quantitative research in Study 2.

This study followed Lincoln & Guba's (1985) guidelines to ensure trustworthiness. A second researcher was involved to seek agreement on the way in which the data were analyzed. First, content analysis was conducted by the author of this thesis. Then, the second researcher, who was a PhD holder in the tourism and hospitality field, repeated the coding process. Finally, independent coding results were compared, and differences were resolved through discussion and re-assessment of the transcripts, as suggested by Miles and Huberman (1994).

The next section presents interview findings in terms of 1) the adoption of effectual and causal DML, 2) additional potential antecedents of effectual/causal DML, and 3) a potential factor that may potentially moderate the relationship between organizational and environmental level antecedents and the adoption of effectual/causal DML.

4.3. Findings

4.3.1. Adoption of Decision-Making Logics

In chapter 3, effectuation and causation were discussed and key differences highlighted (see section 3.3.1 and Table 3.3), according to important issues such as their a) view of the future, b) basis for commitment and taking action, c) view of risk and resources, d) attitude towards outsiders, e) view of planning, and f) attitude towards unexpected events. Through these lenses, findings are now discussed to explore the adoption of effectual or causal DMLs during COVID-19. Table 4.2 presents the findings derived from the data analyses relevant to the use of effectual or causal DMLs by informants.

One common theme across informants was the acknowledgment of the unpredictability of the environment, which posed significant challenges for decision-making and planning during COVID-19. This highlights the increased level of uncertainty that existed during COVID-19. Informant 2, a micro restaurant owner-manager, briefly expressed this, stating:

> *There's no question we have a plan on what we need to do. How we need to improve. But at the same time, things are still very unpredictable (Informant 2, 30s, owner/manager at micro restaurant).*

Managers, as a result, viewed the future as contingent on actions, where prediction was unimportant. Therefore, they focused more on what they could do instead of what predictions would suggest that should be done regarding their basis for commitment. As informant 8 noted:

> *We can't really be worried about the unknown. Because we can't predict what is going to be. So, I would just focus on what we can do today, and you know how we can continue the operation (Informant 8, 50s, manager at small/medium restaurant).*

Informants' perceptions of the effectiveness and cost of planning during fast-changing environment affected their subsequent strategies since a fast-changing environment may render planning efforts a waste of time and resources. For example, Informant 7, 40s, manager of a small restaurant, emphasized adaptability over rigid planning, noting:

> *I'm someone that has an idea and will adapt it as we go along because you don't know. You can write a business plan and strategy all the way through all the research, but things change, so you could be wasting a lot of time, effort, and energy, and you might have even spent months and months doing this.*

Table 4.2 *Sample of Interviewees' Comments on DMLs*

Categories	Sub-Categories	Sub-Theme	Count	Representative Comments
View of the future	Effectuation - Creation	Unpredictable environment	5	"There were just so many different changes in the environment, restrictions, regulations, health concerns. We did not know what was coming next." (Informant 6)
	Causation - Prediction	Predictive trends	1	"We tried to identify predictive trends. We closely checked market data and tried to anticipate changes and adopt our strategies with them." (Informant 7)
Basis for Commitment	Effectuation - Can	What can be done?	3	"I was thinking, ok, what can I do now? It was difficult, but we did it step by step." (Informant 6)
	Causation - Should	What is best to do?	2	"Our plan was to be one step ahead by doing what was the best for customers, for our staff and also the business." (Informant 8)
Basis for taking action	Effectuation - Means-oriented	Available resources	7	"Well, we don't have investors. It's our money, in a sense. So, to me, the focus was on our own resources." (Informant 2)
		Available information	3	"When we're making these decisions, you have to work with the information that you have." *(*Informant *7)*
	Causation - Goal-oriented	Setting goals	2	"We always have had clear goals. We set specific objectives. You always have goals when you start a business." (Informant 4)
		Short-term planning	3	"You know, I'm not going to go and plan for next January, not knowing that we still have six more months to get through" (Informant 4).
View of risk and resources	Effectuation - Affordable loss	Cost control	2	"First of all, we have a contract. We have to keep on running. Then we believed it would be over. That's why we tried to control the expenses and keep our closure very minimal." (Informant 2)
		Survival	5	"It's not about how to maximize your income, it is about how to survive. I mean, I need to pay the rent. I have to pay my staff." (Informant 5)
		Avoid bankruptcy	2	"Investing in a business is all risk and reward, right? I think the only big risk in a time of crisis like this is there's a higher risk of just being out of the game and being bankrupt and being shut down right now. So, you have to do it a little more carefully." (Informant 4)
		Affordability of actions	1	"We were cautious in our decisions, always considering how much we can afford." (Informant 1)
	Causation - Expected return	Target sales	2	"Every week we had a meeting and we set targets and tried to sale enough to achieve it." (Informant 8)

Categories	Sub-Categories	Sub-Theme	Count	Representative Comments
		Expected return	2	"You do business because you want to earn money. It was our goal to increase our sales and keep running the restaurant." (Informant 8)
Attitude towards outsiders	Effectuation - Partnerships	Collaboration	3	"You need to have a good network of people. The customers need to be part of network, your suppliers, and even competitors." (Informant 8)
		Communication	3	"I think some of the factors were constant communication with our partners and the willingness to question things and change things." (Informant 6)
		Suppliers	2	"The supply element for me is super important…Once you've got that trust, you're pushing the boundaries in terms of payment terms and pricing, right?" (Informant 1)
		Customers	1	"They [customers] came to support us. They came for the last two years of COVID-19. They support us a lot. We are here because of them." (Informant 6)
	Causation - Competitive analysis	Source of information	4	"We viewed our competitors as valuable sources of information. We checked to see what others do and what we can learn." (Informant 5)
		Practical actions	2	"We analyzed to see what others do in terms of their menu, food and price." (Informant 7)
View of planning	Effectuation - Contingency	What provides more options	2	"I knew at the time that I can change things later if some of the plans would not work. I was open to new opportunities and directions. Sometimes we had to buy ingredients thinking about different dishes and changes in our menu." (Informant 2)
	Causation - Commitment	What is helpful in achieving goals?	2	"I was thinking we need to achieve our targets, then, I needed to decide what is helpful." (Informant 4)
Attitude towards unexpected events	Effectuation - Leveraging	Opportunity	4	"The other thing to mention here is that there have been lots of opportunities arising. We tried to identify opportunities and turn challenges into innovative solutions." (Informant 1)
	Causation - Avoiding surprises	Proactive actions	1	"Our strategy was to be proactive in identifying changes." (Informant 7)

As a result, they focused on the reaction-based crisis responses during COVID-19. Informant 1, 40s, manager at small/medium restaurant articulated this, noting:

> *I'm not someone who would write it down and do a ton of desk research...During COVID, you cannot plan. You don't know what's happening, so you can only react.*

Furthermore, some interviewees admitted to not having any crisis management plans in place, underlining the lack of preparedness for such unforeseen events, as already highlighted by previous research (Tse et al. 2006). Informant 4, a micro restaurant owner-manager with 9 years of experience in the restaurant industry, mentioned: *"…honestly, we've never had any crisis management plans."* This shows that informants adopted effectuation as a non-predictive, non-planning DML in their crisis responses.

Nevertheless, despite the challenges of planning in an unpredictable environment, some managers adopted a causal DML by adjusting the planning aspects such as shortening their planning time frame and increasing its frequency to navigate the unknown. Informant 4, an owner/manager at a micro restaurant, mentioned:

> *You know, I'm not going to go and plan for next January, not knowing that we still have six more months to get through.*

Regarding the basis for taking actions, findings showed that most informants adopted effectual DML by focusing on means-oriented actions. As a result, their goals emerged by courses of action that were mainly based on given resources. In short, they adopted a view on planning that gave them more possible options later in the process, enabling them to adapt if necessary. Therefore, they attempted to make informed decisions by drawing on all available information and resources. As informants noted:

> *a lot of things were beyond our control, and we couldn't really predict. So, every day we spend as much time as we can reading everything in the news (Informant 4, 30s, owner/manager at micro restaurant).*

> *When making decisions, you have to work with the information you have, right? And then you know, maybe if you waited 30 days longer, something got published in the newspaper, and you have more information. But we're just doing the best we could with the information we had on it (Informant 7, 40s, manager at small/medium restaurant).*

In addition, rather than seeking new resources they focused on maximizing the use of their existing resources, both financial and non-financial, which shows the dominance of the 'bird-in-hand principle' of effectuation DML.

> *Well, we don't have investors. It's our money, in a sense. So, to me, the focus was on our own resources (Informant 2, 30s, owner/manager at micro restaurant).*
>
> *We can't really worry about the unknowns. Because we can't predict what is going to be. So, I would just focus on what we can do today, and you know how we can continue the operation (Informant 8, 50s, manager at small/medium restaurant).*

Additionally, informants stressed the importance of experimenting with different activities, and trial and error processes to find the best responses to manage the situation. Creating new menus, promotions, and processes were among the activities they tried. They were also open to mistakes and adjusted to find the best solutions. Therefore, their DML was characterized by experimentation and flexibility, which are dimensions of effectuation, allowing them to pivot based on real-time feedback and results. As some of informants noted:

> *Also, willingness to make some mistakes too, right? Because, you know, in life and in business, you know you're not going to get everything. But it is important you get the really important things, right? (Informant 4, 30s, owner/manager at micro restaurant).*
>
> *We had a lot of things to fix along the way so that we could get our deliveries out of the door. First, we used a third-party logistics company…So, we realized that we couldn't scale our business from that. So, I invested in our own vehicles. Because I saw that this was going to continue, and I knew that the only way to scale it was to own our own logistics. You're relying on a third party, and it will never happen (Informant 1, 40s, manager at small/medium restaurant).*
>
> *I think it [our approach] just gives us a little more flexibility in the way that we can respond better (Informant 7, 40s, manager at small/medium restaurant).*

Regarding informants' views of risk, findings showed that managers were concerned about the survival of their restaurant, as informants 4 and 5 noted that:

> *Investing in a business is all risk and reward, right? I think the only big risk in a time of crisis like this is a higher risk of just being out of the game and being bankrupt and being shut down*

> *right now. So, you have to do it a little more carefully (Informant 4, 30s, owner/manager at micro restaurant).*
>
> *For the situation right now, it's not talking about how to maximize your earnings. It is about how to survive. I mean, I have to pay rent (Informant 5, 30s, owner/manager at micro restaurant).*

As is apparent, managers focused on the survival of their business rather than growth during the pandemic because it involved lower levels of risk. The primary goal of managers was to reduce the risk of failure by reducing their operating costs during COVID-19. To mitigate the risk of business closure, they took steps to reduce operating costs, including cutting part-time staff, employing more part-time and fewer full-time employees, and even reducing staff salaries when necessary.

> *First of all, we have a contract. So, we have to keep on running. Then we believed it would be over. That's why we tried to control the expenses and keep our closure very minimal (Informant 2, 30s, owner/manager at micro restaurant).*

Therefore, it can be argued that managers where mostly focused on affordable loss instead of expected return in their actions during COVID-19, which is the view of risk and resources from an effectual DML perspective.

In terms of managers' attitude toward outsiders, findings showed that managers had a partnership view toward outsiders which is aligned with effectuation. Collaboration with various stakeholders, including suppliers, family members, loyal customers, fellow restaurateurs, and employees, played a crucial role in business survival. Building trust and strong relationships with suppliers, in particular, enabled managers to manage cash flow issues by negotiating extended payment terms. As informants 1 and 3 noted:

> *The supply element for me is super important. I would hope I build friendships and trust. Once you've got that trust, you're pushing the boundaries in terms of payment terms and pricing, right? Without having the supplies, you can't do this business. So, no one else is getting credit terms right now, and that's because I've built that relationship and built trust (Informant 1, 40s, manager at small/medium restaurant).*
>
> *On the financial side, obviously, everyone should be more flexible and patient. Uh, but that's not something you think about now and during the pandemic., it's about what relationship you have with your suppliers. We have some good relationships, and*

> *they're very understanding (Informant 3, 50s, co-owner/manager at small/medium restaurant).*

Apart from suppliers, fellow restaurateurs became a critical group for managers during the pandemic. Informants believed that there was no more competition; instead, all industry players tried to help each other by sharing information and visiting each other's restaurants, again being reflective of a partnership view towards outsiders that aligns with effectuation DML.

> *I don't consider them [other restaurants] as direct competitors. A lot of indirect competitors. You know we can share things with our competitors and help us make decisions. We have many connections (Informant 4, 30s, owner/manager at micro restaurant).*

> *We visited more friends to support each other. All chefs around Hong Kong know each other, so we try to support each other. I go to my friend's restaurant and then he will come to my restaurant next week. Another week I will go to another friend's restaurant. We talk to each other (Informant 6, 40s, owner/manager at micro restaurant).*

Finally, regarding managers' attitude towards unexpected events, contingencies were perceived as opportunities for novelty creation, which is an effectual DML view on contingencies. Managers were considering changes as opportunities that needed to be seized. As informant 1 noted:

> *You might have missed the boat, might have missed those opportunities. As soon as one change or one restriction comes in from the government, we react to them the next day, and that's why we succeeded (Informant 1, 40s, manager at small/medium restaurant).*

In conclusion, interview findings revealed that informants exhibited elements of both effectuation and causation during COVID-19, with a greater emphasis on effectuation. Their ability to balance these approaches facilitated their navigation of the unprecedented challenges and uncertainty posed by the pandemic.

In the next section, three antecedents identified by informants that may potentially influence the adoption of DMLs by MSME managers during a crisis are discussed. These findings are contrasted and integrated with the discussion of antecedents at different levels that was provided in Chapter 3 (section 3.5), with additional supporting literature being provided

to assist in advancement of the refined, final conceptual framework and the formulation of suitable hypotheses to guide the subsequent, quantitative research phase.

Antecedents of the adoption of effectual and causal DML were provided at three individual (psychological resilience), organizational (perceived employee resilience), and environmental (state, effect, and response uncertainty) levels in chapter 3.

Considering the findings from interviews, entrepreneurial bricolage behavior, business pre-crisis performance, and government support are incorporated into the theoretical framework as individual, organizational, and environmental level antecedents, respectively. In addition, entrepreneurial self-efficacy is incorporated into the theoretical framework as moderator of the relationship between organizational, and environmental level antecedents and the adoption of effectual/causal DML.

4.3.2. Antecedents of Decision-Making Logic

Table 4.3 highlights the different levels of antecedents, together with the main sub-categories and sub-themes identified from interviews that can affect the adoption of effectual/causal DML.

4.3.2.1.Entrepreneurial Bricolage Behavior – Individual Level

Informants' confidence in their ability in managing a crisis situation by using available resources was identified as a crucial factor during the pandemic that helped them to react to the fast-changing environment and survive the crisis. Furthermore, informants believed their leadership could help them cope with adverse situations in their business.

> *I think, yeah, this pandemic is the thing you can't plan for it, so I think it made us understand the value of leadership and communication (Informant 4, 30s, owner/manager at micro restaurant)*
>
> *First, they [staff] was afraid. So, you cannot be bossy and just tell let's do this. You have to be there to teach them how to do it in the best way (Informant 6, 40s, owner/manager at micro restaurant).*
>
> *I'm more of a leader than a manager (Informant 1, 40s, manager at small/medium restaurant).*

Table 4.3 *Sample of Interviewees' Comments on Antecedents of DML*

Category	Sub-Categories	Sub-Theme	Representative Comment
Individual level antecedent	**Entrepreneurial Bricolage Behavior**	Making do by available supply	I used what we have in the kitchen to solve supply problems (Informant 8, 50s, manager at small/medium restaurant).
		Experience	It's good to have some experience, doesn't matter if it's negative or positive experience, it's still experience (Informant 5, 30s, owner/manager at micro restaurant).
		Creativity	Me and my team could find creative options to improve our menu (Informant 4, 30s, owner/manager at micro restaurant).
		Leadership	I'm more of a leader than a manager (Informant 1, 40s, manager at small/medium restaurant).
Organizational level antecedent	**Business Pre-crisis Performance**	Pre-crisis savings	We had saved some money. This allowed us to experiment with new menu items and delivery options without immediate financial problem (Informant 6, 40s, owner/manager at micro restaurant).
		Reserved crisis money	Now you need to have a bank account and put money in it for everything like COVID. You have to create a COVID account to keep some money. If something happens, you know you have like support to try to pay with like money for six months, for example. The money you never will touch. In case you need it (Informant 6, 40s, owner/manager at micro restaurant).
		Pre-crisis overall performance	We were doing good before COVID-19, and it helped us to manage the first few weeks after COVID-19. Our performance gave us the confidence to focus on managing our cash flow and keep operating (Informant 1, 40s, manager at small/medium restaurant).
		Working plans	Our plans were working before COVID-19 started. We were discussing not to make big change in our operations to see how

Category	Sub-Categories	Sub-Theme	Representative Comment
			situation changes (Informant 7, 40s, manager at small/medium restaurant).
		Debt	One thing that made a difference for us was having relatively low debt compared to some other businesses in our industry. We had more flexibility in reallocating resources to address the new challenges (Informant 5, 30s, owner/manager at micro restaurant).
Environmental level antecedent	**Perceived Government Support**	Sufficiency	If you ask any businessmen in Hong Kong or any employer, they would say that the support from the government is not enough (Informant 8, 50s, manager at small/medium restaurant).
		Revenue lost	It's challenging because government funds can't fully cover the revenue we lost during the pandemic (Informant 7, 40s, manager at small/medium restaurant).
		Accessibility of government support	For us, small businesses like us. How many full-time employees can we have? So, if you don't have full-time means that you don't have eligibility (Informant 5, 30s, owner/manager at micro restaurant)
		Predictability of government plans	The ever-changing regulations were a real challenge. It was hard to predict what we could or couldn't do. We needed to be flexible and change our operations (Informant 7, 40s, manager at small/medium restaurant).
		Effectiveness of government support	Government support was crucial for us. It gave us the stability we needed to make decisions (Informant 3, 50s, co-owner/manager at small/medium restaurant).
		Inconsistent regulations	“The regulations often seemed inconsistent with the real pandemic situation. We had to adapt and change what we were doing all the time (Informant 2, 30s, owner/manager at micro restaurant).

Although employees' active engagement in different activities was crucial during the pandemic, findings from interviews showed that managers primarily relied on their own capabilities to direct their business decisions and manage the challenges posed by government pandemic control regulations, such as maintaining a minimum distance of 1.5 meters between customers. One informant mentioned:

> *We had limited space, but it was all about making the most of our space. I made sure that every corner in our restaurant was used properly and it adds to the overall dining experience. I tried different approaches and found best way to design the restaurant that overcome space problem and follow the social distance rules. I had to use some old and small chairs and tables for that (Informant 5, 30s, owner/manager at micro restaurant).*

This ability to adapt and use available resources creatively aligns with the dynamic and resourceful nature of effectuation, and is manifested in numerous informants' responses:

> *Me and my team could find creative options to improve our menu (Informant 4, 30s, owner/manager at micro restaurant).*
>
> *I used what we have in the kitchen to solve supply problems (Informant 8, 50s, manager at small/medium restaurant).*
>
> *I had to be creative with our menu offerings. I didn't have access to some ingredients, so I used what we had in stock to create dishes (Informant 2, 30s, owner/manager at micro restaurant).*
>
> *Every ingredient, every resource became a potential solution. It was using what we had to build something greater (Informant 1, 40s, manager at small/medium restaurant).*

The confidence in crafting new solutions was a defining feature of managers' behavior, as noted by one informant:

> *I wasn't afraid to try something new because I believed in my ability to adapt and create value (Informant 1, 40s, manager at small/medium restaurant).*

Therefore, managers' ability to make do with available resources, which is known as bricolage behavior in the literature, was identified as an influential factor that can potentially affect the adoption of effectual/causal DML. In view of this, relevant literature is reviewed next to further justify the inclusion of this antecedent in the proposed model (Figure 4.3) and advance relevant hypotheses.

Bricolage, as behavior, has been studied in various theoretical fields in the organizational and management literature, including innovation and entrepreneurship to utilize resources (Witell et al., 2017). Baker and Nelson (2005) define entrepreneurial bricolage behavior as “making do by applying combinations of the resources at hand to new problems and opportunities” (p.333). Conz and Magnani (2020) argue that adaptation is “the ability to orchestrate, redeploy and reconfigure existing technical “and organisational resources rapidly and quickly” (p.407) to cope with new challenges. Therefore, these concepts (bricolage and adaptation) are similar in coping with challenges by focusing on available resources, making them important factors in MSMEs' resilience due to their limited resources.

Furthermore, an organization's ability to overcome challenges through innovation and change is seen as a human-driven process (Koronis & Ponis, 2018). Moreover, entrepreneurial bricolage behavior can increase innovation and facilitate adaptability of organizations (Fu et al., 2020; Yu et al., 2020) since it enables businesses to cope with resource constraints by focusing on available resources, refusing to endorse limitations, and utilizing creative recombination to acquire positional advantages and address unpredictable events (C. Li et al., 2015; Wu et al., 2020). Therefore, it is believed that organizations can overcome challenges, discover opportunities and increase their innovative capacity even with resource constraints (Senyard et al., 2014). Fu et al. (2020) showed that new ventures that employ a bricolage strategy experience higher growth and better performance in tourism and hospitality.

As a result, entrepreneurial bricolage behavior can generate new values by reallocating and recombining low-cost and ignored resources (Senyard et al., 2009), making it appropriate for MSMEs. In addition, it can generate opportunities to react creatively to emergent requirements (Yu et al., 2020) and increase the competitiveness of the business (Fu et al., 2020). Bricolage is also a critical behavior as it helps businesses access resources through their social relations inside and outside the company (Burgers et al., 2013). However, bricolage should be considered not only as “resource integration but rather a particular way of addressing challenges and opportunities” in organizations (Halme et al., 2012, p. 764).

Entrepreneurial bricolage behavior can be considered as a personal resource in the sense that it represents a valuable asset or capability possessed by an individual entrepreneur (Baker and Nelson (2005). It enables individuals to effectively address entrepreneurial challenges and seize opportunities in dynamic and uncertain environments. As a personal resource, bricolage behavior reflects individuals' cognitive processes and problem-solving skills. Within the framework of Social Cognitive Theory, entrepreneurial bricolage behavior can be

conceptualized as a personal factor that influences individuals' decision-making and behaviors, ultimately affecting the adoption of effectuation and causation. Therefore, it can be differentiated from organizational resourcefulness, which focuses more on the broader organizational level, by emphasizing an individual entrepreneur's skills.

As effectuation emphasizes and focuses on the resources at hand (Sarasvathy, 2001), managers' perception about their own ability to use low-cost and disregarded resources at hand to generate new value during a prolonged crisis can affect their choice of DML in favor of effectuation than causation in responding to a prolonged crisis' impacts and uncertainty. Thus, it is suggested that managers' entrepreneurial bricolage behavior can affect the adoption of effectual and causal DML differently, and the following research question and related hypotheses are advanced:

Research Question 3.2. Does managers' **entrepreneurial bricolage behavior** affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 3.2a: Entrepreneurial bricolage behavior has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 3.2b: Entrepreneurial bricolage behavior has a negative impact on the adoption of causal DML during a prolonged crisis.

4.3.2.2. Business Pre-crisis Performance – Organizational Level

Interviews findings provided evidence of the impact of a business' pre-crisis performance on the utilization of both effectuation and causation during a crisis, such as the prolonged COVID-19 pandemic.

Financial stability and pre-crisis savings played a crucial role. Managers who had diligently managed their finances and accumulated savings prior to the pandemic demonstrated a greater tendency towards planning, reflective of causal DML. Informants 4 and 6 emphasized:

> *We had saved some money. This allowed us to experiment with new menu items and delivery options without immediate financial problems (Informant 6, 40s, owner/manager at micro restaurant).*

> *We had a little bit deeper pockets than other people. So, I think maybe just the fact that being a bigger business where we have a*

> *little bit of more of a medium long-term focus helped (Informant 3, 50s, co-owner/manager at small/medium restaurant).*

Effective resource management and cost control were noted as attributes of well-performing businesses before the crisis. Managers with experience in optimizing resources demonstrated a blend of effectuation and causation, as articulated by one informant:

> *We always kept an eye on our inventory and cash flow. That experience helped us during the pandemic because we knew how to stretch our resources and cut costs without affecting quality (Informant 7, 40s, manager at small/medium restaurant).*

Informants also mentioned the importance of their business pre-crisis profitability in their crisis management actions. An informant mentioned the importance of reserved money in managing the COVID-19 pandemic consequences.

> *Now you need to have a bank account and put money in it for everything like COVID. You have to create a COVID account to keep some money. If something happens, you know you have like support to try to pay with like money for six months, for example. The money you never will touch. In case you need it (Informant 6, 40s, owner/manager at micro restaurant).*

In addition, some informants mentioned their pre-crisis business situation in terms of their performance, sales, and plans, and how these affected their responses to the crisis.

> *We were doing good before COVID-19, and it helped us to manage the first few weeks after COVID-19. Our performance gave us the confidence to focus on managing our cash flow and keep operating (Informant 1, 40s, manager at small/medium restaurant).*

> *Before the crisis, we were already experiencing a decline in sales. This pushed us to find new revenue streams to survive (Informant 4, 30s, owner/manager at micro restaurant).*

> *Our plans were working before COVID-19 started. We were discussing not to make big change in our operations to see how situation changes (Informant 7, 40s, manager at small/medium restaurant).*

Lower levels of debt prior crisis were advantageous when reallocating resources to address crisis-related expenses. A manager highlighted this by explaining:

> *One thing that made a difference for us was having relatively low debt compared to some other businesses in our industry. We had more flexibility in reallocating resources to address the new*

> *challenges (Informant 5, 30s, owner/manager at micro restaurant).*

Another informant noted, *"Our pre-crisis performance allowed us to adapt quickly and help us to make decisions and stick to our plans."* This highlights that a well-established foundation, created through a high pre-crisis performance, grants businesses the stability and confidence to plan and pursue their goals by using causation, as it aligns with their previous successful strategies.

In summary, these findings highlight the importance of a sound business performance before a crisis that results in better pre-crisis savings, profitability, cash reserves, and debt levels which in turn can affect the adoption of DML by managers. It is also in line with prior literature that emphasizes the importance of financial and non-financial resources affecting business resilience (Dahles & Susilowati, 2015; Orchiston et al., 2016; Pal et al., 2014; Ruiz-Martin et al., 2018). Consequently, it is proposed to add 'Business Pre-Crisis Performance' to the model as an organizational-level antecedent.

Within Social Cognitive Theory (Bandura, 1986), business pre-crisis performance can be conceptualized as an environmental factor at the organizational level that influences subsequent behavior. This theoretical perspective posits that individuals' behaviors and decision-making processes are shaped by their interactions with the environment, which includes both internal organizational factors and external contextual influences. In the case of business pre-crisis performance, it represents an internal organizational factor that reflects the organization's performance and preparedness before the onset of a crisis. This factor can serve as a crucial determinant of managers' cognitive processes and subsequent actions.

It is suggested that if businesses had experienced lower performance, managers may be more open to effectuation. They may recognize the need for adaptability and view the crisis as an opportunity to explore new avenues. Moreover, they may need to be creative and resourceful in finding ways to navigate the crisis, often leveraging existing assets or seeking out new partnerships and opportunities. On the other hand, if a business had a higher performance and profitability before the crisis, managers might prefer to adopt a causal DML by relying on proven strategies and established processes. They might prioritize risk aversion and aim to make more cautious decisions with deliberate planning involved. Thus, the following research question and related hypotheses are advanced:

Research Question 4.2: Does **business pre-crisis performance** affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 4.2a: Business pre-crisis performance has a negative impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 4.2b: Business pre-crisis performance has a positive impact on the adoption of causal DML during a prolonged crisis.

4.3.2.3. Perceived Government Support – Environmental Level

As discussed in section 2.3.3, in response to COVID-19, the Hong Kong government implemented measures to control the virus' spread. These measures, which included public-gathering restrictions, border controls, quarantine protocols, and remote work arrangements, negatively affected restaurants. To support affected industries and minimize the crisis' negative consequences and ensure their survival, the government introduced several rounds of relief measures and stimulus packages, such as the Anti-epidemic Fund (The Government of Hong Kong Special Administrative Region, 2023).

However, while government support was appreciated to some extent, some managers believed these supportive measures were insufficient to address the challenges faced by restaurants, as argued by the following informants:

> *If you ask any businessmen in Hong Kong or any employer, they would say that the support from the government is not enough (Informant 8, 50s, manager at small/medium restaurant).*
>
> *Their sponsorship [government support] is good for some people who cannot even pay for the rental, so is it helping? Yes, a little bit, but is it like solving the problem? I don't think so (Informant 5, 30s, owner/manager at micro restaurant).*
>
> *And then for the government, we really hoped that it would give us more subsidies, but we cannot ask for more. We have to wait and see how much they can, you know, try to help us (Informant 2, 30s, owner/manager at micro restaurant).*
>
> *The government tried to help us by providing some subsidies, but it was still very tough for us. The support was not sufficient to cover all our expenses and losses (Informant 4, 30s, owner/manager at micro restaurant).*

> *It's challenging because government funds can't fully cover the revenue we lost during the pandemic (Informant 7, 40s, manager at small/medium restaurant).*

Furthermore, managers' perception of how easily they could access government support affected their ability to make plans and decisions, and ultimately business resilience. In addition, they needed to consider different approaches to manage the situation based on their reactions to the changes.

> *For us, small businesses like us. How many full-time employees can we have? So, if you don't have full-time means that you don't have eligibility (Informant 5, 30s, owner/manager at micro restaurant)*

> *Maybe you get the money or not. Or you get it once but not the second time because you have to provide many documents. So that's why I don't want to do everything based on this [government support]. If we get it, it is OK, and thank you so much. If not, I have to keep trying to make a new menu, new ideas, everything! (Informant 6, 40s, owner/manager at micro restaurant).*

> *We applied for the government's funds, but it took some time to get approved (Informant 3, 50s, co-owner/manager at small/medium restaurant).*

In addition, government pandemic control regulations, the predictability of government actions and responses to COVID-19, and the effectiveness of government actions in supporting restaurants and dealing with the pandemic all played a role in shaping the choice between effectual and causal DML. When government actions were perceived as unpredictable or inconsistent, informants preferred to employ adaptive and flexible strategies, and focus on short-term plans and immediate responses. Therefore, the dynamic nature of government regulations can favor effectuation over causation. As one manager noted:

> *The ever-changing regulations were a real challenge. It was hard to predict what we could or couldn't do. We needed to be flexible and change our operations (Informant 7, 40s, manager at small/medium restaurant).*

In addition, the effectiveness of government actions and support often encouraged informants to adopt certain DML. For instance, if managers perceived government actions effective, they employed more structured and data-driven logic (causation). One manager noted:

> *Government support was crucial for us. It gave us the stability we needed to make decisions (Informant 3, 50s, co-owner/manager at small/medium restaurant).*

Moreover, a lack of support or inconsistent regulations needed a more adaptive, effectual approach. One manager noted:

> *"The regulations often seemed inconsistent with the real pandemic situation. We had to adapt and change what we were doing all the time (Informant 2, 30s, owner/manager at micro restaurant).*

> *Our planning, that's flexible. It is a back-and-forth process. This is more realistic than the linear approach that government is doing…There are a lot of other factors [about government's plans] that we don't understand. We're not a part of it (Informant 3, 50s, co-owner/manager at small/medium restaurant).*

In summary, perceived government support was identified by informants as another important environmental-level antecedent influencing the adoption of effectual and causal DML during a crisis. In view of this, relevant literature is reviewed next to further justify the inclusion of this antecedent in the proposed model (Figure 4.3) and advance relevant hypotheses.

Numerous studies have investigated governments' role in the performance and resilience of MSMEs during both normal and crisis times (Han et al., 2017; Nakku et al., 2020; Seow et al., 2021). Fernandes (2020) highlighted the importance of government policies to resolve liquidity problems in MSMEs during the pandemic. In addition, governments can enhance performance by improving infrastructure and promoting financial access for MSMEs (Ndiaye et al., 2018; Sheng et al., 2011; Wei & Liu, 2015). Yufra et al. (2022) also found that local government programs improve MSME performance directly and indirectly through resilience. Moreover, government support positively impacts business survival through marketing and process innovation (Najib et al., 2021).

Government support is an important factor for the survival and resilience of MSMEs during a crisis (Ganlin et al., 2021; Salem et al., 2021; Seow et al., 2021; Uzkurt et al., 2023; Yufra et al., 2022) since it can facilitate resilience development and performance. For example, Zutshi et al. (2021) found that government support is necessary for resilience building in the face of the COVID-19 pandemic. Moreover, Messabia et al. (2022) investigated the support provided by the Canadian Federal Government and the Quebec Provincial Government during the COVID-19 pandemic. Their findings revealed that strict eligibility criteria for accessing

government funding did not align with the practical challenges that managers faced during COVID-19.

Goktan and Breeze (2021) suggested that industry regulation, as a contextual factor, can affect the four underlying constructs of effectuation (i.e., flexibility, experimentation, affordable-loss, and pre-commitments). They believe employing effectuation in highly regulated environments is challenging due to the strict rules and regulations that control operations. Therefore, there is not enough flexibility and ability to experiment with different services or processes in a regulated environment. Also, implementing short-term plans becomes problematic as entrepreneurs may have time-consuming procedures to follow (Goktan & Breeze, 2021). Moreover, government actions and coordination play a crucial role in helping companies thrive with limited resources. The government can support MSMEs by providing external financing support, training and development programs, technological assistance, and tax incentives (Ganlin et al., 2021).

Therefore, Perceived Government Support, within the framework of Social Cognitive Theory, represents an external environmental factor (Seow et al., 2021; Uzkurt et al., 2023; Yufra et al., 2022), reflecting managers' subjective assessments of the extent to which government entities provide assistance, guidance, or resources during times of crisis or uncertainty. This perception influences managers' cognitive processes, decision-making and behavior. According to Social Cognitive Theory, individuals are more likely to engage in behaviors they perceive as effective in achieving desired outcomes when they believe they possess the necessary support and resources. In the context of DML, perceived government support can shape managers' confidence in their ability to effectively respond to crises, influencing their strategic choices.

Managers may perceive higher levels of government support as reducing the need for entrepreneurial experimentation and risk-taking. This perception of external assistance may diminish the sense of urgency and necessity for creative problem-solving and resourcefulness that are central to effectuation decision-making (Sarasvathy, 2001). Conversely, in the context of causation, higher levels of perceived government support may reinforce managers' confidence in their ability to execute predetermined plans and strategies. Perceived government assistance may provide a sense of stability and predictability, encouraging managers to adhere to established procedures and routines (Sarasvathy, 2001).

Thus, the following research question and related hypotheses are advanced:

Research Question 5.2: Does managers' perception of **government support** affect the adoption of effectual/causal decision-making logic during a prolonged crisis?

Hypothesis 5.2a: Perceived government support has a negative impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 5.2b: Perceived government support has a positive impact on the adoption of causal DML during a prolonged crisis.

In the next section, entrepreneurial self-efficacy is discussed as a potential factor moderating the effects of organizational and environmental level factors on the adoption of effectual/causal DML.

4.3.3. Moderator - Entrepreneurial Self-Efficacy

While the adoption of effectuation or causation by managers is influenced by environmental and organizational factors, interviews revealed that personal characteristics of managers, such as confidence in their ability to accomplish entrepreneurial tasks and activities, can play a moderating role in the impact of other factors on the decision to adopt either effectuation or causation. Table 4.4 illustrates identified factor (Entrepreneurial Self-Efficacy) from interviews that may moderate the effects of other organizational and environmental level antecedents on the adoption of adoption of effectual/causal DML.

Managers who had confidence in their entrepreneurial abilities believed the pandemic or other environmental factors could not stop them from achieving their goals. As Informant 5 mentioned:

> *I felt like the COVID-19 pandemic... It's something that won't stop me. I believed it was a good opportunity to challenge myself and I knew I can do it and survive (Informant 5, 30s, owner/manager at micro restaurant).*

In addition, restaurant managers who exhibit higher self-efficacy often believed in their own ability to identify opportunities. Entrepreneurial self-efficacy empowered managers to actively seek and recognize business opportunities, even during crises, as evidenced by the following comments:

> *I think that in any crisis, opportunities exist if you look enough. It is about our ability to identify them (Informant 4, 30s, owner/manager at micro restaurant).*

> *You might have missed the boat, might have missed those opportunities [during a crisis]. As soon as one change or one restriction comes in from the government, we react to them the next day, and that is why we succeeded. That is why I believe we can do whatever we want without being worried about what will be the next change (Informant 1, 40s, manager at small/medium restaurant).*

Table 4.4 *Sample of Interviewees' Comments on Entrepreneurial Self-Efficacy*

Category	Sub-Categories	Sub-Theme	Representative Comment
Moderator	**Entrepreneurial Self-Efficacy**	Confidence	I felt like the COVID-19 pandemic... It's something that won't stop me. I believed it was a good opportunity to challenge myself and I knew I can do it and survive (Informant 5, 30s, owner/manager at micro restaurant).
		Opportunity identification	I think that in any crisis, opportunities exist if you look enough. It is about our ability to identify them (Informant 4, 30s, owner/manager at micro restaurant).
		Risk management capability	"I have been confident in my ability to manage risks. It is part of being a businessman. I always control uncertain situations no matter what it is (Informant 8, 50s, manager at small/medium restaurant).
		Implementing plans	We never have a complete plan. It is not only about having a perfect plan. But I can make it [any plan] work (Informant 6, 40s, owner/manager at micro restaurant).
		Individual adaptability	I believe I can adapt to any situation. If I can adapt, my business can adapt to the changing environment too (Informant 3, 50s, co-owner/manager at small/medium restaurant).
		Responsibility	My team was important in adapting to new safety protocols and finding ways to handle takeout and delivery services. But everything was changing fast, and I relied on my experience and skills. I was responsible to guide my team (Informant 2, 30s, owner/manager at micro restaurant).

In addition, informants' strong belief in their capability to manage risk and uncertainty can positively moderate the impact of environmental uncertainty on adopting effectual or causal DML. Informant 8 mentioned:

> *"I have been confident in my ability to manage risks. It is part of being a businessman. I always control uncertain situations no matter what it is (Informant 8, 50s, manager at small/medium restaurant).*

Moreover, informants expressed a belief in the significance of plan implementation and their own capability to execute plans. This underscores the notion that self-efficacy can act as a moderating factor, influencing the effects of other situational factors on managers' DML, regardless of the evolving nature of crisis situations. In addition, a high degree of self-efficacy in being adaptable can moderate the impact of environmental uncertainty, as informants noted:

> *We never have a complete plan. It is not only about having a perfect plan. But I can make it [any plan] work (Informant 6, 40s, owner/manager at micro restaurant).*
>
> *I believe I can adapt to any situation. If I can adapt, my business can adapt to the changing environment too (Informant 3, 50s, co-owner/manager at small/medium restaurant).*
>
> *My employees are important, money is important, suppliers are important, but I know that I can manage this situation if something goes wrong (Informant 2, 30s, owner/manager at micro restaurant).*
>
> *I'm a little bit confident with my side. For example, I had difficult times. I mean, it was not very easy for me to start this business. So that's why I don't feel scared with this one because I can handle it (Informant 6, 40s, owner/manager at micro restaurant).*

In addition, informants mentioned that they were the ones who were responsible for making decisions and managing the restaurants.

> *My team was important in adapting to new safety protocols and finding ways to handle takeout and delivery services. But everything was changing fast, and I relied on my experience and skills. I was responsible to guide my team (Informant 2, 30s, owner/manager at micro restaurant).*

Therefore, it is identified that managers' confidence in their abilities to perform different entrepreneurial tasks (entrepreneurial self-efficacy) can moderate the magnitude of other organizational (business pre-crisis performance and perceived employee resilience) and environmental factors' (environmental uncertainty and government support) effects on the adoption of effectuation or causation. In view of this, relevant literature is reviewed next to further justify the inclusion of entrepreneurial self-efficacy as moderator in the proposed model (Figure 4.3) and advance relevant hypotheses.

Self-efficacy, as people's belief and expectation in their ability to accomplish a set of tasks and activities (Bandura et al., 1999), plays a crucial role in the entrepreneurial process

(Engel et al., 2014; Y. Zhang et al., 2019). Hallak et al. (2015) argue these tasks can include various activities, from developing a new product or market opportunity to defining core business purpose and coping with unexpected events. In addition, Schmitt et al. (2018) that entrepreneurial self-efficacy "acts as a personal resource that helps entrepreneurs to transform increasing perceptions of uncertainty into exploration and opportunity identification" (p. 835). As a result, it positively impacts the performance of small and medium-sized tourism enterprises (Hallak et al., 2015).

Studies have investigated the impacts of self-efficacy on entrepreneurs' decision-making logic (Engel et al., 2014; Y. Zhang et al., 2019). For instance, self-efficacy is considered as an individual-level antecedent of DML (Engel et al., 2014; Y. Zhang et al., 2019), which can accelerate heuristic thinking and improve entrepreneurs' belief in their ability to shape the environment (Busenitz & Barney, 1997). Also, studies show that entrepreneurial self-efficacy impacts the effectual DML directly and indirectly through opportunity framing (Engel et al., 2014). In addition, entrepreneurial self-efficacy strengthens the perception of control over opportunities (D'andria et al., 2018; Hallak et al., 2015).

Moreover, novice entrepreneurs with higher entrepreneurial self-efficacy are more likely to use effectuation under uncertainty (Engel et al., 2014). Therefore, managers with higher levels of self-efficacy are likely to consider unexpected events as a source of opportunity (S. D. Sarasvathy & Dew, 2008) and use effectuation to manage a crisis (Stroe et al., 2018). Furthermore, self-efficacy shapes the judgment process through which individuals interpret outcomes (Sayegh et al., 2004). Therefore, it allows entrepreneurs to develop the confidence to take risks, deal with adversity, and pursue necessary tasks to be successful (Hallak et al., 2015). Hinz (2017) suggested that people with higher entrepreneurial self-efficacy are better at forming partnerships, exploiting contingencies, addressing affordable loss, and using experimentation.

Stroe et al. (2018) believe that self-efficacious entrepreneurs are more likely to focus on the future and design and plan scenarios that guide their actions. So, they commit to planning more than entrepreneurs with lower self-efficacy. Therefore, self-efficacy can also lead to causation, as scholars believe that managers with high levels of self-efficacy set higher goals for themselves and their businesses, and are more persistent in their efforts to achieve these goals (Erikson, 2002). It is argued that managers develop the confidence to take risks, set higher objectives, deal with adversity, and pursue tasks required to succeed in business. It also affects entrepreneurs' capabilities in dealing with challenges and uncertainties associated with the day-

to-day running of a business (Hallak et al., 2015). Entrepreneurial self-efficacy offers the level of confidence that might make entrepreneurs believe that they can predict the outcomes of their venture activities (Bandura et al., 1999), reducing the effects of response uncertainty on the adoption of their DML. Perceived self-efficacy is considered a crucial part of practical managerial techniques such as goal-setting and performance feedback (Locke et al., 1984), leading to the adoption of causation (Stroe et al., 2018).

Literature on antecedents of the adoption of effectuation shows the importance of interactions among factors (e.g., Stroe et al., 2018). So, several conditions can be sufficient for the presence of causal or effectual DML, and various factors can interplay and affect the final DML in real situations. For example, although environmental and organizational factors affect managers' choice of DML during a prolonged crisis, their confidence in their own abilities to perform entrepreneurship-related tasks, such as the financial, marketing, management, and risk-taking aspects (Peng et al., 2015) can play a vital role that may moderate the effects of antecedents.

Therefore, entrepreneurial self-efficacy was incorporated into the proposed model to examine its moderating effects on the relationships between organizational and environmental-level antecedents and effectual/causal decision-making logic.

The theory of planned behavior is arguably the most predominant concept in determining entrepreneurial behavior due to its logical ability to predict individuals' entrepreneurial behavior. According to Ajzen (1991), the theory of planned behavior is grounded in three underlying predictors of human behavior. This includes subjective norms, attitude towards behavior, and perceived control over the behavior. Ajzen (1991) stated that the concept of perceived behavioral control is most compatible with perceived self-efficacy which influences behavioral actions. Drawing on Ajzen's (1991) theory of planned behavior, entrepreneurial self-efficacy captures individuals' perceptions that they are able to handle given situations (perceived behavioral control).

Studies have shown that entrepreneurial self-efficacy can act as a moderator of other predictors on entrepreneurial outcomes. Gielnik et al. (2017) found that entrepreneurial self-efficacy sustains the positive influence of entrepreneurship training on entrepreneurial passion over time, which in turn fosters business creation. Fitzsimmons and Douglas (2011) demonstrated that individuals with low levels of perceived desirability still develop intentions to act entrepreneurially when they perceived themselves capable of doing so (high levels of

entrepreneurial self-efficacy). Ahlin et al. (2014) discovered that entrepreneurial self-efficacy moderates the link between creativity and both product and process innovation. In addition, Brinckmann and Kim (2015) theorize that entrepreneurial self-efficacy enhances belief in one's ability to plan and derive benefits from a formal plan. While they found that entrepreneurs with high entrepreneurial self-efficacy were no more likely to engage in planning, those who did were more likely to formalize a written plan.

In addition, drawing upon Social Cognitive Theory, which posits that individual behaviors are influenced by the dynamic interplay of personal, environmental, and behavioral factors (Bandura, 1986), entrepreneurial self-efficacy emerges as a critical determinant that can moderate the effects of contextual and environmental factors on the adoption of effectuation and causation.

Entrepreneurial self-efficacy acts as a moderator, shaping the strength and direction of the relationship between contextual and environmental factors and decision-making logics. High levels of entrepreneurial self-efficacy enhance the positive effects of contextual factors, leading to a more pronounced adoption of effectuation or causation. Conversely, low self-efficacy may diminish the impact of positive contextual factors and increase negative effects of organizational and environmental factors, resulting in a decreased tendency to adopt effectual or causal decision-making logics.

For instance, entrepreneurs with high self-efficacy are more adept at seeking and securing financial resources and attracting stakeholders (Kickul et al., 2009). In addition, individuals with self-efficacy can work in any obstacle situation to expand the resources base (set of means; Kickul & D'Intino, 2005; Kickul et al., 2009). In the context of effectuation, this aligns with the principle of "leveraging contingencies" where entrepreneurs utilize existing resources and relationships to pursue opportunities. In contrast, in the context of causation, this relates to the principle of "leveraging control" where entrepreneurs actively seek external resources to implement predetermined plans and strategies (Bandura & Wessels, 1994; Chen et al., 1998).

Hsu and colleagues (2017) found that entrepreneurial self-efficacy of entrepreneurs after exiting their ventures moderated the relationship between perceived financial performance and subsequent entrepreneurial intentions, in such a way that the higher the entrepreneurial self-efficacy, the weaker the negative relationship between perceived financial performance and subsequent entrepreneurial intention. Therefore, it is suggested that

entrepreneurial self-efficacy moderates the effects of business pre-crisis on the adoption of effectuation and causation. It may weaken the negative impact of business pre-crisis performance on the adoption of effectuation by fostering a belief in one's ability to overcome challenges and pursue opportunities regardless of current limitations. In causation, high self-efficacy may similarly mitigate the influence of business pre-crisis performance by introducing confidence in executing predetermined plans and strategies despite financial setbacks.

Thus, the following research questions and related hypotheses are advanced:

Research Question 6.1: Does entrepreneurial self-efficacy moderate the impact of perceived employee resilience on the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 6.1a: Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.1b: Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of causal DML during a prolonged crisis.

Research Question 6.2: Does entrepreneurial self-efficacy moderate the impact of business pre-crisis performance on the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 6.2a: Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.2b: Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of causal DML during a prolonged crisis.

Research Question 6.3: Does entrepreneurial self-efficacy moderate the impact of perceived government support on the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 6.3a: Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.3b: Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of causal DML during a prolonged crisis.

Research Question 6.4: Does entrepreneurial self-efficacy moderate the impact of perceived environmental uncertainty on the adoption of effectual/causal DML during a prolonged crisis?

State Uncertainty:

Hypothesis 6.4a: Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.4b: Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of causal DML during a prolonged crisis.

Effect Uncertainty:

Hypothesis 6.4c: Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.4d: Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of causal DML during a prolonged crisis.

Response Uncertainty:

Hypothesis 6.4e: Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.4f: Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of causal DML during a prolonged crisis.

Figure 4.1 illustrates all antecedents of the adoption of DML investigated in this study.

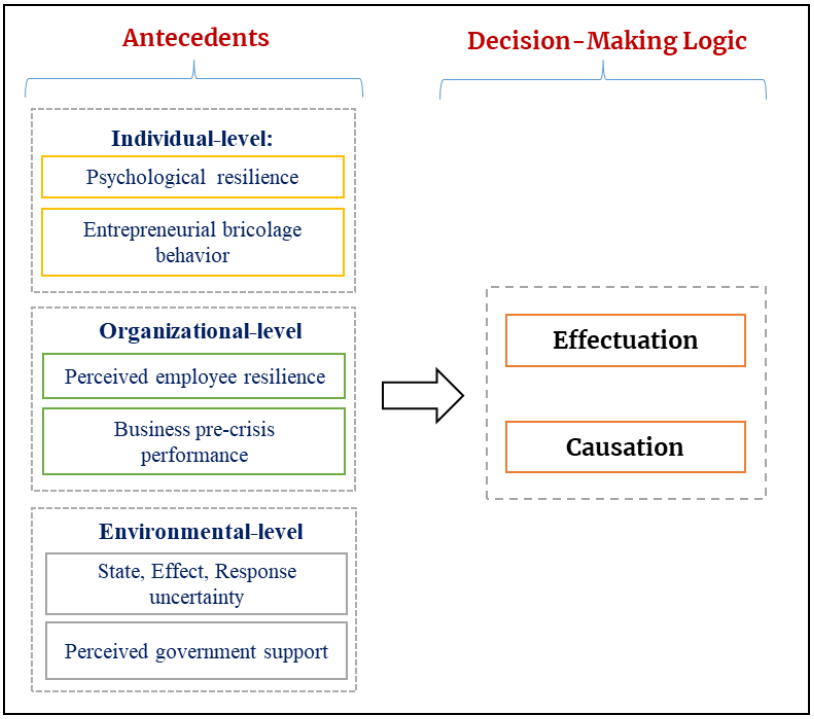

Figure 4.1 *Antecedents of Effectual/Causal DML at Three Levels*

4.4. Final Conceptual Model

In chapter 3, an initial conceptual model was proposed, as reproduced in Figure 4.2.

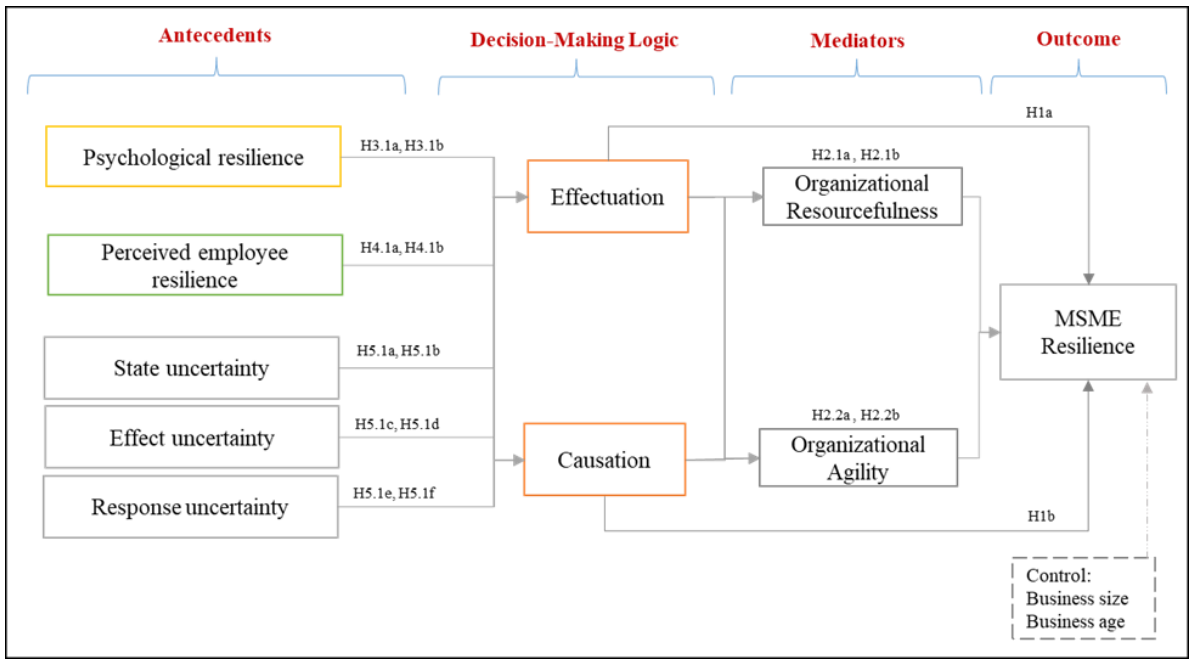

Figure 4.2 *Preliminary Conceptual Framework*

Based on the interview findings, four main changes were made regarding the conceptual model:

1) Entrepreneurial bricolage behavior was incorporated into the model as an individual-level antecedent.
2) Business pre-crisis performance was incorporated into the model as an organizational-level antecedent.
3) Perceived government support was incorporated into the model as an environmental-level antecedent.
4) As for moderating factor, entrepreneurial self-efficacy was incorporated into the conceptual model as a potential factor that can moderate the relationship between organizational and environmental level antecedents and effectual/causal DML.

The final conceptual model, shown in Figure 4.3, details the relationships between all variables, while Table 4.5 summarizes the broad research issues, specific research questions and corresponding hypotheses that guide this research.

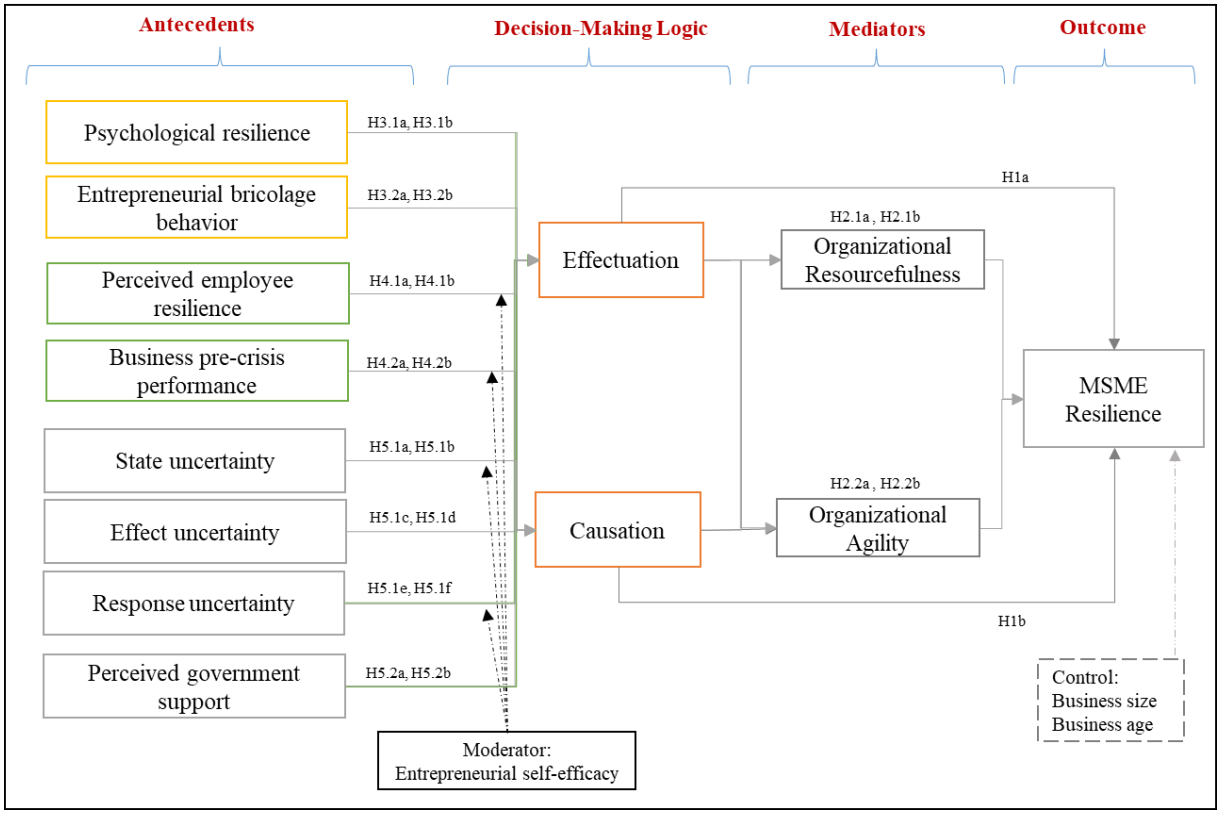

Figure 4.3 *Final Conceptual Model*

Table 4.5 *Summary of Research Questions and Hypotheses*

Research Issue 1: centers on the direct and indirect impacts of DML on MSME resilience.

RQ1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?

Research Question 1a: Does effectual DML lead to high levels of resilience in MSMEs during a prolonged crisis?

Hypothesis 1a: Managers' effectual DML has a positive direct impact on MSME resilience during a prolonged crisis.

Research Question 1b: Does causal DML lead to low levels of resilience in MSMEs during a prolonged crisis?

Hypothesis 1b: Managers' causal DML has a negative direct impact on MSME resilience during a prolonged crisis.

RQ2: What are the indirect impacts (mediators) of effectual/causal DML on MSME resilience during a prolonged crisis?

Research Question 2.1: Does organizational resourcefulness mediate the relationship between managers' effectual/causal DML and MSME resilience during a prolonged crisis?

Hypothesis 2.1a: Organizational resourcefulness mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.

Hypothesis 2.1b: Organizational resourcefulness mediates the relationship between causal DML and MSME resilience during a prolonged crisis.

Research Question 2.2: Does organizational agility mediate the relationship between managers' effectual/causal DML on MSME resilience during a prolonged crisis?

Hypothesis 2.2a: Organizational agility mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.

Hypothesis 2.2b: Organizational agility mediates the relationship between causal DML and MSME resilience during a prolonged crisis.

Research Issue 2: centers on the antecedents of the adoption of Effectual/Causal DML.

RQ3: What individual-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

Research Question 3.1: Does psychological resilience of managers affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 3.1a: Psychological resilience of managers has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 3.1b: Psychological resilience of managers has a negative impact on the adoption of causal DML during a prolonged crisis.

Research Question 3.2. Does managers' *entrepreneurial bricolage behavior* affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 3.2a: Entrepreneurial bricolage behavior has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 3.2b: Entrepreneurial bricolage behavior has a negative impact on the adoption of causal DML during a prolonged crisis.

RQ4: What organizational-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

Research Question 4.1: Does managers' perception of their *employee resilience* affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 4.1a: Perceived employee resilience has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 4.1b: Perceived employee resilience has a negative impact on the adoption of causal DML during a prolonged crisis.

Research Question 4.2: Does *business pre-crisis performance* affect the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 4.2a: High business pre-crisis performance has a negative impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 4.2b: High business pre-crisis performance has a positive impact on the adoption of causal DML during a prolonged crisis.

RQ5: What environmental-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

Research Question 5.1: Does managers' perception of *environmental uncertainty* (state, effect, and response uncertainty) affect the adoption of effectual/causal decision-making logic during a prolonged crisis?

State Uncertainty:

Hypothesis 5.1a: Perceived state uncertainty has a positive impact on the adoption of effectual DML a prolonged crisis.

Hypothesis 5.1b: Perceived state uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.

Effect Uncertainty:

Hypothesis 5.1c: Perceived effect uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 5.1d: Perceived effect uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.

Response Uncertainty:

Hypothesis 5.1e: Perceived response uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 5.1f: Perceived response uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.

Research Question 5.2: Does managers' perception of *government support* affect the adoption of effectual/causal decision-making logic during a prolonged crisis?

Hypothesis 5.2a: Perceived government support has a negative impact on the adoption of effectual DML during a prolonged crisis.

Hypothesis 5.2b: Perceived government support has a positive impact on the adoption of causal DML during a prolonged crisis.

Research Issue 3: centers on the moderation of impacts of antecedents on effectual/causal DML.

RQ6: What can moderate the impacts of organizational and environmental level antecedents on the adoption of effectual/causal DML during a prolonged crisis?

Research Question 6.1: Does *entrepreneurial self-efficacy* moderate the impact of perceived employee resilience on the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 6.1a: Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.1b: Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of causal DML during a prolonged crisis.

Research Question 6.2: Does entrepreneurial self-efficacy moderate the impact of business pre-crisis performance on the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 6.2a: Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.2b: Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of causal DML during a prolonged crisis.

Research Question 6.3: Does *entrepreneurial self-efficacy* moderate the impact of perceived government support on the adoption of effectual/causal DML during a prolonged crisis?

Hypothesis 6.3a: Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.3b: Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of causal DML during a prolonged crisis.

Research Question 6.4: Does *entrepreneurial self-efficacy* moderate the impact of perceived environmental uncertainty on the adoption of effectual/causal DML during a prolonged crisis?

State Uncertainty:

Hypothesis 6.4a: Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.4b: Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of causal DML during a prolonged crisis.

Effect Uncertainty:

Hypothesis 6.4c: Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.4d: Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of causal DML during a prolonged crisis.

Response Uncertainty:

Hypothesis 6.4e: Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of effectual DML during a prolonged crisis.

Hypothesis 6.4f: Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of causal DML during a prolonged crisis.

4.5. Chapter Summary

Chapter 4 reported on the qualitative research (study 1), and provided insights into managers' experiences and their business responses during COVID-19. First, the findings of in-depth interviews not only provided initial support for the use of effectual/causal DML by managers, but also identified entrepreneurial bricolage behavior, business pre-crisis

performance and perceived government support as three additional antecedents that may influence the adoption of DMLs by managers. Second, entrepreneurial self-efficacy was found to be a personal level characteristic of managers which can moderate the effects of organizational and environmental-level antecedents on the adoption of effectual/causal DML. This chapter concluded with the final conceptual model and a summary table of all research issues, questions and corresponding hypotheses that guide the next phase of this research.

Building on the results from the qualitative research (Study 1), the pilot test and main survey (Study 2) were conducted to empirically test the proposed relationships, using advanced statistical methods. Chapter 5 reports on Study 2, including its methodology, data analysis and results.

5. CHAPTER FIVE: QUANTITATIVE STUDY – SURVEY

5.1. Introduction

Chapter 4 presented findings of the qualitative research (study 1) that explored managers' experiences during the COVID-19 pandemic. In-depth interviews not only offered initial support for the use of effectual/causal DML by managers but also uncovered additional potential antecedents, including 1) entrepreneurial bricolage behavior, 2) business pre-crisis performance, and 3) perceived government support, that were incorporated into the final conceptual model. Furthermore, entrepreneurial self-efficacy emerged as a personal-level characteristic of managers that could moderate the effects of organizational and environmental-level antecedents on the adoption of effectual/causal DML. The chapter concluded by presenting the final conceptual model and corresponding hypotheses.

Chapter 5 focuses on the consequent quantitative research, first detailing the method adopted, followed by highlighting key results of the pilot-test and main survey. Employing Partial Least Square Structural Equation Modeling (PLS-SEM), study 2 aims to empirically test the conceptual model and corresponding hypotheses presented in chapter 4 (Figure 4.3).

5.2. Methodology

In the second study of this thesis, quantitative research was conducted to examine the impact of identified antecedents at various levels on the adoption of effectual/causal DMLs, namely at individual level (psychological resilience and entrepreneurial bricolage behavior), organizational level (perceived employee resilience and business pre-crisis performance), and environmental level (perceived environmental uncertainty and perceived government support). In addition, the study aimed to test the direct and indirect effects of effectual/causal DMLs on the resilience of MSMEs.

Quantitative research operates as an objective method of inquiry, relying on measurable aspects of social reality. It primarily employs deductive testing of objective theories, examining the connections among quantifiable variables by using structured instruments comprising sets of questions (Creswell, 2012).

The pilot test was designed and administered to serve several purposes, namely to: 1) evaluate the feasibility and effectiveness of the survey instrument designed for this study; 2)

identify any potential issues that may arise during the main data collection phase and refine the survey instrument accordingly; and 3) evaluate reliability and validity of measurement scales.

The purpose of the main survey was to test the impacts of proposed antecedents on the adoption of DMLs, and direct and indirect impacts of DMLs on the resilience of MSMEs through organizational resourcefulness and agility, employing structural equation modeling. Data were statistically analyzed to ascertain if they support the advanced hypotheses.

Next, key considerations related to the sample, instrument, data collection procedures, and data analyses method are discussed.

5.2.1. Sample

5.2.1.1. General Considerations

This study examines the effects of the proposed constructs in the context of the restaurant industry in Hong Kong. Thus, the target population is owner/managers representing their MSME restaurants in Hong Kong.

The initial step involved designing a sampling population, described as "a collection of elements about which we wish to make an inference" (Scheaffer et al., 2011, p. 8). In quantitative studies, the inferential approach aims to design a database from which characteristics or relationships of the population can be inferred (Kothari, 2004). Ensuring a representative sample is crucial for obtaining an accurate understanding of the population under study (Short et al., 2002). According to Kerlinger (1986), a representative sample should closely reflect the relevant characteristics of the population in the context of the research.

Therefore, there was a focus on ensuring the representativeness in terms of restaurant size and locations, the adequacy of the sample size, and potential sampling errors in order to obtain a representative sample. Drawing samples from a diverse range of restaurants across different districts and varying in size (micro, small and medium) was considered essential. This approach was adopted to guarantee that survey results could be effectively extrapolated to the population.

5.2.1.2. Sample Frame

The process of developing a comprehensive sampling frame and approaching samples involved considering various means and practical aspects. One critical consideration was evaluating the potential advantages and biases associated with different survey methods, such as

face-to-face, mail, or online surveys. While it was feasible to use restaurant directories as a sampling frame, they lacked crucial details like contact people's names, mailing and email addresses. Moreover, mail, email, and online surveys, when lacking a willing-to-participate population, often result in low response rates, contributing to high non-response bias (Couper, 2000). To address these challenges, a face-to-face survey approach was adopted.

The identification of the sample frame was facilitated through collaboration with a local market research company. This company was selected from a list of available companies based on its reputation, access to information about the target population, the required timeframe for data collection, and cost considerations. This strategy proved advantageous as it facilitated an efficient and effective approach to target respondents, considering the language barriers faced by the researcher. Consequently, the research process was streamlined, ensuring a timely and efficient data collection process.

The researcher provided comprehensive briefings to the company representatives through two pre-data collection meetings. During these sessions, the study objectives were explained, and all inquiries were addressed. This approach ensured that company representatives were well-informed about the research objectives and fostered a clear understanding of the survey questions and requirements to address any potential queries during the face-to-face interviews.

The following criteria were used in selecting eligible restaurants:

5. Restaurants must be categorized under the MSMEs definition by the Hong Kong government, referring to manufacturing businesses that employ fewer than 100 persons or any non-manufacturing business that employs fewer than 50 persons. Micro-enterprises are businesses that employ fewer than ten people (SUCCESS, 2022). Thus, restaurants with less than 50 employees were eligible for participation in this study.
6. Since this study investigated managers' DML and MSME resilience in response to COVID-19, only restaurants that were established prior to the COVID-19 pandemic, that is, prior to January 2020, were eligible.
7. Restaurants had to be independent or privately owned, as these enterprises are less resilient (Neise et al., 2021). In addition, chain restaurants go out of business less often than individual restaurants (H. G. Parsa et al., 2011). Moreover, independent, or privately owned restaurants are entrepreneurial enterprises, where the DML of managers/owners can play a significant role in their business directions.

8. Only restaurants with registered general restaurant licenses were selected in this study. Under the Food Business Regulation in Hong Kong, a general restaurant license permits the licensee to sell any kind of food for consumption on the premises (FEHD, 2022).

The criteria for selection remained consistent with those employed for the interviews conducted in Study 1.

5.2.1.3. Sample Size

Determination of the sample size was influenced primarily by the chosen data analysis method, and to a lesser extent also by pragmatic considerations such as timeline and budget constraints. Estimation of a minimum sample size followed the guidelines suggested for Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. Several methods are employed in PLS-SEM sample size estimation, with the "10-times rule" method being widely used (J. F. Hair et al., 2011). This rule suggests that the sample size should be greater than 10 times the maximum number of inner or outer model links pointing at any latent variable in the model. Despite its simplicity, the "10-times rule" has been criticized for its tendency to produce inaccurate estimates (Goodhue et al., 2012). In response to this, Kock and Hadaya (2018) proposed two alternative methods for minimum sample size estimation in PLS-SEM: the inverse square root method and the gamma-exponential method. Through Monte Carlo experiments, they demonstrated the accuracy of both methods, with the inverse square root method particularly appealing due to its simplicity of application. Consequently, this method was used to determine the minimum sample size required for PLS-SEM path models. According to the inverse square root method guidelines, if researchers do not have information about the value of the path coefficient with the minimum absolute magnitude, the minimum sample size required for PLS-SEM analysis would be 160 (Kock & Hadaya, 2018).

Pilot test data, consisting of 53 total responses, yielded 44 valid responses and were collected in February 2023. Subsequently, the main survey, conducted in May and June 2023, generated a total of 345 responses, out of which 312 were deemed valid. Therefore, 9 responses were discarded from the pilot test, and 33 responses were discarded from the main survey due to quality check criteria such as incorrect responses to attention-check questions, straight-lining, and missing data.

5.2.2. Instrument

5.2.2.1. Questionnaire Development

Quantitative data were collected through a survey questionnaire. Several factors such as a user-friendly format, means to check response quality and avoid set bias were considered during questionnaire development (Oppenheim, 1992).

The survey had five main sections that contained questions relating to: 1) restaurant characteristics, 2) environmental aspects (environmental uncertainty and perceived government support), 3) effectuation and causation, 4) business aspects (organizational resilience, perceived employee resilience, business pre-crisis performance, organizational resourcefulness, and organizational agility), 5) managers as individuals (psychological resilience, entrepreneurial bricolage behavior, and self-efficacy), and 6) demographics. A copy of the questionnaire is provided in Appendix B.

In social science research, various measurement scales are employed to gather data and assess phenomena, including the Likert Scale and Semantic Differential Scale. The Likert scale provides a structured format that allows respondents to express their level of agreement or disagreement with a statement, making it particularly suitable for measuring the statements in the current study. Therefore, the 5-point Likert scale was adopted in the current study over other scale types since it can measure attitudes, opinions, or perceptions of respondents (Preston & Colman, 2000). In the questionnaire, managers were provided with different scale categories to provide their level of agreement, frequency of actions, and their confidence level regarding construct items. Table 5.1 illustrates all constructs and their respective items, corresponding sources, and measurement scale categories that were used to measure them.

To ensure the quality of responses, the questionnaire incorporated five attention-check questions dispersed among items in various sections. Respondents were instructed to choose a specific number on the scale, as exemplified by the item “Please select number 2.” This measure was implemented to assess respondents' attentiveness to the questions, identify random selections, and enhance the overall reliability of responses. In addition, recognizing the influence of the number of measurement items on survey completion time, a minimum duration of 12 minutes for completing the survey was established.

Table 5.1 *Measurements in Pilot Test and Main Survey*

Constructs	Measurements in the Pilot Test	Measurements in the Main Survey
Effectuation (EDML) (Chandler et al., 2011)	During COVID-19,	During COVID-19,
	(EX1) We experimented with different products and business models in our crisis responses.	(EX1) We experimented with different products and business models in our crisis responses.
Experimentation (EX) Scale: *strongly disagree/strongly agree*	(EX2) The product/service that we now provide is essentially the same as originally conceptualized. ®	(EX2) The product/service that we now provide is essentially the same as originally conceptualized. ®
	(EX3) The product/service that we now provide is substantially different than we first imagined.	(EX3) The product/service that we now provide is substantially different than we first imagined.
	(EX4) We tried a number of different approaches until we found a business model that worked.	(EX4) We tried a number of different approaches until we found a business model that worked.
Affordable Loss (AL) Scale: *strongly disagree/strongly agree*	During COVID-19,	During COVID-19,
	(AL1) We were careful not to commit more resources than we could afford to lose.	(AL1) We were careful not to commit more resources than we could afford to lose.
	(AL2) We were careful not to risk more money than we were willing to lose with our initial idea.	(AL2) We were careful not to risk more money than we were willing to lose with our initial idea.
	(AL3) We were careful not to risk so much money that the company would be in real trouble financially if things did not work out.	(AL3) We were careful not to risk so much money that the company would be in real trouble financially if things did not work out.
Flexibility (FL) Scale: *strongly disagree/strongly agree*	During COVID-19,	During COVID-19,
	(FL1) We allowed the business to evolve as opportunities emerged.	(FL1) We allowed the business to evolve as opportunities emerged.
	(FL2) We adapted the way of using the resources we had.	(FL2) We adapted the way of using the resources we had.
	(FL3) We were flexible and took advantage of opportunities when they arose.	(FL3) We were flexible and took advantage of opportunities when they arose.
	(FL4) We avoided actions that restricted our flexibility and adaptability.	(FL4) We avoided actions that restricted our flexibility and adaptability.
Pre-Commitments (PC) (Chandler et al., 2011; Frese et al., 2020) Scale: *strongly disagree/strongly agree*	During COVID-19,	During COVID-19,
	(PC1) We used a large number of agreements with customers, suppliers, and other organizations and people to reduce the amount of uncertainty.	(PC1) We used a large number of agreements with customers, suppliers, and other organizations and people to reduce the amount of uncertainty.
	(PC2) We used pre-commitments from customers and suppliers as often as possible.	(PC2) We used pre-commitments from customers and suppliers as often as possible.
	(PC3) We approached customers and suppliers actively to coordinate business opportunities.	(PC3) We approached customers and suppliers actively to coordinate business opportunities.
	(PC4) Our decisions have been coordinated with customers and suppliers.	(PC4) Our decisions have been coordinated with customers and suppliers.
Global Item	(GI) We leveraged available resources, experimented with several products/services, assessed affordability, and engaged in collaborative efforts to navigate changing situations.	We leveraged available resources, experimented with several products/services, assessed affordability, and engaged in collaborative efforts to navigate changing situations.

Constructs	Measurements in the Pilot Test	Measurements in the Main Survey
Causation (CDML) (Chandler et al., 2011) Scale: *strongly disagree / strongly agree*	During COVID-19, (CA1) We analyzed long run opportunities and selected what we thought would provide the best returns. (CA2) We developed a strategy to best take advantage of resources and capabilities. (CA3) We designed and planned business strategies. (CA4) We organized and implemented control processes to make sure we met objectives. (CA5) We researched and selected target markets and did meaningful competitive analysis. (CA6) We had a clear and consistent vision for where I wanted to end up. (CA7) We designed and planned production and marketing efforts.	During COVID-19, (CA1) We analyzed long run opportunities and selected what we thought would provide the best returns. (CA2) We developed a strategy to best take advantage of resources and capabilities. (CA3) We designed and planned business strategies. (CA4) We organized and implemented control processes to make sure we met objectives. (CA5) We researched and selected target markets and did meaningful competitive analysis. (CA6) We had a clear and consistent vision for where I wanted to end up. (CA7) We designed and planned production and marketing efforts.
Organizational Resilience (Melián-Alzola et al., 2020a) Scale: *strongly disagree / strongly agree*	In the face of changes during COVID-19, my restaurant... (OR1) achieved a new organizational equilibrium by adapting to changes in the environment (offering new products or services, incorporating new technologies, negotiating with suppliers...) (OR2) Our restaurant recovered and strengthened at a strategic and operational level. (OR3) Our restaurant adapted strategically and operationally to new environmental conditions.	In the face of changes during COVID-19, my restaurant... (OR1) achieved a new organizational equilibrium by adapting to changes in the environment (offering new products or services, incorporating new technologies, negotiating with suppliers) (OR2) Our restaurant recovered and strengthened at a strategic and operational level. (OR3) Our restaurant adapted strategically and operationally to new environmental conditions.
Organizational Resourcefulness (ORF) (Wicker et al., 2013) Scale: *strongly disagree / strongly agree*	During COVID-19, our business was able to... (ORE1) prioritize tasks during unexpected events. (ORE2) generate revenue from multiple sources. (ORE3) mobilize resources during unexpected events. (ORE4) employ sufficient backup resources to sustain operations during unexpected events. (ORE5) identify problems during unexpected events. (ORE6) acquire support from other businesses when needed.	During COVID-19, our business was able to... (RE1) prioritize tasks during unexpected events. (RE2) generate revenue from multiple sources. (RE3) mobilize resources during unexpected events. (RE4) employ sufficient backup resources to sustain operations during unexpected events. (RE5) identify problems during unexpected events. (RE6) acquire support from other businesses when needed.
Organizational Agility (OAG) (Darvishmotevali et al., 2020) Scale: *strongly disagree / strongly agree*	During COVID-19, our business... (OA1) detected changes that occurred in customer preferences for products without delay. (OA2) detected changes that occurred in the movements of competitors without delay. (OA3) detected changes in technology without delay.	During COVID-19, our business... (OA1) identified changes in consumer preferences for products without delay. (OA2) identified competitors' changes without delay. (OA3) identified technological changes without delay. (OA4) analyzed important events concerning customers, competitors, and technology without any delay.

Constructs	Measurements in the Pilot Test	Measurements in the Main Survey
	(OA4) analyzed important events concerning customers, competitors, and technology without any delay. (OA5) detected the opportunities and threats to changes in customers, competitors, and technology in time. (OA6) carried out a specific action plan in order to meet customer needs without any delay. (OA7) implemented a plan of action in order to respond to the strategic movements of competitors without delay. (OA8) used the new technology without delay. (OA9) reconfigured resources in the proper time. (OA10) re-adjusted operations carried out in a timely manner. (OA11) used new technologies in the proper time. (OA12) our business introduced new products and services at the best time. (OA13) could change prices quickly in the proper time. (OA14) changed and implemented strategic actions on time. (OA15) our business solved customers' needs and complaints without delay.	(OA5) detected the opportunities and threats to changes in customers, competitors, and technology in time. (OA6) carried out a specific action plan in order to meet customer needs without any delay. (OA7) implemented strategies in response to competitors' movements without delay. (OA8) implemented new technologies without delay. (OA9) quickly reconfigured resources. (OA10) re-adjusted operations immediately when needed. (OA11) used new technologies at the best time. (OA12) our business introduced new products and services at the best time. (OA13) could change prices quickly in the proper time. (OA14) changed and implemented strategic actions on time. (OA15) solved customers' needs and complaints without delay.
Entrepreneurial Bricolage Behavior (EBB) (Davidsson et al., 2017) Scale: *never / always*	(EB1) I am confident of my ability to find workable solutions to new challenges by using my existing resources. (EB2) I gladly take on a broader range of challenges than others with our resources would be able to. (EB3) I use any existing resource that seems useful to responding to a new problem or opportunity. (EB4) I deal with new challenges by applying a combination of my existing resources and other resources inexpensively available to me. (EB5) When dealing with new problems or opportunities, I take action by assuming that I will find a workable solution. (EB6) By combining our existing resources, I take on a surprising variety of new challenges. (EB7) When I face new challenges, I put together workable solutions from our existing resources. (EB8) I combine resources to accomplish new challenges that the resources were not originally intended to accomplish.	(EB1) I am confident of my ability to find workable solutions to new challenges by using my existing resources. (EB2) In comparison to others who have similar resources, I can tackle a broader range of challenges. (EB3) I use any existing resource that seems useful to responding to a new problem or opportunity. (EB4) I deal with new challenges by combining my existing resources with other available and inexpensive resources. (EB5) When dealing with new problems or opportunities, I take action by assuming that I will find a workable solution. (EB6) By combining our existing resources, I take on a surprising variety of new challenges. (EB7) When I face new challenges, I put together workable solutions from our existing resources. (EB8) I combine resources to accomplish new challenges that the resources were not originally intended to accomplish.

Constructs	Measurements in the Pilot Test	Measurements in the Main Survey
Pscyological Resilience (PR) (Sinclair & Wallston, 2004; Hallak et al., 2018) Scale: *Does not describe me at all / Describes me extremely well*	(PR1) I actively look for ways to replace the losses I encounter in life. (PR2) I believe that I can grow in positive ways by dealing with difficult situations. (PR3) I look for creative ways to alter difficult situations. (PR4) Regardless of what happens to me, I believe I can control my reaction to it.	(PR1) I actively look for ways to replace the losses I encounter in life. (PR2) I believe that I can grow in positive ways by dealing with difficult situations. (PR3) I look for creative ways to alter difficult situations. (PR4) Regardless of what happens to me, I believe I can control my reaction to it.
Entrepreneurial Self-Efficacy (ESE) (Zhao et al., 2005) Scale: *Not confident at all / Completely confident*	(ES1) How confident are you in successfully identifying new business opportunities? (ES2) How confident are you in successfully creating new products? (ES3) How confident are you in successfully thinking creatively? (ES4) How confident are you in successfully commercializing an idea or new development?	(ES1) How confident are you in successfully identifying new business opportunities? (ES2) How confident are you in successfully creating new products? (ES3) How confident are you in successfully thinking creatively? (ES4) How confident are you in successfully commercializing an idea or new development?
Business Pre-crisis Performance (BPP) (Chowdhury et al., 2019)	(BPP1) How was your business's overall performance before COVID-19? *(Significantly worse off / Significantly better off)* (BPP2) How was your business's overall debt before COVID-19? *(Scale: very negative/very positive)* (BPP3) How was your business profitability level before COVID-19? *(very poor /excellent)* (BPP4) How was your business's cash flow before COVID-19? *(very poor /excellent)*	(BPP1) How was your business's overall performance before COVID-19? *(Significantly worse off / Significantly better off)* (BPP2) How was your business's overall debt before COVID-19? *(very negative/very positive)* (BPP3) How was your business profitability level before COVID-19? *(very poor /excellent)* (BPP4) How was your business's cash flow before COVID-19? *(very poor /excellent)*
Percived Employee Resilience (PER) (Näswall et al., 2019) Scale: *strongly disagree / strongly agree*	(PER1) My employees effectively collaborate with others to handle unexpected challenges at work. (PER2) My employees successfully manage a high workload for long periods of time. (PER3) My employees resolve crises competently at work. (PER4) My employees learn from mistakes at work and improve the way they do their jobs. (PER5) My employees re-evaluate their performance and continually improve the way they do their work. (PER6) My employees effectively respond to feedback at work, even criticism. (PER7) My employees seek assistance at work when they need specific resources. (PER8) My employees approach me when they need my support. (PER9) My employees use change at work as an opportunity for growth.	(PER1) My employees effectively collaborate with others to handle unexpected challenges at work. (PER2) My employees successfully manage a high workload for long periods of time. (PER3) My employees resolve crises competently at work. (PER4) My employees learn from mistakes at work and improve the way they do their jobs. (PER5) My employees re-evaluate their performance and continually improve the way they do their work. (PER6) My employees effectively respond to feedback at work, even criticism. (PER7) My employees seek assistance at work when they need specific resources. (PER8) My employees approach me when they need my support. (PER9) My employees use change at work as an opportunity for growth.

Constructs	Measurements in the Pilot Test	Measurements in the Main Survey
Perceived Government Support (PGS) (Based on Belas et al., 2022; Mizrahi et al., 2021; Nakku et al., 2020) Scale: *strongly disagree / strongly agree*	During COVID-19, (GS1) The government provided adequate financial support for businesses. (GS2) The government's financial support was easily accessible. (GS3) The government provided sufficient information and guidelines on implementing pandemic control measures. (GS4) The government's policies to support businesses during COVID-19 were effective.	During COVID-19, (GS1) the government's financial support was inadequet. ® (GS2) the government's financial support was easily accessible. (GS3) the government provided sufficient non-financial assistance on implementing pandemic control measures (e.g., information and guidelines). (GS4) the government's policies to support businesses during COVID-19 were effective and efficient.
State Uncertainty (RU) (Based on Ashill & Jobber, 2010; Vedadi & Greer, 2021) Scale: *strongly disagree / strongly agree*	During COVID-19, (SU1) How often did you feel that you had the information you needed to understand how business environment would change in the future? (SU2) How often did you believe that the information you had about business environment was adequate for making business decisions? (SU3) How often did you feel you were able to get the necessary information about business environment for your management decision making?	During COVID-19, I felt like... (SU1) I did not have the information I needed to understand how situations related to COVID-19 would change in the future. (SU2) I did not have adequate information to make business decisions. (SU3) I was unable to get the necessary information for my business decisions.
Effect Uncertainty (EU) (Based on Ashill & Jobber, 2010; Vedadi & Greer, 2021) Scale: *strongly disagree / strongly agree*	During COVID-19, (EU1) How often did you feel that you were able to predict the impact of COVID-19 on your management decision making? *(never / always)* (EU2) How often did you feel you fully understood the effect of COVID-19 on your management decision making? *(never / always)* (EU3) Please indicate your "sureness" (level of certainty) as to how COVID-19 would affect your business? *(not at all sure/completely sure)*	During COVID-19, I felt like... (EU1) I was not able to predict the impact of COVID-19 on my business and management decision making. (EU2) I was not able to understand the effect of COVID-19 on my business decision making. (EU3) I was not sure how COVID-19 was going to affect my business.
Response Uncertainty (RU) (Based on Ashill & Jobber, 2010; Vedadi & Greer, 2021) Scale: *strongly disagree / strongly agree*	During COVID-19, (RU1) How often did you feel you could accurately anticipate the consequences/outcomes of making your management decisions before they were made? (RU2) How often did you feel you knew how to respond to changes in the external environment? (RU3) How often did you feel you could consider and then evaluate alternative response options before making a decision in light of changes in the face of COVID-19?	During COVID-19, I felt like... (RU1) I was not able to accurately anticipate the outcomes of my business decisions before making them. (RU2) I did not know how to respond to changes in the external business environment. (RU3) I was not able to determine and evaluate alternative crisis response options before making a decision.

Note: ® Reverse coded

5.2.2.2. Construct Measures

Study variables summarized in Table 5.1 are discussed in greater detail in this section, together with their source and measurement scale.

Effectuation (EDML) & Causation (CDML) were measured using a scale developed by Chandler et al. (2011). The original scale has 13 items to measure *effectuation* in four dimensions (experimentation, flexibility, affordable loss, and pre-commitments) while seven items measure *causation*. However, the original scale featured only two items for measuring pre-commitments, and Frese et al. (2020) developed two supplementary items for this dimension. Their results showed that the modified measurement of pre-commitments improved considerably over Chandler et al.'s (2011) original operationalization. As a result, this thesis uses these two additional items from Frese et al.'s (2020) study to measure pre-commitments.

Organizational Resilience (OR) was measured by a scale developed by Melián-Alzola et al. (2020a) that has 3 items. It measures the degree of operational and strategic organizational adaptation to new environment conditions, reaching a new equilibrium point at which organizations emerge strengthened. This scale was employed due to its outcome-oriented perspective on organizational resilience. It is distinctive in that it measures organizational resilience as a result or outcome using subjective items, whereas other outcome-oriented scales have predominantly relied on objective measures.

Organizational Resourcefulness (ORF) was measured using a scale adapted from Wicker et al. (2013) that has six items; it was adopted since it focuses on the organization's ability to priorities tasks, mobilize resources, and employ sufficient back up resources during unexpected events. Minor adjustments were made to reflect the resourcefulness of MSMEs in responding to changes caused by the COVID-19 pandemic.

Organizational Agility (OAG) was measured using a 15-item scale adopted from Darvishmotevali et al. (2020). This scale was selected since it measures agility in terms of sensing agility, decision-making agility, and acting agility proposed by Wageeh (2016). Following Darvishmotevali and colleagues' (2020) approach, ORF is measured as a unidimensional reflective construct. The scale assesses agility as organizational ability to detect and monitor changes in the surrounding environment, its ability to collect, accumulate, restructure and evaluate relevant information to identify opportunities and threats without delay, and finally its ability to modify business processes without delay. Minor adjustments

were made to reflect the agility of MSMEs in responding to changes caused by the COVID-19 pandemic.

Psychological Resilience (PR) was measured by the Brief Resilient Coping Scale (BRCS) adapted from Sinclair and Wallston (2004). This scale has four items. It was chosen as it describes an "affective, active problem-solving coping pattern that reflects the resilient coping patterns from theory" (Sinclair & Wallston, 2004, p. 99) and assesses resilience as a positive coping behavior (Hartmann et al., 2022). The BRCS has been used widely in management studies (Hartmann et al., 2022) with Hallak et al. (2018) using this scale to measure restaurant managers' psychological resilience as it "captures managers' tendencies to cope with stress in a highly adaptive manner" (p. 233).

Entrepreneurial Bricolage Behavior (EBB) was measured using the behavioral construct developed by Davidsson et al. (2017), containing eight items. This scale was adopted since it represents the theoretical construct "entrepreneurial bricolage." Davidsson et al. (2017) suggest that this measurement scale has been developed in a way that it can work across a broad spectrum of contexts and data collection formats. It has been used and tested in several studies, including hospitality and tourism studies (e.g., Fu et al., 2020).

Entrepreneurial Self-Efficacy (ESE) was measured using a scale developed by Zhao et al. (2005), containing four items. It was selected since it is different from general self-efficacy measurement scales as it evaluates managers' confidence in four main entrepreneurial actions: 1) successfully identifying new business opportunities, 2) creating new products, 3) thinking creatively, and 4) commercializing an idea or new development.

Perceived Employee Resilience (PER) was measured using the scale developed by Näswall et al. (2019), containing nine items. It has been adapted in multiple tourism and hospitality studies, such as Prayag et al. (2020) and Senbeto and Hon (2021), and differs from other resilient scales commonly used in organizational settings, such as Psychological Capital (Luthans et al., 2007) and the Workplace Resilience Inventory (McLarnon & Rothstein, 2013). Employee resilience is an appropriate measurement for this study since it focuses on behaviors that address everyday challenges at work and assesses "the impact of actually utilizing the resources, beyond acknowledging their availability" (Näswall et al., 2019). In addition, minor adjustments were made since this study aims to measure managers' perception of their employee resilience. For instance, the item "I resolve crises competently at work," has been changed to "My employees resolve crises competently at work."

Business Pre-crisis Performance was measured by four items that assess the 1) organization's overall performance, 2) level of debt, 3) overall profitability, and 4) cash flow, with questions adopted from Chowdhury et al. (2019). This subjective performance measure was used since asking business owners to disclose sensitive financial information often leads to item non-response (R. Runyan et al., 2008). Research on small enterprises has found the use of subjective measures to be strongly correlated to objective performance measures (Dess & Robinson Jr, 1984; Wall et al., 2004).

State Uncertainty (SU), Effect Uncertainty (EU) and Response Uncertainty (RU) were measured with a scale by Ashill and Jobber (2010), developed to measure perceived environmental uncertainty by distinguishing between state, effect, and response uncertainty; it contains three items for each type of uncertainty, and covers all perceived uncertainties associated with the COVID-19 pandemic. Minor adjustments were made to reflect the study context and uncertainty during the COVID-19 pandemic.

Perceived Government Support (PGS) was measured using four items developed based on previous studies (Belas et al., 2022; Mizrahi et al., 2021; Nakku et al., 2020) to assess managers' evaluations of government actions to address difficulties businesses encountered due to COVID-19. Items assessed managers' perceptions of four different aspects of government support during COVID-19: (1) sufficiency of financial support, (2) accessibility of financial support, (3) sufficiency of information and guidelines on implementing pandemic control measures, and (4) effectiveness of policies supporting businesses during COVID-19.

Business Size (BS) and Business Age (BA) were measured using the number of employees and the number of years the business has been established, respectively.

5.2.2.3. Questionnaire Translation Process

The questionnaire was translated into Chinese and distributed in two languages (English and Traditional Chinese) as the official and most common languages spoken in Hong Kong. Since a central concern in every translation is to "produce an instrument that has the same connotative meaning as the original instrument" (Mcgorry, 2000, p. 75), this study used the back translation method to cope with translation issues that may occur during the translation process.

By applying the back-translation method, the following process was adopted:

Step 1: A professional native Chinese translator with an excellent command of English was hired to translate the questionnaire from English into Chinese,

Step 2: A second independent professional native English translator with an excellent command of Chinese was hired to take the results from the previous step and independently translate the instrument back into English from Chinese without seeing the original version,

Step 3: The researcher (I) had two English versions of the instrument (original and back-translated version). It allowed the researcher to compare them for any inconsistencies, mistranslations, meaning, and/or lost words or phrases. In addition, two bilinguals were hired to compare the back-translated version with the original English for any inconsistencies, mistranslations, meaning, cultural gaps and/or lost words or phrases (McGorry, 2000). In case of differences, the researcher consulted with both translators to determine reasons and ways to improve the instrument.

Step 4: In cases of major differences between the translated English version and the original English, the process was repeated with a third translator.

Step 6: Finally, a native Chinese with an excellent command of English was hired to check the final Chinese version based on the original English one and revise/proofread if needed.

With these steps, the researcher aimed to achieve equivalence between the English version (original) and the Chinese version in terms of content, semantic, technical, criterion, conceptual, and functional equivalences (Chapman & Carter, 1979; Hilton & Skrutkowski, 2002).

5.2.3. Data Collection Procedure

The contracted research company implemented a four-step process to collect data for both the pilot test and the main survey. Initially, they approached the restaurant premises and identified individuals in charge. Then, the purpose of the study was explained. Potential informants were invited to participate in the study. Next, respondents were provided with an electronic device to complete an online survey. Throughout this process, the interviewer was attentive to any clarifications needed. Finally, the interviewer confirmed the successful recording of the questionnaire, thereby concluding each survey session.

Consideration was also given to whether incentives should be provided since small monetary value incentives can increase the rate of consent and participation from participants (Gritz, 2004; Singer et al., 2000). However, the inclusion of incentives in a study introduces the risk of bias, manifesting in an oversampling of individuals with a heightened interest in financial incentives, thereby potentially altering the composition of the sample. Moreover, incentives have the potential to influence participants' attitudes toward the interviewer, consequently impacting the nature of their statements. Additionally, the provision of incentives could lead to the disengagement of intrinsically motivated participants from the survey (Deci, 1971, as cited in Goritz, 2004). Respondents for this research were owners/managers of MSME restaurants in Hong Kong operating during the COVID-19 pandemic. Given the context, it was anticipated that their willingness to participate in the survey would not be substantially influenced by small financial incentives that could be offered to a considerable number of respondents. Therefore, no financial incentives were provided in this study. However, informants were offered to receive a summary of the study results upon completion of the study as a token of appreciation.

5.3. Data Analysis

5.3.1. Data Screening

The data screening process was executed in two steps to ensure the quality of the dataset. First, a set of quality check criteria was applied to identify and eliminate cases that could compromise the integrity of responses. Respondents/cases demonstrating any of the following scenarios were excluded from further analysis:

- Cases featuring incorrect responses to attention-check questions;
- Respondents completing the survey in less than the designated timeframe of 12 minutes;
- Cases where respondents consistently selected the same response for all or most survey questions; and
- Respondents whose selections exhibited high levels of contradiction or inconsistency throughout the survey.

This process resulted in 44 valid responses for the pilot test and 312 valid responses for the main survey analysis.

Second, the four essential steps of 1) addressing missing data, 2) examining common method bias (CMB), 3) identifying outliers, and 4) assessing normality were addressed before commencing data analysis (Kline, 2011).

Addressing missing data: The online survey was programmed in such a way as to prevent respondents from missing any responses. As a result, there was no missing data.

Examining CMB: Common method bias arises when collecting behavioral and attitudinal data through self-report questionnaires administered at a single point in time (Chang et al., 2020; Podsakoff et al., 2003). In order to address this potential issue, several techniques recommended by Lin et al. (2019) were incorporated. First, participants were assured that their responses were anonymous. Second, participants were informed that there were no right or wrong answers, encouraging them to respond honestly. Third, the questionnaire employed randomization of question orders to minimize response bias. In addition, reverse-coded items were used in the survey. Finally, two statistical tests were utilized to assess the presence of CMB.

The most commonly used method to test for CMB is Harman's single-factor test, as indicated by Podsakoff et al. (2003). This method has been frequently employed in tourism research studies that utilize PLS-SEM (Fong et al., 2023; Tang et al., 2022; Zhu et al., 2022). Based on Harman's test, a factor analysis is conducted using a one-factor model. If the resulting factor explains less than 50% of the total variance, it suggests the absence of common method bias (Podsakoff et al., 2003). The second test involves examining the variance inflated factors (VIF) (Kock & Lynn, 2012). If all VIF scores are below 3.3, it also indicates the absence of CMB (Kock & Lynn, 2012). In this study, results of the one-factor model show a variance percentage of 26.6%, which is below the threshold of 50%. Moreover, the VIF scores are all below 3.3. Thus, based on these two criteria, it can be concluded that there is no evidence of common method bias in the data.

Identifying outliers: In the comprehensive examination of respondents, their responses to various variables were analyzed. This thorough scrutiny not only provided insights into diverse aspects of participant engagement but also confirmed the absence of any outliers in the dataset.

Normality: Normality is an important assumption in multivariate analysis, although PLS-SEM does not strictly require data to be normally distributed. However, checking for normality is still valuable as it provides insights into the characteristics of the data used for

analysis. In this study, the normality test examined the skewness and kurtosis of the distribution. The absolute cut-off values commonly used are 3.0 for skewness and 8.0 for kurtosis (Kline, 2011). Acceptable values of skewness fall between -3 and +3, and kurtosis is appropriate from a range of −10 to +10 when utilizing SEM (Brown, 2006). According to Hair et al. (2017), a general guideline for skewness and kurtosis value is between -1 and +1.

In this study, the skewness ranged from -1.051 to 0.409, while the kurtosis ranged from -0.859 to 2.945. Although skewness and kurtosis values are greater than 1 for some indicators, this deviation from normality is not considered a concern as the degree of skewness and kurtosis are not severe; they are within an acceptable range, according to Kline (2011). In addition, "PLS-SEM is less stringent when working with nonnormal data" (J. F. Hair et al., 2014, p. 108). In the next section, the data analysis method employed in this study is introduced before presenting the results of both the pilot test and main survey analysis.

5.3.2. Data Analysis Method

This study used Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed model and hypotheses. Structural Equation Modeling (SEM) serves as a tool for testing theories and concepts (Rigdon, 1998). Initially relying on a covariance-based approach (CB-SEM), researchers now have the alternative of employing the variance-based partial least squares technique (PLS-SEM). PLS is an SEM technique based on an iterative approach that maximizes the explained variance of endogenous constructs (Fornell & Bookstein, 1982). While CB-SEM remains the more popular method, PLS-SEM has garnered substantial attention across disciplines, including tourism and hospitality (Prayag & Dassanayake, 2022). PLS-SEM is able to handle problematic modeling challenges that occur in the social sciences, such as nonnormal data and highly complex models (J. F. Hair et al., 2014). Given its advantages, this study employed PLS-SEM as a structural equation modeling technique for the following reasons:

First, the study aligns with research suggesting that PLS-SEM performs better when a structural model includes formatively measured constructs (J. F. Hair et al., 2019). The conceptual model proposed in this study features a formatively measured construct (effectuation), making PLS-SEM a suitable choice for structural equation modeling.

Second, the partial least squares (PLS) path-modeling approach is a variance-based Structural Equation Modelling (SEM) technique - it should be used when the structural model

is complex and includes many constructs, indicators and/or model relationships. In this study, the conceptual model is notably complex, examining the influence of six factors—1) psychological resilience, 2) entrepreneurial bricolage behavior, 3) perceived employee resilience, 4) business pre-crisis performance, 5) environmental uncertainty (state, effect, and response), and 6) perceived government support—on the adoption of effectual/causal DML Furthermore, the model explores the direct and indirect impacts of effectual/causal DML on MSME resilience through organizational resourcefulness and agility. Therefore, PLS-SEM is employed given its capability to effectively handle such a complex model.

Third, it is believed that PLS-SEM can be an alternative to CB-SEM since it deals better with small sample sizes with nonnormal data (J. F. Hair et al., 2019). Given the challenges associated with collecting data from a large sample in organizational and management-level studies, this research employed PLS-SEM to analyze a relatively modest sample size of 312 respondents. SmartPLS software package was used for analyzing the data (C. Ringle et al., 2015).

The assessment of PLS-SEM results involves two main steps: 1) Evaluation of the measurement model or outer model and 2) Evaluation of the structural model or inner model (Ali et al., 2018). The following sections present the general considerations in these two steps.

5.3.2.1. PLS-SEM - Measurement Model Evaluation

During the initial stage of PLS-SEM, the measurement model, also known as the outer model, is examined. This step aims to determine associations between observed variables or indicators and their respective latent variables. In simpler terms, it focuses on establishing the connections between measured variables and underlying constructs they represent (do Valle & Assaker, 2016). Assessment of the measurement model involves examining the reliability and validity of construct measures. Various measurement approaches are considered depending on whether constructs are measured reflectively or formatively (Hair et al., 2014; Ali et al., 2018). This evaluation ensures the robustness and accuracy of measurement scales used in the study.

Table 5.2 presents five key differences between reflective and formative measurements. The main distinction lies in the role of indicators: in reflective measurement, indicators manifest the construct, while in formative measurement, indicators define the construct. The proposed model for this study has 13 first-order unidimensional reflective constructs and one second-order reflective-formative construct:

First-order unidimensional reflective constructs: Psychological Resilience (PR), Entrepreneurial Bricolage Behavior (EBB), Perceived Employee Resilience (PER), Business Pre-Crisis Performance (BPP), Perceived Government Support (PGS), State Uncertainty (SU), Effect Uncertainty (EU), Response Uncertainty (RU), Entrepreneurial Self-efficacy (ESE), Causal Decision-making Logic (CDML), Organizational Resourcefulness (ORF), Organizational Agility (OAG), and Organizational Resilience (OR). Theses reflective measurement models were evaluated based on the reflective measurement model evaluation criteria.

Second-order reflective-formative construct: Effectual Decision-making Logic (EDML) was the only second-order reflective-formative higher-order construct with four reflective components: Experimentation (EX), Flexibility (FL), Affordable Loss (AL), and Pre-commitments (PC).

A formative construct is characterized by a causal relationship where lower-order indicators or sub-components influence the higher-order latent construct (Coltman et al., 2008; Jarvis et al., 2003). In the context of effectuation, elements such as experimentation, affordable loss, flexibility, and pre-commitments play pivotal roles in shaping the overarching effectuation construct. As suggested by Chandler et al. (2011), every sub-component contributes distinctly to shaping effectuation, and their combined impact defines the overall concept of effectuation. The causal nature inherent in formative constructs implies that changes in the lower-level indicators directly impact the higher-order construct. This dynamic relationship underscores the significance of lower-level indicators as defining characteristics of the construct. Consequently, these indicators are considered to be independent of each other, each contributing uniquely to the overall construct of effectuation (MacKenzie et al., 2005). Thus, altering or removing any of these sub-components could significantly change the construct. Hence, in the context of effectuation, formative models and evaluation would be more appropriate (Perry et al., 2012).

In addition, scholars have widely accepted that effectuation is a formative multidimensional construct (e.g., Shirokova et al., 2021; Smolka et al., 2018; Prashantham, 2019; Stroe et al., 2018; Harms et al., 2021; McKelvie et al., 2020; de la Cruz et al., 2018; Guo, 2019; Eyana et al., 2018; EstradaCruz et al., 2019; Chen & Liu, 2022; Mthanti & Urban, 2014; Reymen et al., 2015; Ranabahu & Barrett, 2020; Ruiz-Jiménez et al., 2020; Braun & Sieger, 2021). Following this approach, effectuation was considered and measured as a higher-order

measurement model in the present study, and it was evaluated based on reflective-formative higher-order evaluation criteria.

Table 5.2 *Comparison Between Formative and Reflective Measurement Models*

Characteristics	Reflective measurement model	Formative measurement model
Nature of relationships	• From construct to indicators • Indicators *manifest* the construct	• From indicators to construct • Indicators *define* the construct
Impact of changes	• Indicators are reflections of the construct thus changes in the indicators should not cause changes in the construct • However, changes in the construct should change the indicators	• Indicators cause the construct; therefore, changes in the indicators should change the construct • On the other hand, changes in the construct do not necessarily change the indicators
Indicators interchangeability	• Yes, because indicators may share a common theme	• No, because indicators are in different themes
Indicators' covariation	• Indicators are expected to covary • Should be highly correlated with each other	• Indicators do not necessarily covary • Low correlations are expected (to avoid multicollinearity)
Nomological net of the construct indicators	• Should be similar • Indicators are required to have the same antecedents and consequence	• Should differ • Same antecedents and the consequence is not required

Source: Jarvis et al. (2003), Petter et al. (2007)

5.3.2.1.1. Evaluating Reflective Measurement Models

Evaluating a reflective measurement model (first-order reflective construct) in PLS-SEM involves assessing the reliability, internal consistency, convergent validity, and discriminant validity of the observed indicators used to measure the underlying latent constructs (do Valle & Assaker, 2016; Ali et al., 2018).

Reliability: Indicator reliability evaluation is crucial in assessing a reflective measurement model in PLS-SEM. Indicator reliability refers to the degree to which the observed indicators accurately measure the underlying construct. Internal consistency and indicator reliability are the two main indicator reliability types (Hair et al., 2017). ***Indicator reliability*** refers to the extent to which the individual indicators measure the underlying construct. In PLS-SEM, indicator reliability can be evaluated using indicator reliability (Rho_A) and standardized factor loadings (Hair et al., 2014). The recommended threshold for Rho_A is 0.7 (Henseler et al., 2015). Outer loadings refer to the correlation of the corresponding construct. The values of outer loadings should be higher than 0.5 (J. Hair et al., 2017; Hulland, 1999). Additionally, t-statistics associated with outer loadings should be larger than 1.96 to be considered statistically significant (Wong, 2013).

Internal consistency reliability refers to the extent to which a scale's items measure the same underlying construct. The composite reliability (CR) and Cronbach's alpha in PLS-SEM can evaluate internal consistency reliability. Traditionally, researchers assessed Cronbach's alpha instead of CR, to ensure internal consistency. However, Cronbach's alpha has two shortcomings. First, it presumes that loadings of indicators are all equal in population (Hair et al., 2014). Second, it tends to underestimate the reliability of internal consistency as it is very sensitive to the number of indicators (Hair et al., 2017). CR overcomes these limitations of Cronbach's alpha by prioritizing each indicator's reliability (Hair et al., 2017). Therefore, CR is considered to be a better measure than Cronbach's alpha (Hair et al., 2014, 2017; Wong, 2013). Hair et al. (2017) believe that examining and reporting both criteria is rational. For checking and evaluating measures' internal consistency reliability, the exact reliability typically locates between Cronbach's alpha (showing the lower bound) and the composite reliability (presenting the upper bound). The threshold for both is 0.6 (Hair et al., 2017). Composite reliability values range from 0 to 1, with higher values indicating greater reliability. A threshold of 0.7 is often used to indicate satisfactory reliability (Hair et al., 2017).

Validity: To evaluate the validity of the reflective indicators, ***convergent validity***, and ***discriminant validity*** should be verified. Measurement indicators gauge the level to which they are supposed to be reflected by validity (Bagozzi & Yi, 2012).

Convergent validity represents the extent to which a group of indicators reflects a similar fundamental construct (Henseler et al., 2009). It determines whether a group of indicators under one construct belong to the construct (Wang et al., 2015). Convergent validity is the extent of association among the indicators and their relevant construct to see whether they signify the identical latent concept (do Valle & Assaker, 2016). *The average variance extracted (AVE)* needs to be examined for convergent validity (Hair et al., 2017; do Valle & Assaker, 2016; Ali et al., 2018). AVE values should be higher than 0.5, indicating the appropriate level of convergent validity (J. Hair et al., 2017; J. F. Hair et al., 2011; Hulland, 1999). An AVE value higher than 0.5 signifies that the latent variable explains more than half of its indicators' variance, indicating a satisfactory degree of convergent validity (Hair et al., 2011; Hair et al., 2017; Ali et al., 2018).

Discriminant validity: The second validity criterion for a reflective variable is discriminant validity. It is described as "the extent to which a construct is truly distinct from other constructs by empirical standards" (Hair et al., 2017, p. 115). Researchers typically use the Fornell-Larcker criterion or the Heterotrait-Monotrait (HTMT) ratio to evaluate

discriminant validity in PLS-SEM (J. Hair et al., 2017; Rasoolimanesh et al., 2017). *The Fornell-Larcker criterion* involves comparing the square root of the average variance extracted (AVE) for each construct with the correlation values between that construct and other constructs (Wong, 2013; Hair et al., 2011). For discriminant validity, the square root of the AVE for each construct should be greater than the correlation values with any other constructs (Hair et al., 2014), indicating that the construct shares more variance with its own indicators than with indicators of other constructs. *The HTMT ratio* compares correlations of the same construct across different measures (heterotrait correlations) to the correlations between different constructs (monotrait correlations) (Henseler et al. 2015). A ratio below 0.85 indicates discriminant validity.

5.3.2.1.2. Evaluating Reflective-Formative Higher Order Measurement Models

In evaluating the reliability and validity of an outer model, it is necessary to assess both first-order and second-order constructs within the hierarchical model.

According to the literature (C. M. Ringle et al., 2012), when assessing higher-order constructs, it is necessary to consider the evaluation of (1) the measurement models of the lower-order components and (2) the measurement model of the higher-order construct. Researchers have proposed several approaches for specifying and estimating higher-order constructs in PLS-SEM, for example, the (extended) repeated indicators approach, the embedded two-stage approach, and the disjoint two-stage approach.

Even though the repeated indicators approach is easy to apply in PLS-SEM, its use becomes problematic when a reflective-formative higher-order construct also serves as a dependent construct in a path model—as is the case in this study. As a result, researchers have proposed the two-stage approach as an alternative to the repeated indicators approach (Wetzels et al., 2009), with two versions. (1) the *embedded* two-stage approach (C. M. Ringle et al., 2012) and (2) the *disjoint* two-stage approach (J.-M. Becker et al., 2012), which slightly differ in their model specification. However, scholars argue that as both versions of the two-stage approach derive at similar results (Cheah et al., 2019), there is no compelling reason to prefer one over the other. Therefore, this study follows the *embedded* two-stage approach steps to evaluate measurement models.

The first stage of the *embedded* two-stage approach corresponds to the standard repeated indicators approach, which has an antecedent construct in the structural model and

produces a non-significant path coefficient estimate from the antecedent construct to the higher-order component. Instead of interpreting the model estimates, however, researchers need to save the scores of all constructs in the model and add these as new variables to the dataset. In stage two, the construct scores are used as indicators in the higher-order construct's measurement model. For example, in this study, the higher-order component (EDML) would be measured with all four formative indicators capturing the latent variable scores of EX, AL, FL, and PC from stage one.

First-order reflective components are evaluated together with other reflective constructs in the model when evaluating measurement models. However, in the case of a formative outer model, indicators represent independent components of a theoretical concept and are not expected to be correlated. As a result, assessing the reliability and validity of a formative outer model is considered unnecessary and even inappropriate. Instead, the evaluation process for the second-order component of a reflective-formative higher order construct focuses on two key aspects.

1) Consideration of the theoretical rationale behind the model and consulting experts' opinions. It is crucial to ensure that the selected indicators align with the underlying construct and have a solid theoretical basis. This step emphasizes the conceptual alignment between the indicators and the construct being measured.
2) Examination of statistical criteria to assess the quality and effectiveness of the formative model. Hair et al. (2017) proposed three criteria for evaluating formative measurement models; 1) convergent validity of formative measurement models, 2) collinearity issues, and 3) significance and relevance of the formative indicators.

By following this process, researchers can assess convergent validity, collinearity, and individual indicator significance and relevance, ensuring the robustness and appropriateness of the formative model. Results of measurement models' evaluation are presented in the relevant sections detailing the main survey analysis results (see section 5.5.2).

5.3.2.2. PLS-SEM - Structural Model Evaluation

After evaluating the measurement model and obtaining satisfactory results, the structural model, also known as the inner model, representing the relationships between the latent variables, has to be evaluated. In PLS-SEM, the evaluation of the structural model primarily relies on heuristic criteria rather than traditional goodness-of-fit measures (Hair et

al., 2017). These criteria are based on the model's predictive capabilities and assess how well it predicts the endogenous variables or constructs, rather than measuring the overall goodness of fit in a covariance-based SEM logic.

The assessment of the structural model in PLS-SEM involves six main steps, as follows: 1) assessing collinearity issues, 2) evaluating the significance of path coefficients, 3) examining R2 values, 4) assessing f^2 effect size, 5) evaluating predictive relevance Q^2, and 6) examining q^2 effect size (Hair et al., 2017).

Each of these steps provides valuable insights into the strength and significance of the relationships between constructs in the structural model. By analyzing these criteria, researchers can determine the overall effectiveness and predictive power of the model, allowing for a comprehensive evaluation of the hypothesized relationships and their implications. The evaluation of the structural model is presented in the relevant sections detailing the main survey analysis results (see section 5.5.3).

5.4. Results - Pilot Test

5.4.1. Profile of Respondents

A total of 44 respondents completed the pilot test survey. The majority were male, and the predominant age group was 45-54 years. In terms of education, most respondents had an educational background of high school or lower. Only a small percentage (4.5%) had completed a postgraduate degree. Regarding their restaurants, the age of the restaurants ranged from 4 to over 49 years, with an average of 14 years. In terms of restaurant characteristics, the employee numbers ranged from 3 to 19, and restaurants had been in operation for a duration ranging from 4 to 29 years. Table 5.3 details respondents' profile for the pilot test.

Table 5.3 *Respondent Profile - Pilot Test*

Characteristics	Number (%)	Characteristics	Number (%)
Gender		**Age**	
Male	25 (56.8%)	18-24 years old	1 (2.3%)
Female	19 (43.2%)	35-44 years old	7 (15.9%)
Education		45-54 years old	18 (40.9%)
High school or lower	34 (77.3%)	55-64 years old	14 (31.8%)
Undergraduate	4 (9.1%)	65+ years old	4 (9.1%)
Postgraduate	2 (4.5%)		
Other	4 (9.1%)		

The next section focuses on the assessment of the measurement model in the PLS-SEM analysis. This step is essential in validating the reliability and validity of the constructs used in the research. The quality of the measurement model is assessed by examining convergent and discriminant validity, and the reliability of the measurement items.

5.4.2. Construct Evaluation Results and Survey Adjustments

The reliability, internal consistency, convergent validity, and discriminant validity of the observed indicators were examined to evaluate the underlying latent constructs. The results are presented next. The results include outer loadings, composite reliability (CR), and average variance extracted (AVE) for reflective measurement constructs, as well as the first-order components of effectuation. Analysis showed that a total of 12 items had low loadings (<0.5). In addition, some constructs could not satisfy CR, Cronbach's α, AVE, and HTMT criteria. Based on Hair et al. (2017), there are various solutions to manage discriminant validity issues. They suggest eliminating indicators that have low correlations with other indicators, calculating the identical construct. However, since this was a pilot-test analysis and most measurement scales were adopted from previous studies, no items were deleted at this stage.

Based on insights gained from the pilot test, the following adjustments were applied in the main survey:

First, findings showed that respondents tended to answer neutrally (select number 3 on a five-point scale), which could have had two reasons: (1) unclear items that make it difficult for them to understand the question. Therefore, all items, especially items with low loading and those that did not load in the constructs as expected were reviewed and refined if possible. (2) respondents did not have options representative of their level of agreement since a 5-point Likert scale was used in the survey. Therefore, in the main survey, all constructs were measured using a 7-point Likert scale to provide more options that may better represent respondents' opinions.

Consideration was given to how this change would affect e results. There is a debate among researchers concerning the optimum number of choices for a Likert-type scale since the number of response categories is one of the scale characteristics that can affect the way people respond (Weathers et al., 2005). Some researchers advocate for a 7-point scale, emphasizing its optimal reliability (Symonds, 1924). In addition, having more scale points seems to reduce skewness (Leung, 2011). However, Lee et al. (2002) showed that 5- and 7-point scales reveal

similar kurtosis and skewness, making both suitable for analytical tools such as structural equation models. Furthermore, Altuna and Arslan (2016) noted no significant differences in normality and reliability between 5- and 7-point scales. Furthermore, respondents prefer and use more response options if a multi-item scale with more response options is administrated (J. W. Lee et al., 2002). It is suggested that an individualistic person would be willing to provide an extreme response, whereas a collectivist individual would prefer a moderate response on a scale (C. Chen et al., 1995). Given these considerations, it was decided to adopt a 7-point Likert scale for measuring the constructs in the main survey to offer respondents more categories to express their views and achieve better outcomes in terms of kurtosis, skewness and normality.

Second, using different scales to measure the frequency of their actions (never/always), and their agreement (strongly agree/strongly disagree and not at all certain/completely certain) for different questions possibly increased confusion or caused some mistakes in responses. Consequently, whenever possible, the level of agreement (strongly agree/strongly disagree) was used to measure constructs. In addition, to increase survey readability, colors and bold font were used to separate and emphasize key sections and points.

Third, recognizing that a significant number of respondents had only attained high school and lower education levels, a review of all survey items was undertaken. The aim was to enhance comprehension and ensure that questions were easy to understand for individuals with diverse educational backgrounds (see Table 5.1). These modifications were implemented and subsequently reviewed by two academics, ensuring the validity and representativeness of adjusted items.

5.5. Results - Main Survey

5.5.1. Respondents' Profile

Table 5.4 provides an overview of respondents' profile and their restaurant characteristics. The sample exhibits a balanced representation of both male and female respondents, encompassing diverse age groups. Notably, two-thirds of the participants were aged 45 years and older, indicating a significant proportion of middle-aged and older individuals. Turning to the educational background of respondents, the majority reported having a high school or lower education, with only 15% of respondents completing a university degree. It is worth noting that respondents were mostly HK Chinese.

Table 5.4 *Respondent Profile and Restaurant Characteristics - Main Survey*

Profile Category	Number (%)	Profile Category	Number (%)
Gender		**Restaurant Age**	
Male	163 (52.2)	<5	57 (18.3)
Female	149 (47.8)	6-10 years	76 (24.4)
Age		11-20 years	98 (31.4)
18-24 years old	0 (0)	>20	81 (26.0)
25-34 years old	22 (7.1)	**Restaurant Size (Before Crisis)**	
35-44 years old	89 (28.5)	Micro	242 (77.6)
45-54 years old	112 (35.9)	Small/medium	70 (22.4)
55-64 years old	75 (24.0)	**Restaurant Size (After Crisis)**	
65+ years old	14 (4.5)	Micro	266 (85.3)
Education		Small/medium	46 (14.7)
High school or lower	243 (77.9)	**Location**	
Undergraduate	28 (9.0)	HK Island	133 (42.6)
Postgraduate	17 (5.4)	Kowloon	115 (36.9)
Other	24 (7.7)	New Territories	64 (20.5)

Considering restaurant characteristics, one-third were established 11 to 20 years ago, followed by approximately one quarter aged between 6 and 10 years. This indicates a wide range of establishments, with some being relatively new while others have been in operation for more than a decade. Regarding restaurant size, the majority fell into the category of micro enterprises, with small and medium-sized restaurants representing less than one fifth of the sample. Geographically, establishments were distributed across three main districts: Hong Kong Island (43%), Kowloon (37%), and New Territories (21%). This geographical representation aligns with industry reports (S. Lai, 2023) that show that the top three subdistricts with the highest density of restaurants are located in both Hong Kong Island and Kowloon districts.

5.5.2. Measurement Model Evaluation

5.5.2.1. Reflective Measurement Models

Results relating to reliability, internal consistency, convergent validity, and discriminant validity of the observed indicators used to measure the underlying latent constructs are now presented. To test convergent validity, outer loadings were used to assess the properties of constructs. As shown in Appendix C, the outer loadings ranged from 0.410 to 0.927, all surpassing the recommended threshold of 0.4. The t-statistics associated with the outer loadings ranged from 7.026 to 117.435, indicating statistical significance with a p-value of less than 0.001. Furthermore, Cronbach's α values for these variables ranged from 0.799 to 0.936, indicating good internal consistency. Composite Reliability (rho_a) values were 0.815 and

0.940. In addition, Composite Reliability (rho_c) values were 0.882 and 0.954, exceeding the required threshold, and confirming strong reliability for all reflective constructs. For all these variables, indicators exhibited strong indicator reliability.

Average variance extracted (AVE) values for variables ranged from 0.423 to 0.839 (Appendix C), exceeding the threshold of 0.5 for all variables, meeting the requirements for convergent validity, except for Organizational Agility (AVE = 0.423), which was below the suggested threshold of 0.5.

As recommended by Hair et al. (2017), one possible solution to address this issue is to remove indicators with low correlations (loadings) with other indicators measuring the same construct one by one, subsequently examining whether the AVE improves. In line with this approach, by removing six indicators (OAG5, OAG7, OAG10, OAG12, OAG13, OAG15) one by one from the Organizational Agility construct, the AVE value for this construct improved to meet the suggested threshold of 0.5, reaching AVE = 0.508. Organizational agility was measured as a unidimensional concept in this study, aligned with prior research (e.g., Darvishmotevali et al., 2020).

There were no discriminant validity issues observed between the reflective constructs when evaluating the Fornell-Larcker criterion (Appendix D), since the square root of the AVE for each construct was greater than the correlation values with any other constructs (Fornell & Larcker, 1981). In addition, according to the HTMT ratio results (Appendix E), all ratios among constructs in this study were below 0.85, indicating discriminant validity. In addition, there were no cross-loadings issues since the loading of each indicator was greater on its own construct than on other constructs (Henseler et al., 2009; Hair et al., 2014) (Appendix F). Thus, discriminant validity was considered appropriate.

5.5.2.2. Reflective-Formative Construct - Effectuation

As previously mentioned, this study model included one higher-order model, Effectuation, which was a second-order reflective-formative higher-order construct with four components: Experimentation (EX), Flexibility (FL), Affordable Loss (AL), and Pre-Commitments (PC). Reliability and validity assessments of both the first-order components and second-order component for this reflective-formative construct are presented in the following sections. EX, FL, AL, and PC were evaluated together with other reflective constructs on the model. Results demonstrate strong indicator reliability and convergent

validity. For each of the four constructs, all indicators had outer loadings above 0.5, ranging from 0.632 to 0.851. The t-statistics for these loadings exceeded the threshold of 1.96, ranging from 19.79 to 45.21, with p-values less than 0.001. Cronbach's α values ranged from 0.709 to 0.785, and composite reliability (CR) values were 0.818 and 0.861, surpassing the threshold. These findings indicate strong indicator reliability for all four first-order constructs. Furthermore, average variance extracted (AVE) values ranged from 0.531 to 0.652, exceeding the threshold of 0.5, and thereby, meeting requirements for convergent validity (Table 5.5).

According to Appendices B and C, there were no concerns with discriminant validity based on the Fornell-Larcker criterion and the HTMT ratio results for the first-order constructs within the EDML hierarchy. The square root of the average variance extracted (AVE) for each latent variable is greater than the correlation values with other latent variables, indicating discriminant validity. Additionally, based on the cross-loading criterion, discriminant validity is established (Appendix F). This further supports discriminant validity of the indicators within the EDML hierarchy.

Table 5.5 *Reliability and Validity for First-Order Constructs of Effectuation*

Effectuation Construct	Indicator	Loadings	t-statistics	Cronbach's α	CR (rho_a)	CR (rho_c)	AVE
Experimentation				0.709	0.725	0.818	0.531
	EX1	0.770	29.597***				
	EX2	0.773	26.734***				
	EX3	0.633	11.075***				
	EX4	0.731	19.790***				
Affordable loss				0.732	0.738	0.848	0.652
	AL1	0.851	45.210***				
	AL2	0.790	26.999***				
	AL3	0.778	26.485***				
Flexibility				0.768	0.782	0.852	0.591
	FL1	0.808	30.632***				
	FL2	0.655	13.868***				
	FL3	0.789	26.745***				
	FL4	0.812	34.883***				
Pre-commitment				0.785	0.791	0.861	0.608
	PC1	0.771	31.540***				
	PC2	0.741	23.514***				
	PC3	0.815	37.451***				
	PC4	0.790	28.280***				

*Note: ***p < 0.001; based on two tailed tests*

After evaluating first order constructs, the following criteria were assessed to evaluate the second-order component of effectuation:

Convergent Validity

In this study, redundancy analysis, as proposed by Chin (1998) and recommended by Hair et al. (2017), was utilized to test the convergent validity of formative measurement models. To conduct this analysis, the formative construct is treated as an exogenous latent variable and used to predict an endogenous latent variable represented by one global item or several reflective indicators. The strength of the path coefficient between the formative construct and reflective indicators indicates the validity of the selected group of formative indicators in capturing the target construct. An ideal path coefficient level of 0.80 or a minimum of 0.70 is preferred for the formative construct's relationship with reflective indicators (Chin, 1998; J. Hair et al., 2017). Analysis showed a path coefficient of 0.872 for effectual DML, which is above the recommended threshold value (Figure 5.1), confirming that there is no convergent validity concern for the second order construct of EDML.

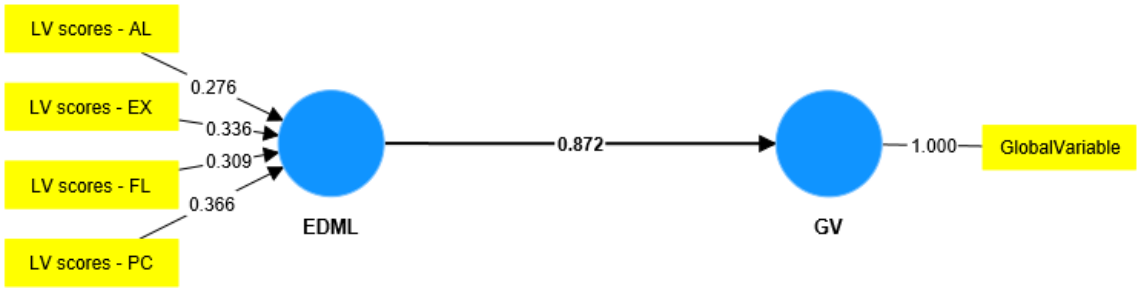

Figure 5.1 *Redundancy Analysis for Second-Order Construct of Effectual DML*

Collinearity, Significance and Relevance

As suggested by Hair et al. (2017), assessing formative constructs involves checking for collinearity by examining the variance inflation factor (VIF). Ideally, VIF values for indicators should be below 5 (Cohen, 1988; Gefen et al., 2000); high VIF values indicate potential collinearity problems among indicators. Based on the findings presented in Table 5.6, there are no collinearity concerns for the second-order construct of EDML. VIF values are all below 5, ranging from 1.341 to 1.772, indicative of collinearity not being a concern in the model.

In addition, significance and relevance of the formative indicators are examined to assess formative measurement models. One approach is to assess the indicator's contribution to the latent variable by evaluating its weights and loadings, as well as the significance of the

item weights (Cohen, 1988; Henseler et al., 2009; do Valle & Assaker, 2016). Regarding indicator weights, desirable coefficients are typically 0.100 or higher, with a lower cutoff point of 0.05 (Lohmöller, 1989; Wold, 2004). All weights of the first-order constructs for EDML are above the threshold value of 0.1, ranging from 0.179 to 0.397, demonstrating their significance and relevance. Furthermore, t-statistics are all higher than the threshold of 1.96, ranging from 3.116 to 9.667, providing further evidence of the significance and relevance of the first-order constructs for the second-order construct of effectuation.

Table 5.6 *Collinearity, Significance, and Relevance of Effectual DML*

Second-order Construct	First-order constructs	Outer Weight	t- value	Confidence interval (Bias corrected)		VIF
				2.50%	97.50%	
Effectual DML	AL	0.397	9.667***	0.277	0.475	2.038
	EX	0.339	7.057***	0.293	0.503	1.853
	FL	0.376	6.721***	0.227	0.468	2.369
	PC	0.179	3.116***	0.058	0.300	2.129

*Note: ***p < 0.001*; based on two tailed tests

5.5.3. Structural Model Evaluation

After evaluating the measurement model and obtaining satisfactory results, the structural model was assessed. The assessment of a structural model in PLS-SEM involves six main criteria, as follows: 1) assessing collinearity issues, 2) examining the R2 values, 3) evaluating the significance of path coefficients, 4) assessing the f^2 effect size, 5) evaluating the predictive relevance Q^2, and 6) examining the q^2 effect size (Hair et al., 2017).

5.5.3.1. Collinearity

Based on previously discussed collinearity assessment guidelines (Hair et al., 2017), Table 5.7, displaying VIF values of all exogenous variables for their corresponding endogenous variables in the inner model, indicates that all VIF values are well below the threshold of 5. This finding suggests that there are no significant concerns regarding collinearity among the exogenous variables in the inner model. Consequently, collinearity is not a concern in the evaluation of the structural model.

Table 5.7 *VIF Values in The Inner Model*

	CDML	EDML	OAG	ORF	OR
CDML			1.897	1.879	2.196
EDML			1.897	1.987	2.848
ORF					2.540
OAG					2.247
SU	2.329	2.579			
EU	2.591	2.885			
RU	1.860	1.880			
PGS	1.163	1.346			
PER	1.973	2.110			
BPP	1.283	1.316			
PR	2.074	2.119			
EBB	2.390	2.718			

5.5.3.2. Predictive Power (R^2)

The R^2 value provides a measure of the predictive power of the model by quantifying the extent to which the exogenous latent variables explain the variance in the endogenous latent variable (Rigdon, 2012; Sarstedt et al., 2014). It is computed as the squared correlation between the actual and predicted values of the endogenous construct and represents the proportion of variance in the endogenous construct that can be explained by the exogenous constructs included in the model. In other words, it indicates how well the model predicts the observed values, based on the relationships between the exogenous and endogenous constructs. It is important to note that the R^2 value reflects the in-sample predictive power of the model, as it is based on the entire dataset used for model estimation. This measure provides insights into the overall explanatory power of the model and the collective predictive ability of the exogenous constructs.

Interpretation of R^2 values may vary depending on the specific research context and the nature of variables under investigation. Researchers should consider the magnitude of R^2 values in relation to relevant benchmarks and established norms within their field to accurately evaluate the predictive power of their model (Rigdon, 2012; Sarstedt et al., 2014). The R^2 value, ranging from 0 to 1, is used to assess the predictive accuracy of a model, with higher values indicating greater predictive power. However, there are no universally accepted guidelines for determining what constitutes an acceptable R^2 value, as it depends on the complexity of the model and the specific study context (Henseler et al., 2009; Hair et al., 2011). R^2 values of 0.67, 0.33, and 0.19 are considered substantial, moderate, and weak, respectively in PLS path models (Chin, 1998). Hair and colleagues (2011) emphasize the importance of high R^2 values

for key endogenous latent variables in PLS-SEM, as the primary focus of PLS-SEM is prediction-oriented and aims to explain the variance of the target constructs.

Hair et al. (2017) argue that solely relying on the R^2 value is not a suitable approach, as including numerous insignificant exogenous constructs can artificially inflate the R^2 value. To address this concern and account for model complexity, they propose using the adjusted coefficient of determination (R^2_{adj}). The R^2_{adj} is a modified version of R^2 that takes into consideration the number of exogenous constructs relative to the sample size. By doing so, the R^2_{adj} values provide a more balanced assessment of the model's predictive power. It is important to note that R^2_{adj} values should not be interpreted in the same way as R^2 values. They are primarily used to compare and evaluate PLS-SEM results when different numbers of exogenous latent variables are included in the path models. R^2_{adj} values provide a more meaningful and reliable measure of predictive accuracy by adjusting for the impact of model complexity and the number of included exogenous constructs (Hair et al., 2017).

Table 5.8 presents R^2 and R^2_{adj} values for each endogenous construct in the structural model. Results indicate that EDML had the highest predictive power, with an R^2 value of 0.761. Thus, 76.1% of the variance in EDML was explained by the exogenous constructs in the model. Organizational agility had an R^2 value of 0.572, indicating that 57.2% of the variance in organizational agility was accounted for by the exogenous constructs. Organizational resourcefulness had an R^2 value of 0.566, reflective of 56.6% of the variance in organizational resourcefulness being explained by the exogenous constructs. Organizational resilience and causation showed moderate predictive power, with R^2 values of 0.384 and 0.428, respectively. All R^2 values reported in Table 5.8 were statistically significant with p-values less than 0.001.

Table 5.8 *Coefficient of Determination of Endogenous Latent Variables*

Endogenous Latent Variable	R^2	t-value	R^2_{adj}	t-value	Power
Effectuation	0.761	26.581***	0.749	24.895***	substantial
Causation	0.428	8.910***	0.427	7.906***	moderate
Organizational Agility	0.572	11.307***	0.569	11.179***	moderate
Organizational Resourcefulness	0.566	12.555***	0.564	12.416***	moderate
Organizational Resilience	0.384	6.967***	0.376	6.734***	moderate

*Note: ***p < 0.001*; based on two tailed tests

5.5.3.3. Path Coefficient – Hypothesis Test

Bootstrapping procedures with 5,000 samples were performed to assess path coefficients (Hair et al., 2017). A path coefficient is considered statistically significant if its empirical t-value exceeds the critical value, which is typically set at 1.96 for a significance level of 5%, or 2.57 for a significance level of 1% (Hair et al., 2017). Significant path coefficients in the model indicate empirical support for the proposed causal relationships (Hair et al., 2011). However, it is important to consider the managerial relevance of these relationships. While significant, the size of the relationships may be too small to be practically meaningful from a managerial perspective (Hair et al., 2014).

Table 5.9 provides an overview of the statistical significance of the hypothesized relationships in the inner model while Figure 5.2 shows structural model results from SmartPLS software. Out of 34 hypothesized relationships, 14 were found to be statistically significant.

Hypothesis 1a was analyzed by assessing the path coefficient between effectual DML and organizational resilience – it was positive and significant ($\beta = 0.261$, $t = 2.999$, $p < 0.001$). Therefore, hypothesis 1a is supported.

Hypothesis 1b was analyzed by assessing the path coefficient between causal DML and organizational resilience – it was positive but not significant ($\beta = -0.064$, $t = 0.881$, $p = 0.379$). Therefore, hypothesis 1b is not supported.

Hypothesis 2.1a was analyzed by assessing the indirect path coefficient between effectual DML and organizational resilience through organizational resourcefulness – it was positive and significant ($\beta = 0.036$, $t = 0.729$, $p = 0.466$). Therefore, hypothesis 2.1a is not supported.

Hypothesis 2.1b was analyzed by assessing the indirect path coefficient between causal DML and organizational resilience through organizational resourcefulness – it was positive but not significant ($\beta = 0.019$, $t = 0.713$, $p = 0.476$). Therefore, hypothesis 2.1b is not supported.

Hypothesis 2.2a was analyzed by assessing the indirect path coefficient between effectual DML and organizational resilience through organizational agility – it was positive and significant ($\beta = 0.\ 0.205$, $t = 4.603$, $p < 0.001$). Therefore, hypothesis 2.2a is supported.

Table 5.9 *Path Coefficient and Hypotheses Test Results*

	Hypothesis		Path Coefficient	t-value	Confidence intervals (Bias corrected)		Hypothesis Test
					2.50%	97.50%	
H1a	EDML -> OR	Managers' effectual DML has a positive direct impact on MSME resilience during a prolonged crisis.	0.261	2.999***	0.097	0.438	Supported
H1b	CDML -> OR	Managers' causal DML has a negative direct impact on MSME resilience during a prolonged crisis.	-0.064	0.884	-0.212	0.074	Not Supported
H2.1a	EDML -> ORF -> OR	Organizational resourcefulness mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.	0.036	0.729	-0.063	0.131	Not Supported
H2.1b	CDML -> ORF -> OR	Organizational resourcefulness mediates the relationship between causal DML and MSME resilience during a prolonged crisis.	0.019	0.713	-0.030	0.073	Not Supported
H2.2a	EDML -> OAG -> OR	Organizational agility mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.	0.205	4.603***	0.120	0.294	Supported
H2.2b	CDML -> OAG -> OR	Organizational agility mediates the relationship between causal DML and MSME resilience during a prolonged crisis.	0.119	3.644***	0.059	0.185	Supported
H3.1a	PR -> EDML	Psychological resilience of managers has a positive impact on the adoption of effectual DML during a prolonged crisis.	0.033	0.829	-0.053	0.109	Not Supported
H3.1b	PR -> CDML	Psychological resilience of managers has a negative impact on the adoption of causal DML during a prolonged crisis.	0.105	1.601	-0.031	0.227	Not Supported
H 3.2a	EBB -> EDML	Entrepreneurial bricolage behavior has a positive impact on the adoption of effectual DML during a prolonged crisis.	0.250	4.896***	0.150	0.352	Supported
H3.2b	EBB -> CDML	Entrepreneurial bricolage behavior has a negative impact on the adoption of causal DML during a prolonged crisis.	0.350	5.092***	0.205	0.474	Reversed relations supported
H 4.1a	PER -> EDML	Perceived employee resilience has a positive impact on the adoption of effectual DML during a prolonged crisis.	0.179	4.090***	0.094	0.265	Supported
H4.1b	PER -> CDML	Perceived employee resilience has a negative impact on the adoption of causal DML during a prolonged crisis.	-0.094	1.352	-0.221	0.051	Not Supported
H4.2a	BPP -> EDML	High business pre-crisis performance has a negative impact on the adoption of effectual DML during a prolonged crisis.	0.080	2.032	0.003	0.161	Reversed relations supported

	Hypothesis		Path Coefficient	t-value	Confidence intervals (Bias corrected)		Hypothesis Test
					2.50%	97.50%	
H4.2b	BPP -> CDML	High business pre-crisis performance has a positive impact on the adoption of causal DML during a prolonged crisis.	0.015	0.252	-0.106	0.131	Not Supported
H5.1a	SU -> EDML	Perceived state uncertainty has a positive impact on the adoption of effectual DML a prolonged crisis.	0.205	4.593***	0.112	0.288	Supported
H5.1b	SU -> CDML	Perceived state uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.	0.090	1.275	-0.054	0.226	Not Supported
H5.1c	EU -> EDML	Perceived effect uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.	0.228	4.420***	0.122	0.325	Supported
H5.1d	EU -> CDML	Perceived effect uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.	0.233	3.288***	0.098	0.374	Reversed relations supported
H5.1e	RU -> EDML	Perceived response uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.	0.023	0.564	-0.060	0.121	Not Supported
H5.1f	RU -> CDML	Perceived response uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.	-0.046	0.806	-0.158	0.069	Not Supported
H5.2a	GS -> EDML	Perceived government support has a negative impact on the adoption of effectual DML during a prolonged crisis.	0.161	4.654***	0.091	0.229	Reversed relations supported
H5.2b	GS -> CDML	Perceived government support has a positive impact on the adoption of causal DML during a prolonged crisis.	0.089	1.933*	0.002	0.183	Supported
Moderator Effects of ESE							
H6.1a	ESE x PER -> EDML	Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of effectual DML during a prolonged crisis.	0.122	3.213***	0.043	0.190	Supported
H6.1b	ESE x PER -> CDML	Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of causal DML during a prolonged crisis.	0.114	1.689	-0.016	0.247	Not Supported
H6.2a	ESE x BPP -> EDML	Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of effectual DML during a prolonged crisis.	-0.023	0.583	-0.102	0.055	Not Supported

Hypothesis			Path Coefficient	t-value	Confidence intervals (Bias corrected)		Hypothesis Test
					2.50%	97.50%	
H6.2b	ESE x BPP -> CDML	Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of causal DML during a prolonged crisis.	-0.000	0.003	-0.118	0.117	Not Supported
H6.3a	ESE x GS -> EDML	Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of effectual DML during a prolonged crisis.	-0.029	0.921	-0.095	0.028	Not Supported
H6.3b:	ESE x GS -> CDML	Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of causal DML during a prolonged crisis.	-0.053	1.198	-0.140	0.34	Not Supported
H6.4a	ESE x SU -> EDML	Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of effectual DML during a prolonged crisis.	-0.089	2.203**	-0.175	-0.016	Supported
H6.4b	ESE x SU -> CDML	Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of causal DML during a prolonged crisis.	-0.062	0.932	-0.199	0.062	Not Supported
H6.4c	ESE x EU -> EDML	Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of effectual DML during a prolonged crisis.	0.080	1.543	-0.011	0.192	Not Supported
H6.4d	ESE x EU -> CDML	Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of causal DML during a prolonged crisis.	0.082	1.179	-0.053	0.219	Not Supported
H6.4e	ESE x RU -> EDML	Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of effectual DML during a prolonged crisis.	0.002	0.050	-0.097	0.078	Not Supported
H6.4f	ESE x RU -> CDML	Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of causal DML during a prolonged crisis.	-0.017	0.341	-0.130	0.073	Not Supported

Note: ***p < 0.001, **p < 0.05, *p < 0.1; based on two tailed tests

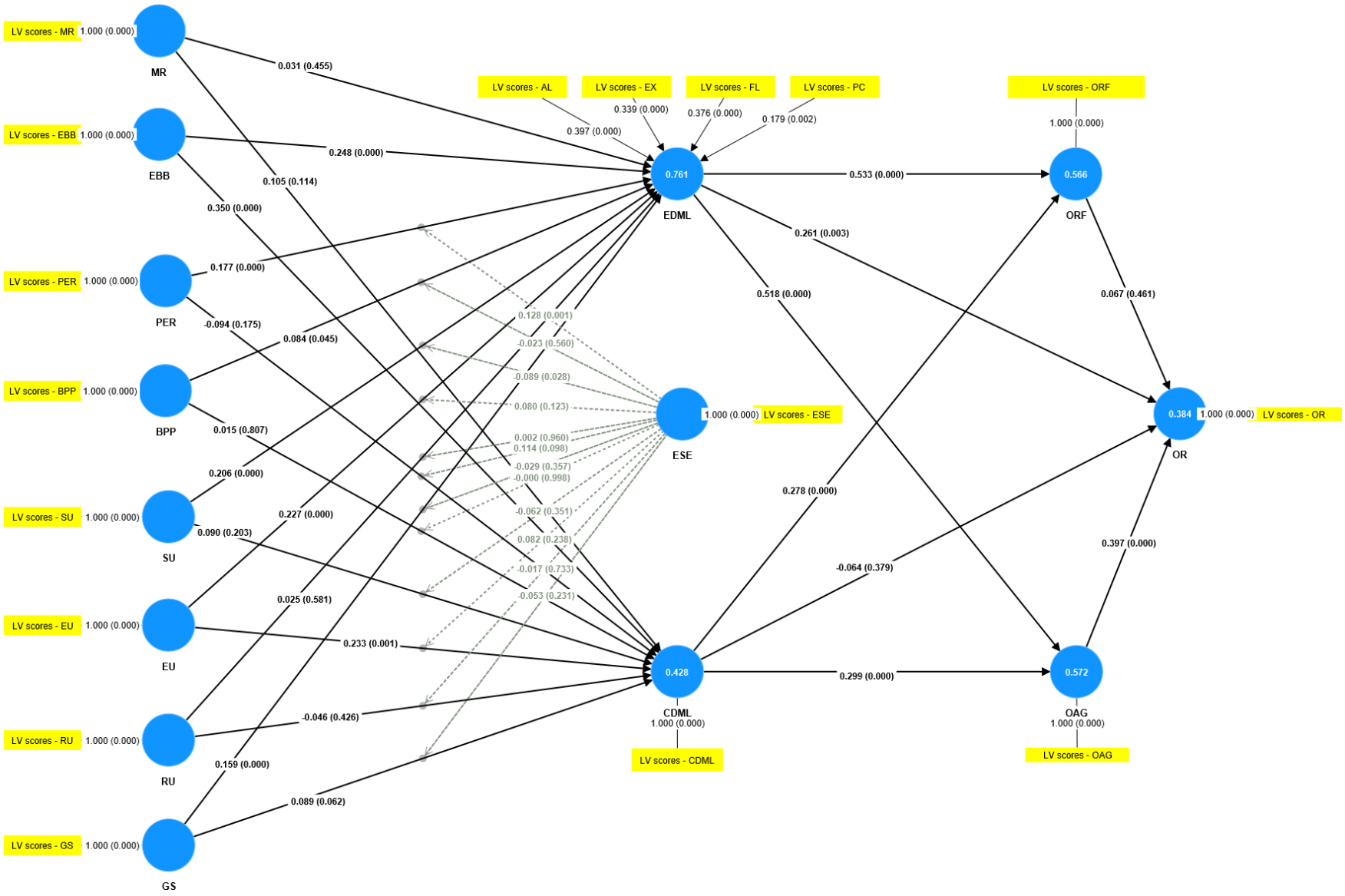

Figure 5.2 *Structural Model Results*

Hypothesis 2.2b was analyzed by assessing the indirect path coefficient between causal DML and organizational resilience through organizational agility – it was positive and significant ($\beta = 0.119$, $t = 3.644$, $p < 0.001$). Therefore, hypothesis 2.2b is supported.

Hypothesis 3.1a was analyzed by assessing the path coefficient between psychological resilience and effectual DML – it was not significant ($\beta = 0.033$, $t = 0.829$, $p = 0.407$). Therefore, hypothesis 3.1a is not supported.

Hypothesis 3.1b was analyzed by assessing the path coefficient between psychological resilience and causal DML – it was not significant ($\beta = 0.105$, $t = 1.601$, $p = 0.11$). Therefore, hypothesis 3.1b is not supported.

Hypothesis 3.2a was analyzed by assessing the path coefficient between entrepreneurial bricolage behavior and effectual DML – it was positive and significant ($\beta = 0.250$, $t = 4.896$, $p < 0.001$). Therefore, hypothesis 3.2a 9 is supported.

Hypothesis 3.2b was analyzed by assessing the path coefficient between entrepreneurial bricolage behavior and causal DML – it was positive and significant ($\beta = 0.350$, $t = 5.092$, $p < 0.001$). However, since a negative effect has been proposed initially, a reversed relation for hypothesis 3.2b is supported.

Hypothesis 4.1a was analyzed by assessing the path coefficient between perceived employee resilience and effectual DML – it was positive and significant ($\beta = 0.179$, $t = 4.090$, $p < 0.001$). Therefore, hypothesis 4.1a is supported.

Hypothesis 4.1b was analyzed by assessing the path coefficient between perceived employee resilience and causal DML – it was not significant ($\beta = -0.094$, $t = 1.1352$, $p = 0.177$). Therefore, hypothesis 4.1b is not supported.

Hypothesis 4.2a was analyzed by assessing the path coefficient between business pre-crisis performance and effectual DML – it was positive and significant ($\beta = 0.080$, $t = 2.032$, $p = 0.04$). However, since a negative effect has been proposed initially, a reversed relation for hypothesis 4.2a is supported.

Hypothesis 4.2b was analyzed by assessing the path coefficient between business pre-crisis performance and causal DML – it was not significant ($\beta = 0.015$, $t = 0.058$, $p = 0.801$). Therefore, hypothesis 4.2b is not supported.

Hypothesis 5.1a was analyzed by assessing the path coefficient between perceived state uncertainty and effectual DML – it was positive and significant ($\beta = 0.205$, $t = 4.593$, $p < 0.001$). Therefore, hypothesis 5.1a is supported.

Hypothesis 5.1b was analyzed by assessing the path coefficient between perceived state uncertainty and causal DML – it was not significant ($\beta = 0.090$, $t = 1.275$, $p = 0.202$). Therefore, hypothesis 5.1b is not supported.

Hypothesis 5.1c was analyzed by assessing the path coefficient between perceived effect uncertainty and effectual DML – it was positive and significant ($\beta = 0.228$, $t = 4.442$, $p < 0.001$). Therefore, hypothesis 5.1c is supported.

Hypothesis 5.1d was analyzed by assessing the path coefficient between perceived effect uncertainty and causal DML – it was positive and significant ($\beta = 0.233$, $t = 3.288$, $p < 0.001$). However, since a negative effect has been proposed initially, a reversed relation for hypothesis 5.1d is supported.

Hypothesis 5.1e was analyzed by assessing the path coefficient between perceived response uncertainty and effectual DML – it was not significant ($\beta = 0.023$, $t = 0.491$, $p = 0.624$). Therefore, hypothesis 5.1e is not supported.

Hypothesis 5.1f was analyzed by assessing the path coefficient between perceived response uncertainty and causal DML – it was not significant ($\beta = -0.046$, $t = 0.806$, $p = 0.420$). Therefore, hypothesis 5.1f is not supported.

Hypothesis 5.2a was analyzed by assessing the path coefficient between perceived government support and effectual DML – it was positive and significant ($\beta = 0.161$, $t = 4.654$, $p < 0.001$). However, since a negative effect has been proposed initially, a reversed relation for hypothesis 5.2a is supported.

Hypothesis 5.2b was analyzed by assessing the path coefficient between perceived government support and causal DML – it was positive and significant ($\beta = 0.089$, $t = 1.933$, $p = 0.053$). However, since a negative effect has been proposed initially, a reversed relation for hypothesis 5.2b is supported at 10% confidence level.

Regarding moderating effects of entrepreneurial self-efficacy on the relationship between PER, BPP, SU, EU, RU, PGS, and effectuation/causation, only two hypotheses were supported. As shown in Figure 5.3, entrepreneurial self-efficacy strengthened the positive link

between perceived employee resilience and effectuation. Thus, H6.1a is supported (β = 0.128, t = 3.189, p < 0.001).

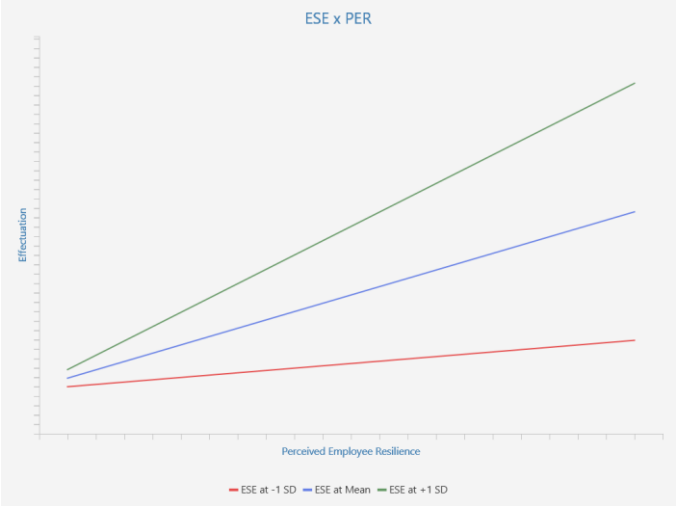

Figure 5.3 *Simple Slope Analysis - ESE x SU x EDML*

In addition, as presented in Figure 5.4, high entrepreneurial self-efficacy weakened the positive association between perceived state uncertainty and effectuation. Accordingly, H6.4a is supported (β = -0.089, t = 2.203, p = 0.028).

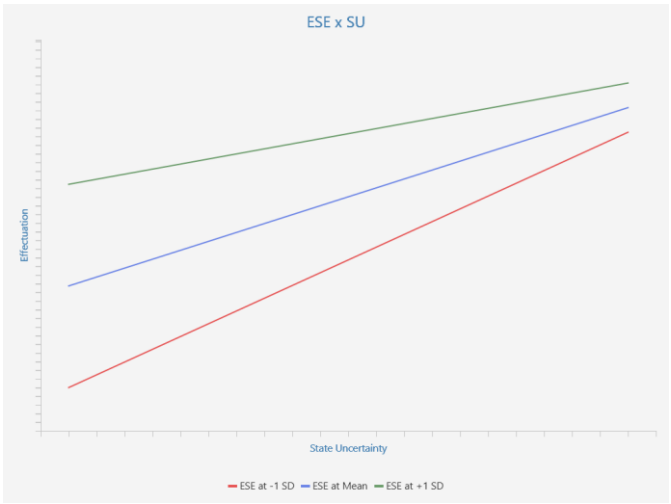

Figure 5.4 *Simple Slope Analysis - ESE x PER x EDML*

5.5.3.4. Effect Size (f^2)

The f^2 effect size measures the contribution of an exogenous latent variable to the R^2 value of an endogenous latent variable. This effect size helps determine the importance of a specific exogenous construct in explaining variances in the endogenous constructs (Hair et al., 2017). The f^2 effect size is calculated using the following formula:

$f^2 = (R^2_{included} - R^2_{excluded}) / (1 - R^2_{included})$

In this formula, $R^2_{included}$ refers to the R^2 value of the endogenous latent variable when a particular exogenous latent variable is included in the model, while $R^2_{excluded}$ represents the R^2 value when the same exogenous latent variable is excluded from the model. The difference between these two R^2 values provides an alteration in the predictive power. The f^2 value reflects the effect size of the excluded exogenous construct on the associated endogenous construct. Effect sizes of 0.35, 0.15, and 0.02 are considered large, medium, and small, respectively (Cohen, 1988; Henseler et al., 2009). A high f^2 value indicates a strong contribution of the exogenous latent variable to the explained variance in the endogenous latent variable (Hair et al., 2014). Table 5.10 shows f^2 effect size values. Entrepreneurial bricolage behavior had the highest contribution to EDML with a f^2 value of 0.108, which is a small effect. Moreover, SU, EU, GS, and RPP had small f^2 effect sizes on effectuation. Effectuation had a medium effect on organizational resourcefulness and organizational agility with f^2 values of 0.275 and 0.255, respectively. In addition, effectuation had a small effect on OR with a f^2 value of 0.064. On the other hand, causation had a small effect on organizational resourcefulness and organizational agility with f^2 values of 0.127 and 0.123, respectively. However, its effect on OR was negligible.

Table 5.10 *f^2 Effect Size*

Path	f^2	Effect
SU to EDML	0.077	small
SU to CDML	0.006	negligible
EU to EDML	0.083	small
EU to CDML	0.037	small
RU to EDML	0.001	negligible
RU to CDML	0.002	negligible
GS to EDML	0.091	small
GS to CDML	0.012	negligible
BPP to EDML	0.023	small
BPP to CDML	0.001	negligible
PR to EDML	0.002	negligible
PR to CDML	0.009	negligible
EBB to EDML	0.108	small
EBB to CDML	0.090	small
PER to EDML	0.067	small
PER to CDML	0.008	negligible
EDML to ORF	0.342	medium
EDML to OAG	0.327	medium
EDML to OR	0.064	small
CDML to ORF	0.094	small
CDML to OAG	0.109	small
CDML to OR	0.003	negligible
ORF to OR	0.003	negligible
OAG to OR	0.101	small

Acknowledging the small effect sizes, caution should be exercised when interpreting the findings. Despite their statistical significance, the practical significance of these effects may be limited. Small effects may suggest that the variables examined in the study have only a minimal impact on the latent constructs under investigation in the context of this study. These results highlight the necessity for a comprehensive understanding of the dynamics of effectuation and causation within the restaurant sector, particularly during times of crises such as the COVID-19 pandemic. For instance, rigorous operational restrictions during the pandemic may limit the influence of other factors on the adoption of effectuation and causation, thereby contributing to the occurrence of small effects in this study.

5.2.3.5. Predictive Relevance (Q^2)

In addition to assessing R^2 values as a measure of predictive accuracy, researchers emphasize the importance of examining Stone-Geisser's Q^2 value (Geisser, 1974; Stone, 1974). This value indicates the out-of-sample predictive power or predictive relevance of a model.

Q^2 values assess a model's ability to accurately predict data that were not included in the model estimation process. For each reflective endogenous latent variable in the structural model, a Q2 value greater than zero indicates that the model has predictive relevance for the specific endogenous construct (Hair et al., 2017). According to Table 5.11, Q^2 values of all endogenous variables are higher than zero, ranging from 0.342 for causation to 0.560 for organizational resourcefulness. These values indicate that the exogenous latent variables have predictive relevance for the endogenous variables in the model. Thus, the model has a satisfactory level of out-of-sample predictive power and can generalize well to unseen data.

Table 5.11 *Predictive Relevance (Q^2)*

Endogenous Latent Variable	Q^2
Effectuation	0.433
Causation	0.342
Organizational Agility	0.560
Organizational Resourcefulness	0.556
Organizational Resilience	0.350

5.2.3.6. q^2 Effect Size

The q^2 effect size is used to compare the relative influence of predictive relevance. This concept is similar to the f^2 effect size approach used for calculating R^2 (Hair et al., 2017). To compute the q^2 effect size of an exogenous latent variable on a reflective endogenous latent variable, the PLS-SEM model is evaluated twice. First, the model is estimated with the exogenous latent variable included, and the blindfolding procedure is applied to obtain the Q^2 value ($Q^2_{included}$). Then, the model is re-estimated without the exogenous latent variable, and the blindfolding procedure is repeated to obtain the Q^2 value ($Q^2_{excluded}$) (Hair et al., 2017). By comparing these two values, researchers can determine the effect size of the excluded exogenous latent variable on the reflective endogenous latent variable. The computation has to be manual because the SmartPLS software program does not offer a q^2 effect size. This approach allows for the assessment of the relative importance of the exogenous latent variables in predicting the endogenous latent variables in the model. The q^2 effect size of 0.35, 0.15, and 0.02 illustrate a large, medium, and small predictive relevance, respectively, for a certain exogenous latent variable (Hair et al., 2017). The following formula calculates the q2 effect size of PER on effectuation: $q^2_{\text{PER on Effectuation}} = (Q^2_{included} - Q^2_{excluded}) / (1 - Q^2_{included}) = 0.025$

According to Table 5.12, the largest value of q^2 effect size in the model was the q^2 effect size of effectuation on organizational resourcefulness (0.088), followed by the q^2 effect size of effectuation on organizational agility (0.072). Therefore, effectuation had small predictive relevance on organizational resourcefulness and organizational agility. Some variables had very marginal or even no predictive relevance, such as response uncertainty on causation (0.000) or RPP on effectuation (0.004). Table 5.12 shows the q^2 effect size of endogenous variables on exogenous variables.

Table 5.12 *q^2 Effect Size*

	Effectuation	Causation	Organizational Agility	Organizational Resourcefulness	Organizational Resilience
PR	0.004	0.000			
EBB	0.019	0.032			
PER	0.025	0.008			
BPP	0.004	0.000			
GS	0.023	0.006			
SU	0.027	0.004			
EU	0.019	0.014			
RU	0.002	0.000			
Effectuation			0.072	0.088	0.021
Causation			0.033	0.047	0.000

Organizational Agility	0.035
Organizational Resourcefulness	0.004

5.2.3.7. Summary of Structural Model Results

Results for both the measurement and structural models demonstrate satisfactory results at the indicator and construct levels. The R^2 value (predictive power) of the endogenous variables, f^2 effect size (the exogenous variables' contribution to an endogenous variable's R^2 value), Q^2 (predictive relevance), q^2 (relative impact of predictive relevance), and total effect determine that the structural model substantially reflects the different influence of antecedents on the adoption of effectual and causal DML, and effects of effectual and causal DML on the resilience of MSMEs. Using Q^2 values, the model demonstrates high predictive relevance for the target constructs since all values were larger than zero. Although some of the exogenous variables (antecedents) in the proposed model showed small predictive power in predicting DMLs, results showed interesting findings for both DMLs under investigation, contradicting prior literature.

In addition, bootstrapping was used to examine the significance of path coefficients in the structural models (Hair et al., 2014). Results indicated that entrepreneurial bricolage behavior, perceived employee resilience, business pre-crisis performance, state uncertainty, effect uncertainty, and perceived government support played a significant role in the adoption of effectuation. On the other hand, entrepreneurial bricolage behavior, effect uncertainty, and perceived government support had significant effects on the adoption of causation.

Moving on to direct and indirect impacts of both effectuation and causation on the resilience of MSMEs, results showed that only effectuation had a direct positive impact on organizational resilience. When considering indirect effects, both effectuation and causation had a positive impact on organizational resilience through organizational agility. However, neither effectuation nor causation exhibited indirect impacts on organizational resilience when organizational resourcefulness was considered as a mediator.

5.5.4. Control Variables (CVs)

Control variables (business size and business age) were included as single-item constructs in a PLS path model. Each control variable was then linked to the dependent latent variable (organizational resilience). Criticism of the use of single-item measures

(Diamantopoulos et al., 2012) does not apply to control variables, because they usually represent observable characteristics. Similar to the analysis of interaction effects in PLS-SEM (Hair et al. 2017), the assessment of significant control variables should include the use of the f^2 effect size to assess their relevance (Huit et al., 2018).

As Figure 5.5 shows, the effect of business size on organizational resilience was not statistically significant ($\beta = 0.010$, $t = 0.252$, $p = 0.801$). Regarding business age, results showed a significant negative effect between restaurant age and organizational resilience at a 10% confidence level ($\beta = -0.078$, $t = 1.714$, $p = 0.087$). However, assessment of the f^2 effect size showed that this effect is negligible (f^2 effect size = 0.01). In addition, as Figure 5.5 shows, including both control variables into the model did not produce substantial deviations in the path coefficients or R^2 results for organizational resilience ($R^2_{\text{without CVs}} = 0.384$ vs $R^2_{\text{with CVs}} = 0.390$).

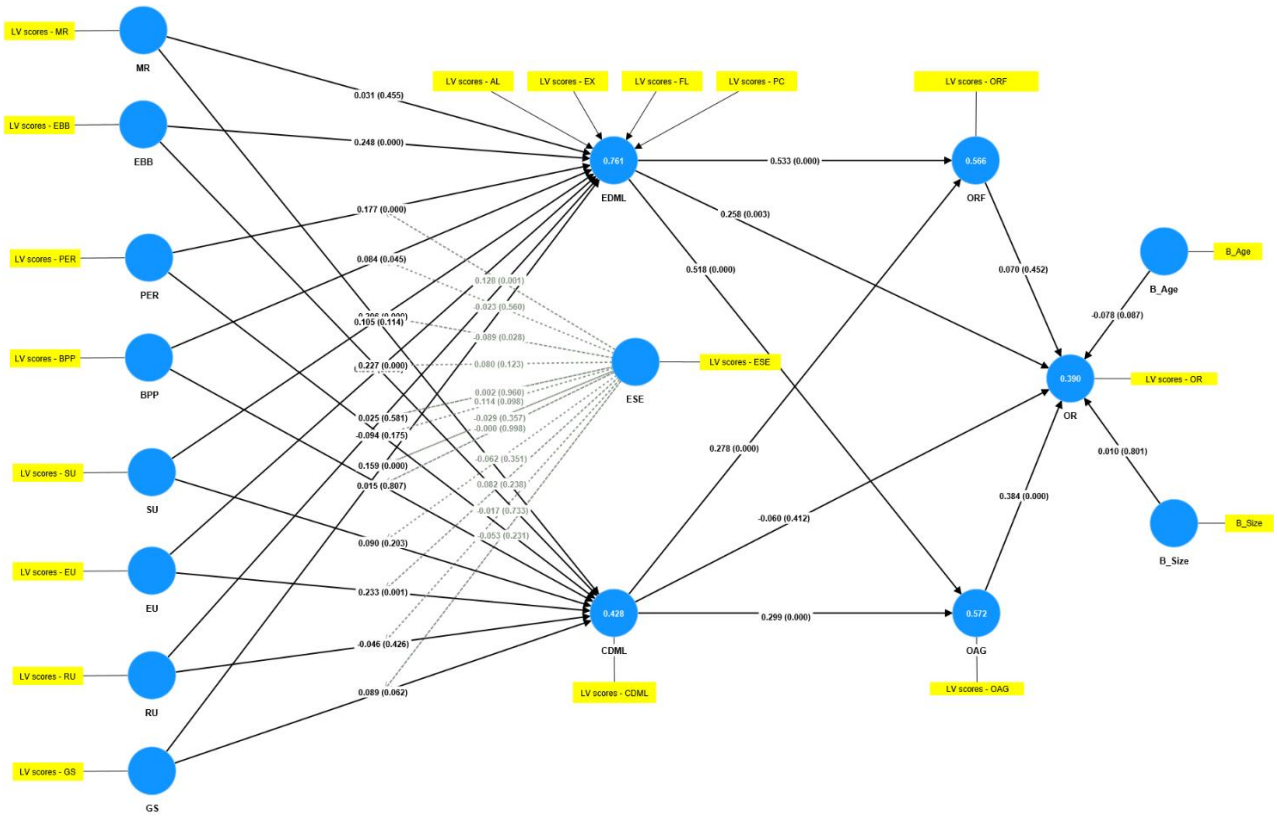

Figure 5.5 *PLS-SEM Analysis After Including Control Variables*

5.6. Chapter Summary

Chapter 5 discussed the methodology and results of the pilot test and the main survey. PLS-SEM was employed to analyze the conceptual model. Reliability and validity of measurement models were confirmed. Then, results of the structural model were assessed to test the advanced hypotheses. PLS-SEM assessed the structural model with three paths: 1) from antecedents to effectuation and causation, 2) directly from effectuation and causation to organizational resilience, and 3) indirectly from effectuation and causation to MSME resilience through organizational resourcefulness and agility.

Chapter 6 presents discussions in response to the research questions, hypotheses and concludes the research by presenting theoretical and practical implications, study limitations, and suggestions for future studies.

6. CHAPTER SIX: DISCUSSIONS AND CONCLUSION

6.1. Introduction

This research was designed to address three research issues by exploring: 1) the direct and indirect impacts of effectual/causal DML on organizational resilience in MSMEs, 2) the antecedents of the adoption of effectual/causal DML, and 3) the moderation of impacts of antecedents on effectual/causal DML.

Chapter 1 introduced the background of the research, outlined the research problem, and provided justifications for the importance of this research. Chapter 2 reviewed the restaurant crisis literature with the aim of providing an understanding for the setting of this thesis – Hong Kong restaurants during COVID-19. Chapter 3 presented the conceptual model by drawing on effectual/causal DML theory and organizational resilience, which aimed to test the direct and indirect effects of DML on MSME resilience through the mediation of organizational resourcefulness and agility. This model also considered managers' psychological resilience, perceived employee resilience and environmental uncertainty as antecedents of the adoption of DML at individual, organizational, and environmental levels respectively to provide a comprehensive understanding of how restaurant managers employ effectuation and causation (see Figure 3.5).

Chapter 4 presented findings of the qualitative research (study 1) that explored managers' experiences during the COVID-19 pandemic. In-depth interviews uncovered additional potential antecedents, including 1) entrepreneurial bricolage behavior, 2) business pre-crisis performance, and 3) perceived government support that were incorporated into the final conceptual model. Furthermore, entrepreneurial self-efficacy emerged as a personal-level characteristic of managers that could potentially moderate the effects of organizational and environmental-level antecedents on the adoption of effectual/causal DML. The chapter concluded by presenting the final conceptual model and corresponding hypotheses (see Figure 4.3). Chapter 5 discussed the methodology and results of the pilot test and the main survey. Employing PLS-SEM, results of the structural model were assessed and advanced hypotheses were tested.

This final chapter provides discussions in relation to research problems and questions, centering on the three main research issues identified in chapter 1. First, findings are presented

regarding each research question and contrasted with prior literature to demonstrate the contributions made to knowledge by this research. Then, recommendations for future studies are provided, with specific suggestions for each research question and its variables. Finally, the chapter concludes this research by presenting theoretical and practical contributions, study limitations, and suggestions for future studies based on these limitations. Table 6.1 presents a summary of the findings derived from this thesis.

6.2. Research Issue 1 – Effectual/Causal DML and MSME Resilience

The first aim of this thesis was to understand direct and indirect impacts of managers' effectual/causal DML on their MSMEs' resilience during a prolonged crisis by addressing two main research questions (RQs):

RQ1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?

RQ2: What are the indirect impacts (mediators) of effectual/causal DML on MSME resilience during a prolonged crisis?

Next, discussions in relation to each RQ are presented.

6.2.1. Direct impacts of Effectual/Causal DML on MSME Resilience

RQ1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?

RQ1 was addressed through a comprehensive literature review, with a focus on organizational resilience and managerial decision-making, particularly exploring effectuation and causation. The objective of this review was to establish a foundational understanding of how the resilience of MSMEs relates to managers' DMLs. Subsequently, based on the insights gained from this literature review, two sub-questions and corresponding hypotheses were formulated to guide the empirical investigation.

Table 6.1 *Summary of Research Questions, Hypotheses and Findings*

Issue	Research Questions	Research Hypothesis	Findings	Hypothesis Test
1	**RQ1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?**	---	Two Sub-questions (RQ1a and RQ1b) and relevant hypotheses were advanced through a comprehensive literature review.	---
	RQ1a: Does effectual DML lead to high levels of resilience in MSMEs during a prolonged crisis?	H1a: Managers' effectual DML has a positive direct impact on MSME resilience during a prolonged crisis.	Results showed a significant and positive path coefficient between effectuation and organizational resilience.	Supported
	RQ1b: Does causal DML lead to low levels of resilience in MSMEs during a prolonged crisis?	H1b: Managers' causal DML has a negative direct impact on MSME resilience during a prolonged crisis.	Results showed no significant path coefficient between causation and organizational resilience.	Not Supported
	RQ2: What are the indirect impacts (mediators) of effectual/causal DML on MSME resilience during a prolonged crisis?	---	Two Sub-questions (RQ2.1 and RQ2.2) and relevant hypotheses were advanced through a comprehensive literature review.	---
	RQ2.1: Does organizational resourcefulness mediate the relationship between managers' effectual/causal DML and MSME resilience during a prolonged crisis?	H2.1a: Organizational resourcefulness mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.	Results showed no significant path coefficient between effectuation and organizational resilience through organizational resourcefulness.	Not Supported
		H2.1b: Organizational resourcefulness mediates the relationship between causal DML and MSME resilience during a prolonged crisis.	Results showed no significant path coefficient between causation and organizational resilience through organizational resourcefulness.	Not Supported
	RQ2.2: Does organizational agility mediate the relationship between managers' effectual/causal DML on	H2.2a: Organizational agility mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.	Results showed a positive significant path coefficient between effectuation and organizational resilience through organizational resourcefulness.	Supported

	MSME resilience during a prolonged crisis?	H2.2b: Organizational agility mediates the relationship between causal DML and MSME resilience during a prolonged crisis.	Results showed a positive significant path coefficient between causation and organizational resilience through organizational resourcefulness.	Supported
2	**RQ3: What individual-level factors affect the adoption of effectual/causal DML during a prolonged crisis?**	---	Psychological resilience and entrepreneurial bricolage behavior were identified as two individual level antecedents through literature review and interviews. Relevant RQs and Hypotheses were advanced.	---
	RQ3.1: Does psychological resilience of managers affect the adoption of effectual/causal DML during a prolonged crisis?	H3.1a: Psychological resilience of managers has a positive impact on the adoption of effectual DML during a prolonged crisis.	Results showed no significant path coefficient between manager resilience and effectuation.	Not Supported
		H3.1b: Psychological resilience of managers has a negative impact on the adoption of causal DML during a prolonged crisis.	Results showed no significant path coefficient between manager resilience and causation.	Not Supported
	RQ3.2. Does managers' entrepreneurial bricolage behavior affect the adoption of effectual/causal DML during a prolonged crisis?	H3.2a: Entrepreneurial bricolage behavior has a positive impact on the adoption of effectual DML during a prolonged crisis.	Results showed a positive significant path coefficient between entrepreneurial bricolage behavior and effectuation.	Supported
		H3.2b: Entrepreneurial bricolage behavior has a negative impact on the adoption of causal DML during a prolonged crisis.	Results showed a positive significant path coefficient between entrepreneurial bricolage behavior and causation.	Reversed relations supported
	RQ4: What organizational-level factors affect the adoption of effectual/causal DML during a prolonged crisis?	---	Perceived employee resilience and business pre-crisis performance were identified as two organizational level antecedents through literature review and interviews. Relevant RQs and Hypotheses were advanced.	---
	RQ4.1: Does managers' perception of their employee resilience affect the adoption of effectual/causal DML during a prolonged crisis?	H4.1a: Perceived employee resilience has a positive impact on the adoption of effectual DML during a prolonged crisis.	Results showed a positive significant path coefficient between perceived employee resilience and effectuation.	Supported
		H4.1b: Perceived employee resilience has a negative impact on the adoption of causal DML during a prolonged crisis.	Results showed no significant path coefficient between perceived employee resilience and causation.	Not Supported

RQ4.2: Does business pre-crisis performance affect the adoption of effectual/causal DML during a prolonged crisis?	H 4.2a: High business pre-crisis performance has a negative impact on the adoption of effectual DML during a prolonged crisis.	Results showed a positive significant path coefficient between business pre-crisis performance and effectuation.	Reversed relations supported
	H 4.2b: High business pre-crisis performance has a positive impact on the adoption of causal DML during a prolonged crisis.	Results showed no significant path coefficient between business pre-crisis performance and causation.	Not Supported
RQ5: What environmental-level factors affect the adoption of effectual/causal DML during a prolonged crisis?	---	Perceived environmental uncertainty (state, effect, and response) and perceived government support were identified as two environmental level antecedents through literature review and interviews. Relevant RQs and Hypotheses were advanced.	---
RQ5.1: Does managers' perception of environmental uncertainty (state, effect, and response uncertainty) affect the adoption of effectual/causal decision-making logic during a prolonged crisis?	*State Uncertainty:* H5.1a: Perceived state uncertainty has a positive impact on the adoption of effectual DML a prolonged crisis.	Results showed a positive significant path coefficient between perceived state uncertainty and effectuation.	Supported
	H5.1b: Perceived state uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.	Results showed no significant path coefficient between perceived state uncertainty and causation.	Not Supported
	Effect Uncertainty: H5.1c: Perceived effect uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.	Results showed a positive significant path coefficient between perceived effect uncertainty and effectuation.	Supported
	H5.1d: Perceived effect uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.	Results showed a positive significant path coefficient between perceived effect uncertainty and causation.	Reversed relations supported
	Response Uncertainty: H5.1e: Perceived response uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.	Results showed no significant path coefficient between perceived response uncertainty and effectuation.	Not Supported
	H5.1f: Perceived response uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.	Results showed no significant path coefficient between perceived response uncertainty and causation.	Not Supported

	RQ5.2: Does managers' perception of government support affect the adoption of effectual/causal decision-making logic during a prolonged crisis?	H5.2a: Perceived government support has a negative impact on the adoption of effectual DML during a prolonged crisis.	Results showed a positive significant path coefficient between perceived government support and effectuation.	Reversed relations supported
		H5.2b: Perceived government support has a positive impact on the adoption of causal DML during a prolonged crisis.	Results showed a positive significant path coefficient between perceived government support and causation.	Supported
3	**RQ6: What can moderate the impacts of organizational and environmental level antecedents on the adoption of effectual/causal DML during a prolonged crisis?**	---	Entrepreneurial self-efficacy was identified in interviews as a personal characteristic that can moderate the effects of organizational and environmental level antecedents on the adoption of Effectuation and causation. Relevant RQs and Hypotheses were advanced.	---
	RQ6.1: Does entrepreneurial self-efficacy moderate the impact of perceived employee resilience on the adoption of effectual/causal DML during a prolonged crisis?	H6.1a: Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of effectual DML during a prolonged crisis.	Results showed that path coefficient between perceived employee resilience and effectuation was moderated by entrepreneurial self-efficacy.	Supported
		H6.1b: Entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of causal DML during a prolonged crisis.	Results showed that path coefficient between perceived employee resilience and causation was not moderated by entrepreneurial self-efficacy.	Not Supported
	RQ6.2: Does entrepreneurial self-efficacy moderate the impact of business pre-crisis performance on the adoption of effectual/causal DML during a prolonged crisis?	H6.2a: Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of effectual DML during a prolonged crisis.	Results showed that path coefficient between business pre-crisis performance and effectuation was not moderated by entrepreneurial self-efficacy.	Not Supported
		H6.2b: Entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of causal DML during a prolonged crisis.	Results showed that path coefficient between business pre-crisis performance and causation was not moderated by entrepreneurial self-efficacy.	Not Supported
	RQ6.3: Does entrepreneurial self-efficacy moderate the impact of perceived government support on the	H6.3a: Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of effectual DML during a prolonged crisis.	Results showed that path coefficient between perceived government support and effectuation was not moderated by entrepreneurial self-efficacy.	Not Supported

adoption of effectual/causal DML during a prolonged crisis?	H6.3b: Entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of causal DML during a prolonged crisis.	Results showed that path coefficient between perceived government support and causation was not moderated by entrepreneurial self-efficacy.	Not Supported
	State Uncertainty:		
	H6.4a: Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of effectual DML during a prolonged crisis.	Results showed that path coefficient between perceived state uncertainty and effectuation was moderated by entrepreneurial self-efficacy.	Supported
	H6.4b: Entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of causal DML during a prolonged crisis.	Results showed that path coefficient between perceived state uncertainty and causation was not moderated by entrepreneurial self-efficacy.	Not Supported
	Effect Uncertainty:		
RQ6.4: Does entrepreneurial self-efficacy moderate the impact of perceived environmental uncertainty on the adoption of effectual/causal DML during a prolonged crisis?	H6.4c: Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of effectual DML during a prolonged crisis.	Results showed that path coefficient between perceived effect uncertainty and causation was not moderated by entrepreneurial self-efficacy.	Not Supported
	H6.4d: Entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty on the adoption of causal DML during a prolonged crisis.	Results showed that path coefficient between perceived effect uncertainty and effectuation was not moderated by entrepreneurial self-efficacy.	Not Supported
	Response Uncertainty:		
	H6.4e: Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of effectual DML during a prolonged crisis.	Results showed that path coefficient between perceived response uncertainty and effectuation was not moderated by entrepreneurial self-efficacy.	Not Supported
	H6.4f: Entrepreneurial self-efficacy moderates the impact of perceived response uncertainty on the adoption of causal DML during a prolonged crisis.	Results showed that path coefficient between perceived response uncertainty and causation was not moderated by entrepreneurial self-efficacy.	Not Supported

6.2.1.1. Research Question 1a – Effectuation and MSME Resilience

RQ1a was formulated to investigate the direct impact of effectuation on the resilience of MSMEs, and Hypothesis 1a proposed that *managers' effectual DML has a positive direct impact on MSME resilience during a prolonged crisis.* The hypothesis was supported ($\beta = 0.261$, $t = 2.999$, $p < 0.001$). This finding implies a positive and significant relationship between the adoption of effectual DML by restaurant managers and the resilience of their establishments during prolonged crises. Therefore, this thesis confirms 'effectuation' as a key factor that can facilitate the resilience of MSME restaurants during a prolonged crisis. This finding aligns with previous research, such as Aggrey et al. (2021), which demonstrated that managers who implement effectuation before a crisis experience better organizational performance during economic downturns. Additionally, results are consistent with Delladio et al.'s (2023) study, which identified effectuation as a direct contributor to organizational resilience. Moreover, the positive impact of effectuation on organizational resilience in this study partially aligns with findings of Shirokova et al. (2020), who observed that effectuation led to performance improvements and higher reliability in Russian firms during crises.

Restaurants, highly vulnerable to economic downturns and external shocks, faced unprecedented challenges during the COVID-19 pandemic (Dube et al., 2021; J. Kim et al., 2020). Government regulations mandating closures, severely limiting seating capacity or specific working conditions impacted their core business operations, leading to declines in revenue and uncertainty about the future (Madeira et al., 2021). In this context, the positive impact of effectuation on MSME restaurant resilience observed in this study emphasizes the significance of specific elements within restaurants that can be connected to these results.

First, the principle of experimentation inherent in effectuation encourages managers to continuously test and adapt strategies in response to changing environmental conditions (Shirokova et al., 2020). During the pandemic, MSME restaurant managers who embraced experimentation were better equipped to identify innovative solutions and pivot their operations accordingly (Neise et al., 2021). For example, they could experiment with menu offerings, service formats, or marketing strategies to meet evolving customer preferences and regulatory requirements (Li et al., 2021). Haneberg (2021) confirmed that managers' learning from the crisis lead to experimentation behavior. This process of experimentation builds resilience by fostering learning and quick adaptation within the organization during crisis.

Second, aligned with the principle of affordable loss advocated by effectuation, managers were encouraged to take calculated risks within the constraints of available resources (Aggrey et al., 2021). MSME restaurant managers who adopted effectual DML were more inclined to take strategic risks while mitigating potential losses (J. Kim et al., 2020). Rather than relying solely on extensive planning, effectuation encourages managers to make decisions based on what they can afford to lose. For instance, they might invest in technology upgrades or delivery infrastructure with the understanding that even if these initiatives fail, the losses incurred would not jeopardize the survival of their establishments (Neise et al., 2021). This approach minimizes the potential negative impact of failure and allows organizations to remain agile and responsive in the face of uncertainty by focusing more on affordable loss (Haneberg, 2021), thus enhancing their adaptability and resilience.

Third, flexibility emphasizes openness to new opportunities and adaptability to changing circumstances (Aggrey et al., 2021). MSME restaurant managers who embraced flexibility in their decision-making logic were able to respond better to shifting market dynamics and regulatory requirements during the pandemic than those who did not (J. Kim et al., 2021). They could adjust staffing levels, modify operating hours, or pivot to new revenue streams such as meal kits or outdoor dining experiences to remain agile and resilient (Lai et al., 2020). This flexibility might enable restaurants to quickly reallocate resources in response to shifting market conditions or disruptions, enhancing their ability to withstand and adapt to the environmental changes.

Finally, by leveraging relationships, and partnerships, restaurants can build resilience by diversifying their capabilities. It encourages managers to capitalize on their current strengths and relationships, rather than waiting for ideal conditions or external support. In the context of a prolonged crisis, such as COVID-19, the ability of managers to employ effectual DML might enable them to navigate the unknown, pivot their strategies when necessary, and lead to a high degree of business model innovation (Harms et al., 2021). Restaurants that had established strong networks with suppliers, delivery platforms, customers or local communities were better positioned to cope with the crisis by leveraging these partnerships to navigate challenges such as supply chain disruptions (Zapata-Cuervo et al., 2021).

6.2.1.2. Research Question 1b – Causation and MSME Resilience

RQ1b was formulated to investigate the direct impact of causation on the resilience of MSMEs, with Hypothesis 1b proposing that *managers' causal DML has a negative direct impact on MSME resilience during a prolonged crisis.* The hypothesis was not supported (β = -0.064, t = 0.881, p = 0.379). Although the path coefficient indicates a negative effect, this direct correlation is not statistically significant. Therefore, there is no evidence to support the claim that the adoption of causation by restaurant managers affects the resilience of their establishments during prolonged crises. This contradicts the findings of Delladio and colleagues (2023), who found that causation directly and positively influences organizational resilience.

One possible explanation for this diverging finding may be differences in the measurement scales employed to assess causation and organizational resilience. For instance, Delladio et al. (2023) measured resilience by emphasizing how the company communicates and distributes its value, introduces new communication channels (such as social media and websites), adopts new methods for product/service distribution (e.g., delivery, take-away), and possibly terminates traditional distribution channels. In contrast, in the current study, organizational resilience was conceptualized as the degree of operational and strategic organizational adaptation to new environmental conditions, ultimately reaching a new equilibrium point at which organizations emerge strengthened, which considers organizational resilience as a desired outcome or result (Melián-Alzola et al., 2020). In addition, Delladio et al. (2023) utilized a scale developed by Gabrielsson and Politis (2011) to measure causation and effectuation. This scale captures dimensions such as goal orientation, uncertainty relation, stakeholder relationships, and market research methods. In contrast, the current study employed a scale developed by Chandler et al. (2011), which focuses on specific components of causation related to how entrepreneurs pursue opportunities in a deliberate and planned manner. This inconsistency in measurement approaches suggests the need for further validation and refinement of measurement scales to accurately capture the complex decision-making logic underlying causation and effectuation and their impacts on organizational resilience.

In addition, operational realities and challenges faced by MSME restaurants during the COVID-19 pandemic may have influenced the relationship between causation and resilience. Restaurants experienced significant disruptions to their core business operations during COVID-19 (Dube et al., 2021; J. Kim et al., 2020). As a result, managers were forced to adapt their strategies in real-time to mitigate the impact on their establishments (Madeira et al., 2021).

In this context, the planned approach associated with causal DML may have been less relevant in the face of rapidly evolving circumstances and unpredictable consumer behavior (J. Kim et al., 2021).

However, the findings of the current study partially align with Aggrey et al.'s (2021) research that found no significant correlation between causation and pandemic performance. Additionally, Shirokova et al. (2020), in their study of Russian firms operating in adverse conditions, noted that causation led to marginal performance improvements despite being highly unreliable. Moreover, these results support earlier research emphasizing the prevalence of effectuation over causation in situations characterized by extreme uncertainty (Brettel et al., 2012; Sarasvathy, 2001).

The contradictory findings regarding the impact of causation on organizational resilience suggest potential avenues for future research. For instance, organizational resilience is divided into two main types: planned and adaptive resilience (A. V. Lee et al., 2013; Prayag et al., 2018). On the one hand, planned resilience reduces both the probability and negative consequences of failures, and helps organizations operate well (A. V. Lee et al., 2013; Nilakant et al., 2014). Moreover, it involves existing, predetermined planning and capabilities to manage risks, starts before a crisis and is more concerned with pre-disaster mitigation activities (Nilakant et al., 2014). Planning before crises improves resilience by controlling the appropriate use of resources (Sobaih et al., 2021). Thus, planned resilience reduces negative impacts following predictable and well-understood crises. It is helpful if organizations anticipate potential crises and develop contingency plans by collaborating with their networks (Wishart, 2018). Conversely, adaptive resilience emerges after crises (Sobaih et al., 2021) and refers to an organization’s ability to adjust to, learn from and manage unexpected changes during the post-crisis phase (Biggs et al., 2012). Thus, an organization develops new capabilities that increase its resilience (Hall et al., 2017; A. V. Lee et al., 2013; Prayag, 2019). Based on the distinction between planned and adaptive resilience, effectuation and causation may indeed influence these two dimensions differently.

Effectuation, characterized by its adaptive and flexible decision-making logic, aligns closely with the concept of adaptive resilience. Effectuation emphasizes leveraging existing resources, engaging in experimentation, and adapting to unexpected changes in the environment (Biggs et al., 2012). As such, organizations that adopt effectual decision-making logic may be better equipped to respond to and manage unexpected changes during the post-crisis phase, which is a key aspect of adaptive resilience (Sobaih et al., 2021). Effectuation

encourages entrepreneurial behaviors such as experimentation and learning from failures, which are essential for developing new capabilities and enhancing resilience in the face of uncertainty (Hall et al., 2017; Prayag, 2019).

On the other hand, causation may be more closely associated with planned resilience. Causation involves deliberate and planned decision-making processes aimed at achieving predetermined goals and objectives (Nilakant et al., 2014). This approach emphasizes proactive measures such as risk management, contingency planning, and resource allocation to mitigate negative impacts of predictable crises (Sobaih et al., 2021). Causation is focused on establishing clear objectives and implementing strategies to achieve them, which aligns with the concept of planned resilience aimed at reducing the probability and consequences of failures before they occur (A. V. Lee et al., 2013; Nilakant et al., 2014). Therefore, while effectuation may contribute more to adaptive resilience by fostering flexibility, innovation, and learning in response to unexpected change, causation may play a critical role in planned resilience by facilitating proactive planning and risk management strategies to prepare for and mitigate the impact of foreseeable crises. By considering the distinct characteristics of effectuation and causation in relation to planned and adaptive resilience, future studies could examine their relationships at pre- and post-crisis stages. In addition, Simms et al. (2022) found that managers switch from effectuation to causation when there is an ability to plan and predict a new equilibrium.

6.2.2. Indirect impacts of Effectual/Causal DML on MSME Resilience

RQ2: What are the indirect impacts (mediators) of effectual/causal DML on MSME resilience during a prolonged crisis?

In an effort to address RQ2, a comprehensive literature review was conducted, identifying organizational resourcefulness and organizational agility as two key factors that could mediate the relationship between effectual/causal DMLs and organizational resilience. Building upon these insights, sub-questions relating to each mediator (RQ2.1 and RQ2.2) were formulated, and corresponding hypotheses were developed to guide the empirical investigation. The subsequent sections provide discussions related to the findings for each research question.

6.2.2.1. Research Question 2.1 - Organizational Resourcefulness as a Mediator

RQ2.1 was formulated to investigate the mediator effect of organizational resourcefulness and Hypotheses 2.1a and 2.1b were advanced:

H2.1a: Organizational resourcefulness mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.

H2.1b: Organizational resourcefulness mediates the relationship between causal DML and MSME resilience during a prolonged crisis.

Although results showed that both effectuation and causation positively affect organizational resourcefulness, the relationship between effectual/causal DMLs and MSME resilience was not mediated by organizational resourcefulness. Therefore, hypotheses 2.1a ($\beta = 0.036$, $t = 0.729$, $p = 0.466$). and 2.1b ($\beta = 0.019$, $t = 0.713$, $p = 0.476$) were not supported, indicating that while both effectuation and causation positively influence organizational resourcefulness, resourcefulness does not significantly contribute to explaining how these DMLs impact MSME resilience. This result contrasts with previous suggestions of scholars that resourcefulness is an important factor for the resilience of organizations (Conz & Magnani, 2020; Pal et al., 2014) or even a dimension of resilience in organizations (Wicker et al., 2013).

One possible explanation for these results may be the complex nature of the resilience concept. Organizational resilience in this study is referred to and measured as the degree of operational and strategic organizational adaptation to new environmental conditions, reaching a new equilibrium point at which organizations emerge strengthened (Melián-Alzola et al., 2020), reflective of an outcome view of resilience that was adopted in this thesis. The present study used a unidimensional scale to measure organizational resilience as a desired outcome. Therefore, additional possible explanations for such differences could be variations in the operationalization of constructs, sample characteristics, or specific crisis contexts considered. Thus, market conditions, crises characteristics and external support could potentially have more substantial influences on shaping MSME resilience during prolonged crises, minimizing the mediating role of organizational resourcefulness. Furthermore, the relationship between decision-making logics, organizational resourcefulness, and resilience may evolve over time; this study may not have captured the temporal dynamics adequately. Longitudinal studies or analyses of specific crisis phases might reveal results that are not apparent from a cross-sectional study that was adopted in this thesis.

In addition, the non-significant mediating role of organizational resourcefulness can be explained by considering the unique characteristics of both the crisis and the restaurant industry. The COVID-19 pandemic presented a rapidly evolving crisis characterized by unpredictable shifts in consumer behavior, government regulations, and market dynamics (Nhamo et al., 2020; Zapata-Cuervo et al., 2021; J. Kim et al., 2021). In such a highly volatile and uncertain environment, restaurants faced unique challenges that demanded immediate and adaptive and innovative responses (Li et al., 2021), often requiring speed (Gkoumas, 2022) and improvisation (Manfield & Newey, 2018), rather than resourcefulness. Therefore, while organizational resourcefulness remains a valuable capability for navigating crises, agility emerged as a critical factor for organizational resilience in this context for restaurants (see next section). The dynamic nature of the pandemic necessitated agile responses from restaurants, such as revolving business models, implementing contactless delivery options, and adjusting menu offerings to meet shifting consumer preferences (H. B. J. Lai et al., 2020). Therefore, the impact of agility on responding to the crisis may have minimized the mediating role of organizational resourcefulness in enhancing resilience. Thus, its significance may vary depending on contextual factors, organizational characteristics, and the nature of the crisis. Further research and analysis could consider these factors and their relationships, together with resulting implications.

6.2.2.2. Research Question 2.2 - Organizational Agility as a Mediator

RQ2.2 was formulated to investigate the mediator effect of organizational agility and Hypotheses 2.2a and 2.2b were advanced. Hypothesis 2.2a proposed that *organizational agility mediates the relationship between effectual DML and MSME resilience during a prolonged crisis.* The hypothesis was supported (β = 0. 0.205, t = 4.603, p < 0.001), suggesting that organizational agility does indeed play a significant mediating role in the relationship between managers' DML and organizational resilience during a prolonged crisis. This result confirms previous study results showing the positive impacts of effectuation on agility and mediating effects of agility between effectuation and resilience (Delladio et al., 2023).

Hypothesis 2.2b proposed that *organizational agility mediates the relationship between causal DML and MSME resilience during a prolonged crisis.* The hypothesis was supported (β = 0.119, t = 3.644, p <0.001). Although results show that managers' causal DML alone does not have a significant direct impact on organizational resilience, organizational agility plays a

significant mediating role in enhancing the relationship between causation and restaurant resilience in such situations.

These results are consistent with earlier research (e.g., Delladio et al., 2023), indicating that the simultaneous utilization of both effectuation and causation enables a company to respond quickly to internal and external changes, and enhance its organizational resilience. In addition, these results support previous studies highlighting that managers use both effectuation and causation in a complementary manner or switch between DMLs depending on the stage of a crisis or external environmental conditions (Purnomo et al., 2021). This was also found in the interviews (study 1) since some informants mentioned the necessity of focusing more on short-term planning during the unstable environment and engaging in more research when new challenges arise.

One possible reason why organizational agility mediates the relationship between decision-making logics and resilience, while organizational resourcefulness does not, could be the dynamic and unpredictable nature of the restaurant industry (Conz & Magnani, 2020). MSME restaurants operate in an environment characterized by rapid changes in consumer preferences, regulatory requirements, and market dynamics (J. Kim et al., 2021). As such, the ability to respond quickly and adapt to these changes becomes essential for organizational resilience. MSME restaurant managers who adopt causation tend to have well-defined objectives and a clear path to achieve them. This strategic clarity and focus on short-term planning can enhance agility by providing a roadmap for MSME restaurants to follow when faced with unexpected challenges (Delladio et al., 2023) and allowing for quicker decision-making during changing circumstances (Purnomo et al., 2021). For instance, they may adjust their menus, operating hours, and staffing levels quickly to meet changing customer preferences and external conditions to achieve their preset goals.

In summary, findings showed that only organizational agility mediates the relationship between managers' effectual/causal DMLs and organizational resilience. Organizational resourcefulness, on the other hand, does not appear to have a significant mediating effect. This could be due to various reasons, such as the specific context of the restaurant industry, the way resourcefulness was measured, or the potential presence of other unexamined variables that might influence this relationship. The absence of a significant mediating effect for organizational resourcefulness indicates that its role in enhancing adaptability in this context requires further exploration.

This study extends the theoretical framework of effectuation by demonstrating the mediating effect of organizational agility. It introduces organizational resilience as a critical outcome of effectuation and causation during a crisis, with organizational agility acting as the mediator. This expansion aligns with recent literature on the consequences of effectuation and causation on organizational outcomes such as new product development (Brettel et al., 2012; Wu et al., 2020) and venture performance (Aggrey et al., 2021; An et al., 2020). Furthermore, it highlights the importance of organizational agility as an essential mediator of organizational resilience, particularly in dynamic and uncertain environments such as crises.

Findings also support the notion that managers utilize both effectuation and causation in a complementary manner, adapting their decision-making approaches based on the demands of the crisis context (Purnomo et al., 2021). The ability to leverage both DMLs enables MSMEs to respond quickly to internal and external changes, fostering organizational agility and, ultimately, enhancing resilience. In addition, it has been suggested that effectuation dimensions can be considered as distinct concepts and managers may use them in different configurations together or without causation to reach to an outcome. For instance, Harms and colleagues (2021) were able to provide new insights by exploring different configurations of distinct dimensions of effectuation and causation which lead to business model innovation. They found that entrepreneurs prioritize the means, partnerships, contingency, and control aspects of effectuation when there is no affordable loss, while maintaining a neutral stance on causation. They explain this configuration as one that engages in financially risky innovation (absence of affordable loss) yet tries to hedge the risk by drawing on other effectuation aspects. Therefore, it is suggested that future studies can explore how different dimensions of effectuation can play a role in promoting organizational resilience and processes that are involved.

The findings offer valuable insights into the resilience of MSMEs, and the central role played by managers as decision-makers. By examining the mediating effect of organizational agility in the relationship between decision-making logics and resilience, this study contributes to the broader literature on MSME resilience. As managers navigate the complexities of prolonged crises, their ability to employ different decision-making logics—such as effectuation and causation—becomes instrumental in shaping organizational outcomes. This finding aligns with previous research that highlights the central role of owner-managers in driving organizational resilience in MSMEs (Doern, 2016). Furthermore, the identification of organizational agility as a key mediator reinforces the notion that small businesses possess inherent advantages in their ability to respond quickly and adapt to changing circumstances

(Pal et al., 2014). The findings resonate with existing literature that emphasizes the importance of agility in enhancing the resilience of MSMEs, particularly during turbulent times (e.g., Eggers, 2020; Ratten, 2020).

Moreover, by highlighting the significance of organizational agility and managerial decision-making logic, the findings support the core tenets of resilience models in MSMEs, which emphasize the adaptive capacity and agility of these organizations (Sullivan-Taylor & Branicki, 2011). Findings also align with study findings of Sullivan-Taylor and Branicki (2011) that while MSMEs have limited resourcefulness, technical, and organizational capabilities, they have relative strength around rapidity.

Although the current study explored the direct and indirect effects of effectuation and causation on organizational resilience by focusing on post-crisis actions that made MSMEs adaptable through positive adjustments (Pal et al., 2014), future studies can explore how effectuation or causation contribute to MSMEs' different resilience capabilities such as adaptive-capability, collaborative-capability, change-capability, and learning-capability (Zighan et al., 2021). It is suggested that these capabilities can be promoted differently by effectuation and causation.

6.3. Research Issue 2 - Antecedents of Effectuation and Causation

The second aim of this thesis was to investigate key antecedents that may affect the adoption of effectual and causal DML during a prolonged crisis by addressing the following RQs:

RQ3: What individual-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

RQ4: What organizational-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

RQ5: What environmental-level factors affect the adoption of effectual/causal DML during a prolonged crisis?

The investigation involved a dual approach, combining insights from an extensive literature review with qualitative study findings derived from interviews (Study 1). This approach resulted in identifying key antecedents influencing the adoption of effectual and causal DMLs during prolonged crises, addressing the specific research questions outlined.

First, psychological resilience and entrepreneurial bricolage behavior were identified as significant individual-level factors influencing the adoption of effectual and causal DML during prolonged crises. Second, perceived employee resilience and business pre-crisis performance were identified as key organizational-level antecedents. Finally, at the environmental level, perceived government support and three types of environmental uncertainty - state uncertainty, effect uncertainty, and response uncertainty - were identified as influential factors affecting the adoption of effectual and causal DML.

Subsequently, to empirically investigate the impact of these identified antecedents on the adoption of effectual and causal DML, sub-questions and hypotheses were formulated. The results for each antecedent are discussed in the following sections.

6.3.1. Research Question 3 - Individual-level Antecedents

6.3.1.1. Research Question 3.1 - Psychological Resilience

Hypothesis 3.1a proposed that managers' *psychological resilience has a positive impact on the adoption of effectual DML during a prolonged crisis.* On the other hand, Hypothesis 3.1b proposed that managers' *psychological resilience has a negative impact on the adoption of causal DML during a prolonged crisis.*

Psychological resilience, as measured in this study, refers to an "affective, active problem-solving coping pattern that reflects the resilient coping patterns from theory" (Sinclair & Wallston, 2004, p. 99). Unexpectedly, the present study found that psychological resilience of managers had no statistically significant impact on the adoption of effectuation or causation, that is, the two advanced hypotheses were not supported. Notably, there is a lack of studies exploring the influence of individual resilience on effectuation and causation in the existing literature.

Two significant factors may contribute to this unexpected result. Firstly, psychological resilience has been conceptualized as a personal trait that shows the capability of an individual to maintain core values and integrity; and continue to function appropriately by positively adapting to a sudden shock or disruption (Fletcher & Sarkar, 2013). This is a form of resilience that is developed outside the workplace. While psychological resilience is crucial for managing stress and adversity, it may not directly influence decision-making logics such as effectuation or causation, which are strategic approaches to problem-solving and opportunity pursuit in entrepreneurial contexts. Future studies can use scales which are developed in the workplace

and measure the person's ability to encounter critical business situations and examine its effect in the adoption of effectuation or causation. Secondly, the influence of other personal and environmental factors might minimize the role of psychological resilience on the adoption of DMLs. For example, as shown in the present study, factors such as uncertainty and managers' belief in their own ability to solve problems by making do with resources available to them, play an important role in adopting certain DML (see section 6.3.1.2 and 6.3.3.1).

Scholars have investigated whether resilience can predict individual or firm-level accomplishments. For instance, studies established a significant effect of entrepreneur resilience on career success and career satisfaction at the individual level and business performance at the firm level (Hartmann et al., 2022) Therefore, it may not affect the adoption of certain DML by managers. However, future studies may focus on the process in which psychological resilience can affect organizational level resilience. For instance, it is known that resilience of leaders can affect their employees' resilience (Lengnick-Hall et al., 2011; Van Der Vegt et al., 2015). It affects entrepreneurs' self-confidence, commitment to action, and network-building actions (Hallak et al., 2018). Future studies may investigate how these factors contribute to the resilience of MSMEs.

In summary, while psychological resilience of managers is undoubtedly an important factor for managers to cope with a crisis (Doern et al., 2019), its relationship with DMLs during a crisis is not necessarily significant. The choice between effectual and causal DML can be influenced by a complex interplay of other situational, environmental, personal, and organizational factors, minimizing the role of psychological resilience in this process.

6.3.1.2. Research Question 3.2 - Entrepreneurial Bricolage Behavior (EBB)

Hypothesis 3.2a proposed that *entrepreneurial bricolage behavior has a positive impact on the adoption of effectual DML during a prolonged crisis.* On the other hand, Hypothesis 3.2b proposed that *entrepreneurial bricolage behavior has a negative impact on the adoption of causal DML during a prolonged crisis.*

Hypothesis 3.2a was supported ($\beta = 0.250$, $t = 4.896$, $p < 0.001$) while a reversed relation for Hypothesis 3.1b was supported ($\beta = 0.350$, $t = 5.092$, $p < 0.001$), meaning that EBB has a significant positive impact on the adoption of both effectuation and causation. The negative effect of EBB on causation, as proposed in the study, was not observed. Moreover, the f^2 effect size analysis showed a significant effect size between EBB and both DMLs.

Therefore, EBB plays a key role in the adoption of both DMLs. One possible explanation for the unexpected positive effect of EBB on causation could be that effectuation and causation are not necessarily opposites; rather, they can complement each other. It means that if managers have high EBB and they are capable of using the available resources to tackle new challenges and opportunities, they may choose to use either DMLs or a combination of them to handle a crisis even though the different DMLs may interact with resources in varying ways (Sarasvathy, 2001).

In addition, effectuation is often associated with an experimentation and flexible approach to entrepreneurship (Chandler et al., 2011), where entrepreneurs leverage existing resources and seize opportunities as they emerge. Causation, on the other hand, emphasizes planning and a structured approach. EBB can be a valuable skill during such times, helping entrepreneurs find creative solutions to unexpected challenges. This adaptability can be beneficial in both effectuation (where flexibility is key) and causation (where adjustments may be needed to achieve predefined goals). Therefore, by creatively combining available resources as needed, entrepreneurs can enhance the effectiveness of causation decision-making and increase their chances of achieving desired outcomes (Sarasvathy, 2001).

Furthermore, managers learn from their experiences during a crisis. EBB might initially lead to more exploratory and effectual decisions. However, as entrepreneurs gain insights and knowledge, they may incorporate causation into their strategies to pursue specific objectives. In addition, EBB involves making the most of available resources, which aligns with the resource-oriented aspects of both effectuation and causation. Entrepreneurs may realize that by effectively utilizing resources through EBB, they can enhance their ability to implement both innovative and planned strategies. EBB can provide managers with a toolset for strategic flexibility. They can use EBB to experiment, gather data, and make informed decisions about whether to continue with an effectual approach or transition to a more causation-driven strategy.

While causation often involves careful planning and adherence to a predefined strategy, EBB can introduce an adaptive element. Entrepreneurs who practice EBB may incorporate real-time adjustments into their causal plans, responding to unexpected challenges or market shifts. This adaptability can enhance the effectiveness of causation by ensuring plans remain relevant and aligned with changing circumstances. Also, while causation is often associated with structured and predictable processes, EBB can introduce elements of innovation and creativity into these processes. Entrepreneurs may find new ways to achieve causal goals by

adapting their strategies based on the bricolage mindset. EBB encourages entrepreneurs to explore and discover resources that might not be immediately obvious. This resource discovery can benefit causation by expanding the pool of available resources and options for achieving predefined goals.

Crises such as the COVID-19 pandemic require rapid adaptation to shifting market conditions, consumer preferences, and regulatory requirements. Restaurants often face resource constraints, including limited finances, staffing shortages, and perishable inventory. EBB enables managers to creatively reallocate and recombine existing resources to adapt to changing circumstances. EBB equips restaurant managers with the ability to experiment, iterate, and pivot their strategies and resources in response to emergent needs and opportunities. This adaptability is essential for both effectuation (which emphasizes experimentation and flexibility) and causation (which requires adjustments to achieve predefined goals) (Fu et al., 2020).

Furthermore, EBB fosters a culture of innovation among managers. This innovative mindset aligns with effectuation (which encourages experimentation) and complements causation (which benefits from creative problem-solving) (Burgers et al., 2013). Restaurant managers often exhibit an entrepreneurial mindset characterized by risk-taking, opportunity-seeking, and resilience in the face of adversity. EBB reflects this mindset by encouraging managers to leverage their social networks and industry knowledge to overcome challenges. This entrepreneurial orientation enhances both effectuation (which values adaptive decision-making) and causation (which benefits from proactive planning and execution) (Yu et al., 2020). Restaurants prioritize customer satisfaction and experience, requiring managers to anticipate and meet evolving consumer needs and preferences. EBB enables managers to creatively address customer demands, tailor offerings to specific market segments, and differentiate their establishments from competitors. This customer-centric approach resonates with both effectuation (which emphasizes customer feedback and market responsiveness) and causation (which focuses on market analysis and strategic planning) (Fu et al., 2020).

In summary, the positive effect of EBB on both effectuation and causation may reflect the idea that EBB generates new values by reallocating and recombining low-cost and ignored resources (Senyard et al., 2009). Therefore, it can generate opportunities to react creatively to emergent requirements (Yu et al., 2020) and increase the competitiveness of the business (Fu et al., 2020). Thus, it is also a critical behavior as it helps managers access resources through their social relations inside and outside the company (Burgers et al., 2013).

6.3.2. Research Question 4 - Organizational-level Antecedents

6.3.2.1. Research Question 4.1 - Perceived Employee Resilience (PER)

The present study aimed to examine the effect of managers' perception of their employees' resilience as an organizational-level antecedent of effectual and causal DMLs during a prolonged crisis. Hypothesis 4.1a proposed that *perceived employee resilience has a positive impact on the adoption of effectual DML during a prolonged crisis.* Hypothesis 4.1a was supported ($\beta = 0.179$, $t = 4.090$, $p < 0.001$). Therefore, PER has a significant positive effect on the adoption of effectuation. The f^2 effect size also showed a small significant effect size from PER to effectuation.

On the other hand, Hypothesis 4.1b proposed that *perceived employee resilience has a negative impact on the adoption of causal DML during a prolonged crisis.* However, despite the negative path coefficient between PER and causation, this relationship was not statistically significant ($\beta = -0.094$, $t = 1.1352$, $p = 0.177$), meaning that there is no evidence that PER has a significant negative impact on the adoption of causal DML by managers.

It is noteworthy that there is no prior study specifically examining the effect of perceived employee resilience on the adoption of effectuation or causation. Consequently, the present study stands as a pioneer in considering this organizational-level factor. Results contribute significantly to the understanding of how perceived employee resilience, as an organizational-level factor, influences the adoption of effectuation, shedding light on a previously unexplored aspect in the literature.

This result expands existing knowledge by investigating employees' resilience, as a novel organizational-level factor influencing the adoption of effectuation by managers. This aligns with other studies exploring various factors, such as the impact of slack resources on the adoption of DMLs (e.g., Deng et al., 2021). The study contributes to the broader understanding of organizational dynamics by highlighting the significance of human capital in shaping managerial decision-making strategies, complementing existing research on resource-related influences on DML (Fisher, 2012).

Employee resilience is an adaptive behavioral capacity towards organizational resources (Näswall et al., 2019) a behavioral capability and capacity to identify opportunities during daily challenges by proactively utilizing and developing personal and workplace resources during a crisis (Y. Kim, 2020; J. Kuntz et al., 2016). Therefore, resilient employees

can affect how organizations respond and survive crises, and thrive under uncertain conditions (Q. Nguyen et al., 2016). Having resilient employees can be regarded as a valuable 'means' or form of human capital for managers during a crisis. This aspect influences managers' perceptions of their available resources, marking the initial step in the effectuation process, as outlined by Sarasvathy (2001). In this first step, managers assess the resources at their disposal to determine how these resources can shape their subsequent actions. Resilient employees, as a form of human capital, play a crucial role in shaping managers' resource perceptions and, consequently, influence their decision-making process during challenging circumstances.

Wishart (2018) suggests that organizations must develop contingency plans, build networks and examine their adaptive behaviors to prepare for crises. However, managers in small organizations tend to reactive responses in the face of crises instead of proactively planning for them, primarily because of the cost of planning (Herbane, 2010). In summary, MSME resilience arises from a complex interplay of resilience at individual and organizational levels (Purnomo et al., 2021). The present study highlights that organizational resources, such as having resilient employees, can offer crucial support to managers in uncertain situations. When managers perceive their employees as resilient, it may also impact their own risk tolerance. The belief that a resilient team can adapt and recover effectively in the face of unfavorable circumstances might enhance managers' confidence in exploring new paths within effectuation. This link between perceived employee resilience and manager confidence underscores the intricate interplay between organizational resources, risk perceptions, and decision-making processes during uncertain times.

Resilient employees are better equipped to adapt to changing circumstances and overcome challenges (Y. Kim, 2020; J. Kuntz et al., 2016). During the pandemic, resilient employees can adjust to new health and safety protocols, navigate disruptions in supply chains, and accommodate shifts in customer demand. Their ability to remain resilient might enable managers to respond more effectively to the dynamic nature of the crisis. Resilient employees have the capacity to identify opportunities by proactively utilizing and developing personal and workplace resources (Y. Kim, 2020). In the context of the pandemic, resilient employees can suggest creative ways to optimize operations, streamline processes, and enhance customer experiences while adhering to health guidelines. Therefore, managers can leverage resilient employees as valuable resources when navigating uncertainty and finding novel approaches to business challenges by employing effectual DML.

6.3.2.2. Research Question 4.2 - Business Pre-crisis Performance (BPP)

Hypothesis 4.2a proposed that *high business pre-crisis performance has a negative impact on the adoption of effectual DML during a prolonged crisis.* The negative effect of BPP on effectuation, as proposed in the study, was not observed. However, a reversed relation for Hypothesis 4.2a is supported ($\beta = 0.080$, $t = 2.032$, $p = 0.04$), meaning that BPP has a significant positive impact on the adoption of effectuation.

On the other hand, Hypothesis 4.2b proposed that *high business pre-crisis performance has a positive impact on the adoption of causal DML during a prolonged crisis.* The hypothesis was not supported ($\beta = 0.015$, $t = 0.058$, $p = 0.801$).

These results also support suggestions that cash flows, marketable securities, strategic alliances, human resources, and partnerships can boost the choice of effectuation (Fisher, 2012). Higher performance leads to higher cash flow and profitability, and a lower level of debt. The positive relationship observed may be attributed to the idea that a higher overall business performance provides managers with greater control over entrepreneurial resources. As Fisher (2012) suggests, resources under the control of the entrepreneur play a pivotal role in recognizing and seizing entrepreneurial opportunities. Higher overall performance, including positive cash flow and profitability, enhances the manager's ability to wield these resources effectively. Higher pre-crisis cash flow and profitability provide managers with financial resources. This may allow them to leverage resources to exploit opportunities. Managers, encouraged by positive financial indicators, may feel more motivated to take calculated risks and explore entrepreneurial opportunities through experimentation by adopting effectuation.

In addition, this result is in contrast to the findings of Aggrey et al. (2021). They established that low levels of slack financial resources enhance the effects of effectual strategies on crises performance, whereas higher levels of slack dampen small firms' effectuation-crisis performance practices. These contradictory results may be explained by the fact that adoption of a specific DML is a multifaceted aspect and the role of each factor in shaping this DML can be affected by the presence of other factors. Different contextual factors, industry specifics, and crisis conditions may contribute to varied outcomes. For instance, even if a restaurant has demonstrated high pre-crisis performance in terms of revenue, profitability, cash flow and debt levels, it remains highly dependent on suppliers for essential ingredients, equipment, and other operational necessities. Despite financial stability, disruptions in the supply chain during

COVID-19 might lead to shortages or increased costs. Therefore, although routine responses are more likely as resources are available to maintain routine operations and firms rely more on frugal responses, improvising with what is at hand (Manfield & Newey, 2018), disruptions and uncertainty from a crisis can challenge the restaurant's ability to maintain its operations smoothly, regardless of its past performance and encourage managers to employ control-based approaches (effectuation) to cope with unexpected challenges.

In addition, pre-crisis performance may reflect the business's financial health and ability to generate cash flow. However, they may not directly translate to liquidity, which is crucial for MSMEs, particularly during crises. While a restaurant may have high financial performance indicators, it may still face liquidity challenges during a crisis, especially if there's a sudden drop in revenue or unexpected expenses related to adapting operations.

For instance, during COVID-19, restaurants often needed to adapt their operations rapidly to comply with changing regulations, meet shifting consumer preferences, or implement health and safety protocols (Lai et al., 2020). While higher pre-crisis performance may have provided some financial support (Neise et al., 2021), the costs associated with operational adaptations could strain resources. Investments in technology for online ordering and delivery, protective equipment for staff, or infrastructure modifications to accommodate outdoor dining or social distancing measures imposed significant financial burdens, limiting restaurants' resource availability during the pandemic.

The present study adds to the literature by specifically examining the impact of overall business performance as an organizational-level factor that influences the adoption of effectuation during crises. These contradictory results may open new avenues to explore mechanisms that explain the effects of performance and resource availability in adopting DML. For instance, specific situations surrounding every crisis, such as those observed during the COVID-19 pandemic, can be influential factors. For example, rigorous regulations imposed by governments might have significantly constrained restaurant operations in a way that, even with high pre-crisis performance (resulting in better-reserved financial resources), managers might have found it necessary to turn to effectuation to navigate the situation, regardless of their business's internal environment. Thus, future research should explore how external environmental factors surrounding a crisis might influence the relationship between organizational factors (e.g., pre-crisis performance) and the adoption of effectuation or causation.

6.3.3. Research Question 5 - Environmental-level Antecedents

6.3.3.1. Research Question 5.1 - Environmental Uncertainty

RQ5.1 was formulated to investigate the effects of State Uncertainty (SU), Effect Uncertainty (EU) and Response Uncertainty (RU) as environmental-level antecedents on the adoption of effectual and causal DMLs during a prolonged crisis. Relevant RQs and hypotheses were advanced, and they were measured as perceived uncertainty.

Hypothesis 5.1a proposed that *perceived state uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.* The hypothesis was supported ($\beta = 0.205$, $t = 4.593$, $p < 0.001$). This positive relationship suggests that when managers perceive the business environment as volatile, unpredictable, and challenging, they tend to rely on effectuation in their strategies. This may involve flexible strategies, collaboration, and leveraging their networks and experimentation to navigate the uncertainty effectively.

On the other hand, Hypothesis 5.1b proposed that *perceived state uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.* The hypothesis was not supported ($\beta = 0.090$, $t = 1.275$, $p = 0.202$), indicating that there is no significant relationship between state uncertainty and causation. Therefore, when managers perceive that it is difficult to predict the future state of the environment, and a particular component of the environment as unpredictable, they adopt effectuation to cope with changing conditions. However, there is no evidence that this high state uncertainty can dampen the use of causation.

Hypothesis 5.1c proposed that *perceived effect uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.* The hypothesis was supported ($\beta = 0.228$, $t = 4.442$, $p < 0.001$). On the other hand, hypothesis 5.1d proposed that *perceived effect uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.* The hypothesis was not supported but a reversed relation for hypothesis 5.1d was supported ($\beta = 0.233$, $t = 3.288$, $p < 0.001$). Therefore, when managers are unable to predict how events or changes in their business's external environment will affect their restaurants, they may adopt either effectuation, causation, or both simultaneously.

Regarding the impact of effect uncertainty on effectuation, managers facing increased perceived effect uncertainty where they have less information and knowledge about the possible effects of a crisis on their business, lean towards leveraging their existing resources, networks, and expertise to cope with the crisis effectively. Regarding the impact of effect uncertainty on causation, managers may stick to established processes and data-driven

approaches, even when there is highly perceived effect uncertainty. Such behavior may be due to a need for structure and control amidst chaos. These results emphasize the complexity of concepts under investigation, highlighting the need for flexibility and adaptability in managerial approaches.

Hypothesis 5.1e proposed that *perceived response uncertainty has a positive impact on the adoption of effectual DML during a prolonged crisis.* On the other hand, hypothesis 5.1f stated that *perceived response uncertainty has a negative impact on the adoption of causal DML during a prolonged crisis.* Results showed no significant relationship between response uncertainty and both effectuation ($\beta = 0.023$, $t = 0.491$, $p = 0.624$) and causation ($\beta = -0.046$, $t = 0.806$, $p = 0.420$). These results suggest that the level of perceived response uncertainty was not a primary driver in the adoption of effectual or causal DML. That may stem from various factors shaping managers' considerations during crises. Therefore, while perceived response uncertainty could be relevant, managers may prioritize other factors perceived as more immediate or impactful in guiding the adoption of DMLs.

The literature presents inconsistent findings concerning the impact of uncertainty on the adoption of effectuation and causation. For instance, some studies, such as those by Read et al. (2009) and Wiltbank et al. (2006), highlight environmental uncertainty as a crucial antecedent for effectuation. Effectuation was found to be a more effective logic than causation in an environment with higher uncertainty (Deligianni et al., 2017; Perry et al., 2012; Smolka et al., 2018; Yu et al., 2018). Causal DML focusing on prediction cannot provide stable outcomes in an uncertain environment (Shirokova et al., 2021), suggesting that businesses should replace or complement causal with effectual logic. However, Harms and Schiele (2012) demonstrated that uncertainty does not consistently influence effectuation in the context of international entrepreneurship. The current study attributed these inconsistencies to the prevalent operationalization of uncertainty as a uni-dimensional construct, as suggested by McKelvie et al. (2011). To address this issue, the present study operationalized uncertainty into three distinct types (state, effect, and response), as proposed by Milliken (1987). This separate operationalization shed light on the diverse ways in which uncertainties, categorized into different types, can impact the adoption of a specific DML.

Results of this study are consistent with findings of Jiang and Tornikoski (2019) that entrepreneurs perceive state, effect, and response uncertainty differently in different phases of the new venture creation process. There are interesting similarities and differences with those of Jiang and Tornikoski’s (2019) study regarding the influence of different forms of

uncertainties on DML. While Jiang and Tornikoski's qualitative study did not explicitly explore the impact of each uncertainty separately, the present study focused on investigating the empirical effect of perceived uncertainties on the adoption of effectuation and causation separately. Findings indicate that both state uncertainty and effect uncertainty have a significant positive relationship with the adoption of effectual DML, consistent with Jiang and Tornikoski's study. However, the present study also found that effect uncertainty has a positive effect on causal DML. This difference could be attributed to the distinct contextual settings of the two studies - the present research focused on managers' behavior during a prolonged crisis, while Jiang and Tornikoski's study centered around a new venture creation process. Different organizational and environmental challenges associated with crisis management versus new venture creation may influence how managers perceive and respond to uncertainties, thus contributing to variations in the observed effects on DMLs.

Furthermore, results in this study align with findings of McKelvie and colleagues' (2011) research, demonstrating that different types of uncertainty can impact entrepreneurial behavior and decision-making in distinct ways. They revealed a complex interplay between these uncertainties, influencing entrepreneurs to engage in various entrepreneurial actions, and confirming that "not all uncertainty is created equal in the eyes of the entrepreneur" (McKelvie et al., 2011, p. 285).

In summary, study findings offer valuable insights into how state, effect and response uncertainties affect the adoption of effectuation and causation. However, it is crucial for organizations and researchers to recognize that the relationships between uncertainty types and DMLs may vary due to contextual factors. Further research could explore the underlying mechanisms of these relationships and their implications in different stages of a crisis.

6.3.3.2. Research Question 5.2 – Perceived Government Support (PGS)

Hypothesis 5.2a proposed that *perceived government support has a negative impact on the adoption of effectual DML during a prolonged crisis.* On the other hand, hypothesis 5.2b suggested that *perceived government support has a positive impact on the adoption of causal DML during a prolonged crisis.*

Findings show that perceived government support has a positive effect on both effectuation ($\beta = 0.161$, $t = 4.654$, $p < 0.001$) and causation ($\beta = 0.089$, $t = 1.933$, $p = 0.053$), suggesting that governments' support can be a fundamental environmental factor during a crisis

for adopting both DMLs. Studies highlighted governments' importance in resilience of businesses and how their policies can resolve liquidity problems of businesses during a crisis (e.g., Han et al., 2017; Fernandes, 2020). Government actions and policies can enhance performance and survival of businesses (Najib et al., 2021). If managers perceive government as not sufficiently supportive, they will rely on their own resources (Ghaderi et al., 2014). However, government support is regarded as an important factor for managers to change their mindset from crisis reaction to crisis preparation. In addition, government support improves managers' capabilities and confidence in undertaking crisis planning (Ghaderi et al., 2022).

Findings from the present study provide indirect support to Goktan & Breeze's (2021) suggestion that industry regulations, as a contextual factor, can affect the four underlying constructs of effectuation (i.e., flexibility, experimentation, affordable-loss, and pre-commitments). They proposed that employing effectuation in highly regulated environments is challenging due to the strict rules and regulations that control operations. The present study found that support from government can affect both DMLs by providing suitable ground for managers to react to a crisis and cope with its impacts with a DML that fits their business context. For instance, managers' perception of government support via providing accessible finance and the possibility of predicting government crisis coping actions can help them to access resources and reduce their uncertainty which can affect the adoption of both DMLs differently.

Government policies are important to mitigate the economic impacts of crises, and scholarly interest has been focusing on providing empirical evidence on the effectiveness of these policies on firms (Didier et al., 2021; Horvath & Lang, 2021). In addition, uncertainty can be managed by government support (Rodrigues et al., 2021). Results confirm that perceived government support influences people's responses to threats (W. Ruan et al., 2020; W. Q. Ruan et al., 2022). Particularly when people are confronted with the threat of a global crisis, government's supportive actions play a critical role in establishing not only a safe and stable environment for individuals but also businesses to continue their operations.

6.4. Research Issue 3 – Moderation of Impacts of Antecedents on DMLs

The final aim of this thesis was to investigate factors that moderate the effects of organizational and environmental level antecedents on the adoption of effectuation and causation. Entrepreneurial self-efficacy was identified in interviews as a personal characteristic

that can moderate the effects of 1) perceived employee resilience, 2) business pre-crisis performance, 3) state uncertainty, 4) effect uncertainty, 5) response unertainty, and 6) perceived government support on the adoption of effectuation and causation. Relevant RQs and hypotheses were advanced.

6.4.1. Research Question 6 - Entrepreneurial Self-Efficacy (ESE)

Hypothesis 6.1a proposed that *entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of effectual DML during a prolonged crisis.* Results show that managers' entrepreneurial self-efficacy has a positive moderation impact on the relationship between perceived employee resilience and the adoption of effectuation. Therefore, when managers have higher levels of entrepreneurial self-efficacy, the positive effect of perceived employee resilience on the adoption of effectuation is enhanced.

These results stand in contrast to findings of Stroe et al. (2018) who suggested that entrepreneurial self-efficacy, defined as the belief in one's capability to achieve the venture's goals, is a sufficient condition for entrepreneurs to choose causation. However, their research also revealed that the complex interplay of factors under study can influence the adoption of different DMLs. For instance, self-efficacious entrepreneurs who perceive risks for the venture and are not obsessively passionate adopt effectuation. Therefore, findings in the present study align with Stroe et al.'s (2018) argument and findings that the adoption of effectuation or causation is shaped by the complex interplay of various factors.

Managers with high levels of entrepreneurial self-efficacy are likely to possess greater confidence in their ability to navigate uncertain and challenging situations. When combined with the perception that their employees are resilient, these managers may feel more secure in embracing effectuation, which involves iterative experimentation and adaptation (Chandler et al. 2011). In addition, high levels of entrepreneurial self-efficacy may lead managers to trust in their own abilities and, by extension, in the capabilities of their employees. If managers perceive their employees as resilient, they are more likely to trust that the team can handle unexpected challenges and setbacks. This trust fosters an environment where effectuation, with its emphasis on leveraging existing resources and networks, becomes a viable and attractive strategy.

Moreover, managers with strong entrepreneurial self-efficacy might be more inclined to engage in collaborative decision-making processes. When combined with the perception of

resilient employees, this collaborative approach can lead to a synergy between managers and their teams. Effectuation often involves leveraging the collective intelligence of a team, and the combination of high self-efficacy and resilient employees may facilitate more effective collaboration in adopting effectuation. Managers with high entrepreneurial self-efficacy may be more motivated to seek out and capitalize on opportunities. When coupled with the belief in the resilience of their employees, this motivation can drive managers to actively adopt effectuation. In this approach, their team is regarded as a means which enables managers to navigate the crisis more effectively.

Research on entrepreneurial self-efficacy outcomes draws upon various theoretical perspectives, including the Social Cognitive Theory and the theory of planned behavior, to explain its role in shaping entrepreneurial intentions and actions such as venture creation and growth (Ajzen, 1991; Newman et al., 2019). By drawing on both Social Cognitive Theory and effectuation theory, the present research expands understanding of how managerial perceptions of employee attributes interact with personal characteristics to influence decision-making logic during crises. It also aligns with previous research highlighting the role of self-efficacy in shaping entrepreneurial behavior (e.g., Daniel et al., 2015).

On the other hand, Hypothesis 6.1b proposed that *entrepreneurial self-efficacy moderates the impact of perceived employee resilience on the adoption of causal DML during a prolonged crisis.* This hypothesis was not supported. Therefore, entrepreneurial self-efficacy has no moderation effect on the relationship between perceived employee resilience and the adoption of causal DML.

Regarding the absence of a significant moderating effect of entrepreneurial self-efficacy on the relationship between perceived employee resilience and the adoption of causal DML, it could be attributed to the nature of causation within the organizational context. Causation typically involves deliberate goal-setting and intentional actions aimed at achieving specific outcomes (Sarasvathy, 2001). In such situations, managers may follow predetermined strategies that are less influenced by their perception of employee resilience. This underscores the importance of considering alternative factors that may influence the relationship between perceived employee resilience and the adoption of causal DML. Moreover, the non-significant moderation effects highlight the need for further research to explore non-linear relationships between entrepreneurial self-efficacy, perceived employee resilience, and the adoption of causal DML.

Hypothesis 6.2a proposed that *entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of effectual DML during a prolonged crisis.* This hypothesis was not supported. On the other hand, hypothesis 6.2b proposed that *entrepreneurial self-efficacy moderates the impact of business pre-crisis performance on the adoption of causal DML during a prolonged crisis.* This hypothesis was also not supported. The lack of support for these hypotheses could be due to the importance of business performance in managers' decisions. It is likely that managers consider a variety of factors beyond self-efficacy when adopting a DML in responding to a crisis, and these factors might override the anticipated moderating influence of entrepreneurial self-efficacy.

Hypothesis 6.3a proposed that *entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of effectual DML during a prolonged crisis.* This hypothesis was not supported. Similarly, hypothesis 6.3b, proposing that *entrepreneurial self-efficacy moderates the impact of perceived government support on the adoption of causal DML during a prolonged crisis,* was also not supported.

These non-significant results may be due to the unpredictable nature of government actions during crises. In addition, perceived government support was found to have a positive impact on the adoption of both effectuation and causation, which shows the importance of government support in shaping managers' opinion during a crisis. Therefore, the impact of government support on the adoption of effectuation or causation could not be moderated positively or negatively by managers' confidence in their own entrepreneurial abilities.

Regarding the moderation effect of entrepreneurial self-efficacy on different types of uncertainty on the adoption of effectuation and causation, only hypothesis 6.4a was supported that proposed that *entrepreneurial self-efficacy moderates the impact of perceived state uncertainty on the adoption of effectual DML during a prolonged crisis.* Results show that the positive relationship between perceived state uncertainty and effectuation is negatively moderated by managers' entrepreneurial self-efficacy. Therefore, when managers have higher entrepreneurial self-efficacy, the positive effect of perceived state uncertainty on the adoption of effectuation is reduced.

Managers with higher entrepreneurial self-efficacy possess a heightened ability to navigate uncertainties with confidence. Camillo and colleagues (2008) found that creative emotions such as curiosity, confidence, and fondness are important determinants of success in restaurants. This reduced perception of risk associated with state uncertainty lessens its positive

impact on the inclination towards effectuation. Confidence stemming from entrepreneurial self-efficacy acts as a mitigating factor, resulting in managers being less influenced by perceived uncertainty when opting for effectuation. This supports Stroe and colleagues' (2018) finding that entrepreneurial self-efficacy is a sufficient condition for entrepreneurs to choose causation. In addition, results support Schmitt et al.'s (2018) arguments that entrepreneurial self-efficacy "acts as a personal resource that helps entrepreneurs to transform increasing perceptions of uncertainty into exploration and opportunity identification" (p. 835). In the context of state uncertainty, rather than solely relying on effectuation, managers may allocate resources strategically based on a more calculated approach. This deliberate resource allocation, guided by their confidence in handling uncertainties, reduces the positive effect of state uncertainty on the adoption of effectual DML. The non-significant moderation effects regarding perceived government support may suggest that, while government actions may influence managers' perceptions during crises, individual confidence levels do not significantly alter the relationship between perceived government support and the adoption of effectuation or causation. This finding contributes to the understanding of how external support mechanisms interact with internal managerial attributes in shaping crisis response strategies.

On the other hand, hypotheses 6.4b, 6.4c, 6.4d, 6.4e, and 6.4f were not supported. Hypotheses 6.4b, 6.4d, and 6.4f proposed that *entrepreneurial self-efficacy moderates the impact of perceived state uncertainty, perceived effect uncertainty and perceived response uncertainty respectively on the adoption of causal DML during a prolonged crisis.* Hypotheses 6.4c and 6.4e proposed that *entrepreneurial self-efficacy moderates the impact of perceived effect uncertainty and perceived response uncertainty respectively on the adoption of effectual DML during a prolonged crisis.*

These non-significant results indicate that the dynamic and unpredictable nature of environmental uncertainty might necessitate more strategic considerations in adopting a certain DML that goes beyond a strong belief that managers may have in their own entrepreneurial capabilities. Collectively, non-significant results for these hypotheses focusing on moderation effects highlight the complexity of entrepreneurial decision-making during a crisis, suggesting that multiple factors and interactions may shape the adoption of decision-making logics in response to diverse challenges. However, significant results relating to Hypotheses 6.1a and 6.4a partially support that entrepreneurial self-efficacy can moderate the impact of organizational and environmental level antecedents on the adoption of effectuation during a

prolonged crisis. In addition, results confirm previous study findings that show the importance of interactions among factors in the adoption of certain DML (Stroe et al., 2018).

In summary, the examination of entrepreneurial self-efficacy as a moderator in the context of effectuation and causation builds upon previous research that has considered self-efficacy as a moderator in organizational behavior studies. This aligns with the perspective proposed by Newman et al. (2019), which emphasizes the need to explore the influence of self-efficacy in different contexts and its interaction with other variables.

The next section concludes this study by presenting an overview of the study, theoretical contributions, and practical implications. Finally, limitations of this study and suggestions for future research are provided.

6.5. Conclusion and Implications

6.5.1. Study Overview

During dynamic and often unpredictable crisis events, MSME restaurants continually face a multitude of challenges, ranging from changing customer preferences to supply chain disruptions and economic downturns. This makes it difficult for managers to navigate the unknown. Resilience is a crucial factor for survival of organizations during a prolonged crisis. This study investigated critical aspects of crisis management, with a particular focus on the relationship between effectuation, causation, organizational factors such as resourcefulness and agility, and restaurant resilience in the face of prolonged crises. In addition, by drawing on both Social Cognitive Theory and Effectuation Theory, this study explored multi-level antecedents that can affect the adoption of effectuation or causation during a crisis. A mixed-method study was conducted to collect data and test hypothesized relationships.

Results showed that effectuation and causation can both lead to organizational resilience of restaurants through organizational agility. However, it is only effectuation that has a direct positive impact on organizational resilience. On the other hand, although both effectuation and causation can increase organizational resourcefulness, it does not mediate the relationship between effectuation, causation and organizational resilience.

Regarding the antecedents of DML, this study found that several antecedents shape managers' DMLs during prolonged crises. Entrepreneurial bricolage behavior emerged as a key individual-level antecedent, positively impacting the adoption of both effectual and causal

DMLs. Organizational-level antecedents also played a significant role, with perceived employee resilience positively influencing the adoption of effectual DML. In addition, managers of businesses that had a superior performance, denoted by higher cash flows, profitability, and lower debt levels before crisis, are more inclined to adopt effectual DMLs. Environmental factors, including state uncertainty, effect uncertainty and perceived government support, had noteworthy impacts, with heightened state uncertainty driving managers toward effectuation while both effect uncertainty and perceived government support positively influenced the adoption of both effectuation and causation. These findings underscore the interplay of individual, organizational, and environmental factors in shaping the adoption of DMLs during crises, highlighting the multifaceted nature of effectuation and causation in crises contexts.

The study also revealed that entrepreneurial self-efficacy serves as a moderating factor, diminishing the impacts of state uncertainty while intensifying the impacts of perceived employee resilience on the adoption of effectuation. Thus, the level of entrepreneurial self-efficacy can influence how state uncertainty and perceived employee resilience contribute to the choice of effectuation as a decision-making logic during crisis. The interplay of these factors further underscores the intricate dynamics influencing managerial decisions during times of uncertainty.

Resilience of MSMEs should be comprehended through the lens of their managers' behavior and decision-making logic; it requires a dynamic process in which small businesses iteratively enact and react to emerging constraints and opportunities, emphasizing their integration within various systems (Purnomo et al., 2021). This highlights the adaptive nature of resilience in MSMEs, and the importance of managerial behavior and decision-making processes in navigating challenges and capitalizing on opportunities.

6.5.2. Study Significance

6.5.2.1. Theoretical Contribution

The research issues of this thesis are assessed at three levels in the extant literature, as suggested by Perry (1998). First, a research issue may have been explored to a certain depth in the organizational and entrepreneurship literature, but not in the context of a crisis. Second, research issues may have been speculated on, implied, or mentioned in passing but not

empirically tested in either the literature. Third, a research issue may have attracted minor or no past research, showing an important area for contribution by this research.

The contributions of this study are summarized across three levels in Table 6.1. The first level involves confirming or disproving expectations regarding a phenomenon already explored in the literature, albeit to a limited extent. This is marked as ‘to minor extent.’ The second level entails expanding knowledge in an area where speculations or inferences have been made but no empirical testing has occurred, denoted as 'to some extent.' Lastly, the third level involves advancing knowledge in a new area with minimal prior research, denoted as 'to a great extent.'

6.5.2.1.1. Research Issue 1

Research Issue 1 centers on the direct and indirect impacts of Effectual/Causal Decision-Making Logics on MSME restaurant resilience during a prolonged crisis.

In addressing Research Question 1a, the study confirms the positive direct impact of effectual DML on MSME resilience. By empirically demonstrating the effectiveness of effectuation in fostering resilience, the study provides empirical support for theoretical and conceptual propositions advocating for the adoption of effectual decision-making in times of crisis and uncertainty. On the other hand, in addressing Research Question 1b, the study does not find a significant direct impact of causation on MSME resilience during a prolonged crisis. This result is somewhat unexpected and contrasts with previous research suggesting that causation contributes positively to organizational resilience (Delladio et al., 2023).

Table 6.2 *Theoretical Contributions*

Issue	Research Questions	Conclusions made for each research issue and final hypotheses within it	Status of research in the extant literature	Extent of contribution of this research to current Knowledge
Research Issue 1: Direct and indirect impacts of DML on MSME resilience				
	RQ1: What are the direct impacts of effectual/causal DML on MSME resilience during a prolonged crisis?	1a: Effectuation has a direct positive impact on organizational resilience.	Investigated in some depth in the literature	To minor extent
		1b: Causation does not have a direct impact on organizational resilience.	Investigated in some depth in the literature	To minor extent
1	**RQ2: What are the indirect impacts (mediators) of effectual/causal DML on MSME resilience during a prolonged crisis?**	2.1a: Organizational agility mediates the relationship between effectuation and organizational resilience.	Investigated in some depth in the literature	To some extent
		2.1b: Organizational agility mediates the relationship between causation and organizational resilience.	Investigated in some depth in the literature	To some extent
		2.2a: Organizational resourcefulness does not mediate the relationship between effectuation and organizational resilience.	No prior research on the mediator effect of organizational resourcefulness	To some extent
		2.2b: Organizational resourcefulness does not mediate the relationship between causation and organizational resilience.	No prior research on the mediator effect of organizational resourcefulness	To some extent
Research Issue 2: Antecedents of the adoption of effectual/causal DML				
2	**RQ3: What individual-level factors affect the adoption of effectual/causal DML during a prolonged crisis?**	3.1a: Psychological resilience does not have significant impact on the adoption of effectuation.	Speculated on, or commented in literature	To some extent
		3.1b: Psychological resilience does not have significant impact on the adoption of causation.	conceptual paper in exhibition literature	To some extent

	3.2a: Entrepreneurial bricolage behavior emerged as a key individual-level antecedent, positively impacting the adoption of effectuation.	Minor or no past research	To great extent
	3.2b: Entrepreneurial bricolage behavior emerged as a key individual-level antecedent, positively impacting the adoption of and causation.	Minor or no past research	To great extent
RQ4: What organizational-level factors affect the adoption of effectual/causal DML during a prolonged crisis?	4.1a: Perceived employee resilience have a significant, positive impact on the adoption of effectual DML.	No prior research on the association between perceived employee resilience and the adoption of effectual DML.	To great extent
	4.1b: Perceived employee resilience does not have a significant impact on the adoption of causal DML.	No prior research on the association between perceived employee resilience and the adoption of causal DML.	To great extent
	4.2a: Business pre-crisis performance have a significant, positive impact on the adoption of effectual DML.	No prior research on the association between perceived employee resilience and the adoption of effectual DML.	To great extent
	4.2b: Business pre-crisis performance does not have a significant impact on the adoption of causal DML.	No prior research on the association between perceived employee resilience and the adoption of causal DML.	To great extent
RQ5: What environmental-level factors affect the adoption of effectual/causal DML during a prolonged crisis?	*State Uncertainty:* 5.1a: Perceived state uncertainty has a significant, positive impact on the adoption of effectual DML.	Investigated in some depth in generic entrepreneurship literature	To minor extent
	5.1b: Perceived state uncertainty does not have a significant impact on the adoption of causal DML.	Investigated in some depth in generic entrepreneurship literature	To minor extent
	Effect Uncertainty: 5.1c: Perceived effect uncertainty has a significant, positive impact on the adoption of effectual DML.	Investigated in some depth in generic entrepreneurship literature	To minor extent
	H5.1d: Perceived effect uncertainty has a significant, positive impact on the adoption of causal DML.	Investigated in some depth in generic entrepreneurship literature	To minor extent
	Response Uncertainty: H5.1e: Perceived response uncertainty does not have a significant impact on the adoption of effectual DML.	Investigated in some depth in generic entrepreneurship literature	To minor extent

		H5.1f: Perceived response uncertainty does not have a significant impact on the adoption of causal DML.	Investigated in some depth in generic entrepreneurship literature	To minor extent
		5.2a: Perceived government support has a has a significant, positive impact on the adoption of effectual DML.	No prior research on the association between perceived employee resilience and the adoption of causal DML.	To great extent
		H5.2b: Perceived government support has a significant, positive impact on the adoption of causal DML.	No prior research on the association between perceived employee resilience and the adoption of causal DML.	To great extent
Research Issue 3: Moderation of Impacts of Antecedents on Effectual/Causal DML				
3	**RQ6: What can moderate the impacts of organizational and environmental level antecedents on the adoption of effectual/causal DML during a prolonged crisis?**	H6.1a: Entrepreneurial self-efficacy has a positive moderating effect on the relationship between perceived employee resilience and the adoption of effectual DML.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
		6.1b: Entrepreneurial self-efficacy does not moderate the impact of perceived employee resilience on the adoption of causal DML.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
			Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
		6.2a: Entrepreneurial self-efficacy does not moderate the impact of business pre-crisis performance on the adoption of effectual DML.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent

6.2b: Entrepreneurial self-efficacy does not moderate the impact of business pre-crisis performance on the adoption of causal DML.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
6.3a: Entrepreneurial self-efficacy does not moderate the impact of perceived government support on the adoption of effectual DML.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
6.3b: Entrepreneurial self-efficacy does not moderate the impact of perceived government support on the adoption of causal DML.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
State Uncertainty: 6.4a: Entrepreneurial self-efficacy has a negative moderating effect on the relationship between perceived employee resilience and the adoption of effectual DML.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
6.4b: Entrepreneurial self-efficacy does not moderate the impact of perceived state uncertainty on the adoption of causal DML during a prolonged crisis.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
Effect Uncertainty: 6.4c: Entrepreneurial self-efficacy does not moderate the impact of perceived effect uncertainty on the adoption of effectual DML during a prolonged crisis.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
6.4d: Entrepreneurial self-efficacy does not moderate the impact of perceived effect uncertainty on the adoption of causal DML during a prolonged crisis.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research	To some extent

		on the moderating effect of entrepreneurial self-efficacy.	
	Response Uncertainty: 6.4e: Entrepreneurial self-efficacy does not moderate the impact of perceived response uncertainty on the adoption of effectual DML during a prolonged crisis.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent
	6.4f: Entrepreneurial self-efficacy does not moderate the impact of perceived response uncertainty on the adoption of causal DML during a prolonged crisis.	Investigated in some depth as an antecedent in entrepreneurship literature. But there is no prior research on the moderating effect of entrepreneurial self-efficacy.	To some extent

In terms of contributions, this issue falls primarily into the first level described by Perry (1998), namely, making additions to knowledge in an area where a phenomenon has been explored in some depth in the literature. While the literature has discussed the impacts of effectuation and causation on organizational resilience (Delladio et al., 2023), this study provides additional empirical evidence in the context of MSME restaurants. Therefore, this study adds to the knowledge 'to a minor extent' by providing support for the direct impacts of effectual DML on MSME resilience. Overall, this study contributes to advancing our understanding of how managers and their decision-making logic influence organizational resilience. By providing empirical evidence and theoretical insights, the study informs both scholarly research and practical strategies for enhancing the resilience of MSMEs in challenging times.

By drawing on Upper Echelons Theory (Hambrick and Mason, 1984; Hambrick, 2007), this research contributes to both organizational resilience and managerial /entrepreneurial decision-making logic literature. First, it represents one of the pioneer studies examining the effects of managers' DML on organizational resilience during a crisis. It contributes to the resilience literature by investigating the impact of effectuation and causation, two entrepreneurial decision-making logics, on the resilience of MSMEs. In addition, this study extends effectuation theory by exploring its outcomes within established organizations in contrast to previous studies that mainly focused on venture creation stage (e.g., Chandler et al., 2011). It further extends effectuation theory by proposing organizational resilience as a novel outcome for effectual DML in MSMEs.

Furthermore, findings of this study contribute to the ongoing discussion on organizational resilience, aligning with research that focuses on resilience as outcome to identify factors determining organizational resilience (Duchek, 2020). This study complements existing literature that provides insights into practices (DesJardine et al., 2019) and organizational behaviors (Horne & Orr, 1997) known to enhance organizational resilience. By introducing effectuation, particularly in MSME restaurants, this study highlights the importance of considering entrepreneurial decision-making logic in shaping organizational resilience during crises. Moreover, this study adds to the conversation that Korber and McNaughton (2018) term "adaptive resilience," which "explores strategies that entrepreneurial firms use in response to disruptions" (p. 1138). Consequently, it expands knowledge on how MSME resilience can be approached, aligning with previous studies on MSME resilience and

the connection between individual-level and organizational-level resilience (Branicki et al., 2018; Purnomo et al., 2021).

In addressing Research Question 2.1 and 2.2, this research empirically confirms the significant mediating role of organizational agility between both effectual/causal DMLs and MSME resilience during crises. While the importance of agility as mediator of effectuation and resilience has been discussed in the literature (Delladio et al., 2023), this study provides further empirical evidence supporting the critical role of organizational agility in enhancing MSME resilience and mediating the relationship between both DMLs and MSME resilience during crises. The study also provides insights into the role of organizational resourcefulness in mediating the relationship between DMLs and MSME resilience during crises. While previous literature has highlighted the importance of resourcefulness for organizational resilience (Conz & Magnani, 2020; Pal et al., 2014), this study's findings suggest that despite the positive influence of both effectual and causal DMLs on organizational resourcefulness, the direct mediating effect of resourcefulness on resilience was not supported. This implies that the impact of DMLs on resilience may operate through alternative mechanisms. Therefore, results presented contribute to the existing literature "to some extent,' as suggested by Perry (1998) since there is no prior research on the mediator effect of organizational resourcefulness. By uncovering the mediating effect of organizational agility, the study extends the theoretical framework of effectuation by introducing organizational resilience as a critical outcome of causation through agility during crises (Delladio et al., 2023).

In summary, by addressing Perry's (1998) three levels of engagement with the literature, this study not only confirms existing expectations but also adds new dimensions to our understanding of crisis management in MSMEs. The findings of this study underscore the importance of considering both effectuation and causation as complementary drivers of organizational resilience, with organizational agility playing a crucial mediating role, thus, expanding the theoretical framework of effectuation. Moreover, this mediation mechanism provides insights into how DMLs influence organizational resilience through specific organizational processes.

6.5.2.1.2. Research Issue 2

Research Issue 2 centers on antecedents influencing the adoption of effectual and causal DMLs during prolonged crises, thereby expanding Effectuation Theory by examining the

impact of individual-level, organizational-level, and environmental-level factors as antecedents within the crisis context. Drawing on Social Cognitive Theory, study findings confirm that these multifaceted factors shape managers' adoption of DMLs within MSMEs during crises. Three research questions (RQ3, RQ4, and RQ5) addressed this issue, examining individual-level, organizational-level, and environmental-level factors respectively.

In addressing RQ3, the study examined the impact of psychological resilience on the adoption of effectual and causal DMLs during crises. Contrary to expectations, psychological resilience was not found to significantly influence the adoption of either DML (D'andria et al., 2018). Since no prior studies have examined psychological resilience as a psychological factor affecting managers DML, this study contributes to knowledge 'to some extent.' This study also investigated the impact of entrepreneurial bricolage behavior on the adoption of effectual and causal DMLs during crises. Results indicate a significant positive effect of EBB on both DMLs. This finding adds to the existing literature by providing empirical evidence of the nuanced relationship between EBB and DML adoption during crises. While previous speculation exists regarding the potential role of bricolage in organizational resilience, there is no prior research on the association between EBB and the adoption of DMLs. This study contributes by empirically testing and confirming its positive impact on both effectual and causal approaches, therefore adding to the knowledge 'to a great extent.' It contributes to a new area by exploring the impact of individual-level factors, such as psychological resilience and entrepreneurial bricolage behavior, on the adoption of effectual and causal DMLs during crises. While some literature exists on individual characteristics influencing entrepreneurial DML, their specific role in crisis contexts remains underexplored. By empirically testing these relationships, the study provides valuable insights into the complex dynamics of DML during crises within the restaurant context, thereby advancing our understanding of the antecedents of DML adoption.

In addressing RQ4, the study examined the impact of organizational-level antecedents of effectual and causal DMLs during prolonged crises. Drawing on Social Cognitive Theory, which emphasizes the importance of environmental and organizational factors in shaping individual behavior, this research found that organization-level factors can influence the adoption of effectuation. It was confirmed that perceived employee resilience and business pre-crisis performance have a significant positive impact on the adoption of effectual DML during prolonged crises. Notably, this study contributes to the literature by pioneering the examination of these two organizational-level factors influencing the adoption of effectuation, thereby expanding effectuation theory by offering insights into the organizational dynamics shaping

entrepreneurial decision-making logic during crises. As it adds to knowledge in an area that has attracted minor or no prior research attention, this study adds to knowledge ‘to a great extent,’ according to Perry (1998).

Although recent literature has emphasized the importance of the relationship between employee resilience and organizational resilience (Prayag & Dassanayake, 2022), the process in which this individual-level resilience can contribute to the organizational-level resilience was not explored. This study contributes to the literature by explaining a process in which resilient employees (as a valuable form of human capital) and business performance can affect the adoption of effectuation by their managers which consequently leads to their MSMEs’ resilience. This integration underscores the significance of considering human and financial resources as strategic assets that influence DML and organizational resilience as an outcome.

In addressing RQ5, the study examined the impact of environmental-level antecedents of effectual and causal DMLs during prolonged crises. Drawing on Social Cognitive Theory, which emphasizes the importance of environmental factors in shaping individual behavior, this research confirmed that environmental-level factors can influence the adoption of both effectuation and causation. It found that perceived state uncertainty positively impacts the adoption of effectual DML during a prolonged crisis. In addition, perceived effect uncertainty positively impacts the adoption of both effectuation and causation, meaning that managers may adopt any DMLs or a combination when unable to predict the effects of a changing environment accurately. However, perceived response uncertainty showed no significant relationship with the adoption of either effectual or causal DML. Environmental uncertainty was investigated in some depth in the generic entrepreneurship literature as antecedent of effectuation. Yet, this study’s operationalization of uncertainty into distinct types contributes to the knowledge ‘to some extent’ and clarifies how different types of uncertainty can impact DML adoption. Regarding perceived government support, this research confirms that it positively impacts the adoption of both effectuation and causation. As it adds to knowledge in an area that has attracted minor or no prior research attention, this study adds to the knowledge in ‘to a great extent,’ according to Perry (1998).

In summary, the theoretical implications of Research Issue 2 are significant, particularly in the context of effectuation theory. It responds to several scholars’ calls to expand theory by exploring antecedents and consequences of effectual and causal DML in different contexts (Chandler et al., 2011; Reuber et al., 2016). By drawing on Social Cognitive Theory and investigating the antecedents of effectuation and causation during prolonged crises, this

research expands effectuation theory by highlighting the importance of individual (entrepreneurial bricolage behavior), organizational (perceived employee resilience and business pre-crisis performance), and environmental (state uncertainty, effect uncertainty and perceived government support) factors in shaping managers' adoption of DML during crisis. Traditionally, effectuation theory has focused on characteristics and behaviors of entrepreneurs, neglecting broader contextual influences. In addition, by uncovering unexpected relationships, this research opens new avenues for future research.

6.5.2.1.3. Research Issue 3

Research Issue 3 centers on the moderation effect of entrepreneurial self-efficacy on the relationship between antecedents and effectual/causal DML. In addressing RQ4, entrepreneurial self-efficacy was found to moderate the effects of perceived employee resilience, perceived state uncertainty and the adoption of effectuation.

Since entrepreneurial self-efficacy has been investigated in some depth as an antecedent in the entrepreneurship literature (e.g., Stroe et al., 2018), the exploration of its moderating effect represents a novel contribution. Prior research has focused on examining self-efficacy's direct influence on entrepreneurial behavior and outcomes, but there has been limited attention given to its moderating role in shaping the relationship between other factors and managerial DML, particularly in the context of prolonged crises. Therefore, this study contributes to the literature and knowledge 'to some extent,' according to Perry (1998). Overall, while the study does not represent a completely unexplored area of research, its focus on the moderating role of entrepreneurial self-efficacy in crisis contexts represents a notable addition to the existing body of literature, contributing "to some extent" to our understanding of the complex interplay between individual traits and environmental factors in shaping managerial decision-making behavior.

6.5.2.2. Practical Implications

This study contributes to the crisis response and resilience-building process in MSMEs during a prolonged crisis, which can benefit individuals, organizations, and destinations.

First, by highlighting the importance of managerial decision-making in enhancing organizational agility and organizational resilience during crises, the study emphasizes the

significance of fostering adaptability and flexibility in MSMEs to navigate uncertain and turbulent environments effectively. Additionally, the findings underscore the complementary nature of effectuation and causation, therefore, managers should:

- identify the new equilibrium point and update their resources, strategies and products/services and capabilities.
- embrace a combination of effectual and causal decision-making logics to respond effectively to crises, balancing short-term responsiveness with long-term strategic planning.
- be open to alternative solutions, adjusting strategies based on evolving conditions, as embracing change can help restaurants navigate challenges more effectively.
- expand their collaboration with different stakeholders that provide them with more resources to cope with diverse challenges.
- foster a culture of experimentation, innovation, and learning within the organization to adapt quickly to changing market conditions and customer preferences.
- invest in building organizational agility by empowering employees, streamlining processes, and embracing technological advancements to improve responsiveness and flexibility.

In addition, policymakers and government officials should recognize their crucial role in enhancing restaurant resilience during crises. They should:

- provide targeted support and resources to MSMEs in the restaurant industry to help them enhance their resilience and adaptability during crises.
- provide policies that facilitate access to resources and provide clarity on crisis response measures.
- ensure sufficient access to aids, various recovery assistance programs, and digital platforms to strengthen restaurants resilience (Purnomo et al., 2021).
- offer training programs and workshops focused on decision-making skills, crisis management, and organizational agility to equip MSME owners and managers with the necessary tools and knowledge to navigate challenging situations effectively.
- foster collaboration and knowledge sharing among MSMEs, industry associations, and government agencies to facilitate the exchange of best practices and lessons learned in building resilience.

- implement supportive policies and incentives to encourage MSMEs to invest in innovation, technology, and workforce development, thereby strengthening their competitive advantage and resilience in the long term.

Second, based on results indicating the positive impact of Entrepreneurial Bricolage Behavior (EBB) on the adoption of both effectuation and causation among restaurant managers, it is suggested that managers should:

- foster a culture of creativity and innovation within their teams. Drawing on their bricolage skills, managers can creatively assemble and repurpose existing resources to address emerging challenges and capitalize on new opportunities. By thinking outside the box and experimenting with different approaches, managers can find innovative solutions to complex problems.
- invest in training focused on entrepreneurial skills, such as problem-solving, opportunity recognition, and resource allocation. It can empower restaurant managers to better cope with crises by adopting the appropriate DML. EBB involves creatively leveraging available resources, improvising solutions, and finding novel ways to address challenges. Workshops, seminars, or mentorship programs aimed at enhancing these skills and behavior can be beneficial.
- utilize social networks to access valuable resources and support during times of crisis. Restaurant managers should actively engage with suppliers, fellow restaurateurs, industry associations, and local communities to exchange information, collaborate on solutions, and access additional resources that can help them to increase their bricolage behavior.
- stay alert to market trends, consumer preferences, and regulatory changes. It is essential for restaurant managers to make informed decisions during crises. Regularly monitoring industry developments, conducting market research, and seeking feedback from customers can help restaurants anticipate shifts in demand and proactively adjust their resources.

Third, based on results indicating the positive impact of perceived employee resilience and business pre-crisis performance on the adoption of both effectuation and causation among restaurant managers, it is suggested that managers should:

- invest in training programs and resources to enhance employees' resilience skills. Providing opportunities for skill development, resilience training, and well-being

support can empower employees to navigate challenges effectively and thrive in the face of adversity.

- recognize and reward resilience as a valued attribute within the organization. Acknowledging employees who demonstrate resilience, problem-solving skills, and adaptability reinforces a culture that values resilience and encourages its development among team members.
- conduct regular assessments of business performance and readiness to respond to crises, with a focus on proactive planning and risk mitigation strategies.
- consider effective resource allocation strategies. Maintaining healthy cash flows gives them more flexibility and agility to respond to environmental changes.
- In addition, policymakers and government officials can implement policies that promote psychological well-being and resilience among entrepreneurs and employees, such as access to mental health services and stress management programs.

Fourth, based on results indicating the positive impact of perceived state and effect uncertainty, and perceived government support on the adoption of both effectuation and causation among restaurant managers, it is suggested that restaurant managers should:

- stay informed about government regulations, industry standards, and crisis related guidelines. They should regularly check official sources and subscribe to relevant newsletters or updates to stay up-to-date.
- participate in industry associations and networks to access timely information.
- stay informed about government policies and initiatives aimed at supporting businesses during a crisis. This includes monitoring announcements, updates, and changes in regulations or programs that may impact their operations or eligibility for support. By staying informed, managers can ensure they are taking full advantage of available resources and opportunities for assistance.
- invest in market research to understand shifting consumer preferences, trends, and behaviors in response to crises and other environmental factors.
- invest in flexible staffing arrangements, diversified menu offerings, and agile marketing strategies to respond to evolving market dynamics when there is high effect uncertainty (e.g., uncertainty about the impact of changing consumer behavior).
- implement small-scale pilot programs or experiments to test new ideas, menu items, or service offerings before committing significant resources. They can use customer feedback and performance metrics to refine initiatives based on real-world outcomes.

- actively seek and take advantage of government support programs available during crises. This could include financial assistance, tax relief, grants, loans, or subsidies aimed at supporting businesses affected by the crisis. By accessing these resources, managers can strengthen their financial resources and improve their ability to navigate challenges posed by a crisis.
- should incorporate lessons learned from their experiences with government support into their crisis preparedness and risk management strategies. This could involve developing contingency plans and establishing partnerships or networks.

In addition, policymakers and government officials should:

- provide relief programs, such as grants, loans, and tax incentives, specifically tailored to the needs of MSME restaurants. It can help restaurants cover operating expenses, retain employees, and invest in safety measures to comply with health regulations. Moreover, clear communication and consistent support from government authorities can increase confidence in restaurant managers and encourage them to explore innovative solutions and adapt their business models to evolving circumstances. Policymakers should ensure these programs are accessible, easy to apply for, and provide timely support to help restaurants.
- provide technical assistance and capacity-building support to help MSME restaurants adapt to changing circumstances and adopt innovative strategies. This could involve offering training programs, workshops, or mentoring initiatives focused on business continuity planning, digital transformation, marketing and promotion, menu diversification, or implementing new health and safety protocols.

establish food hubs and distribution networks to help restaurants access fresh, affordable, and sustainable ingredients during crises.

6.5.3. Limitations and Future Research Directions

While this study provides valuable insights, it is essential to acknowledge its limitations. These limitations not only emphasize the need for cautious interpretation of the findings but also suggest directions for future research.

First, the study focused on Micro, Small, and Medium-sized Enterprises, specifically independent restaurants, limiting the generalizability of its findings to other sectors and larger

organizations. Future research could investigate different industries to explore variations in decision-making logics in response to crises across diverse contexts.

Second, the study was conducted in Hong Kong, which possesses unique cultural, economic, and regulatory characteristics. Moreover, the focus on COVID-19 as a prolonged crisis may limit the generalizability of findings. It is crucial to recognize that most crises are unlikely to resemble the prolonged duration of COVID-19. In addition, each country and region have distinct conditions that influence the scope, impact, and dynamics of crises. Future research could enhance the study's generalizability by incorporating multiple regions or countries and considering various crisis types, such as natural disasters or financial crises, to provide a broader perspective on managers' decision-making logic in diverse contexts.

Third, the study adopted a cross-sectional design, capturing data at a specific point in time. Managers may shift from one DML to another during the different stages of a prolonged crisis. Therefore, future research could employ a longitudinal approach to track changes in DML at different stages of a crisis.

Fourth, the sample respondents were predominantly Hong Kong Chinese, and cultural factors can affect the adoption of effectuation and causation. For example, research suggests that "performance-based" cultures are conducive to causation, while "socially supportive" cultures promote effectuation among young entrepreneurs (Laskovaia et al., 2017). Thus, cultural homogeneity of the sample limits the generalizability of findings to more culturally diverse populations. Future studies may consider how cultural factors can influence the adoption of DMLs.

Fifth, factors influencing the adoption of effectuation and causation were limited to six key factors across individual, organizational, and environmental levels. While this intentional data reduction resulted in advancing a more manageable model, it may overlook the complexity of antecedents affecting the adoption of effectual and causal DML during a prolonged crisis. Future studies may consider other relevant antecedents such as crisis experience, social networks, and industry regulations and how these factors may affect the adoption of effectuation or causation.

Sixth, the research primarily relied on managers' opinions from interviews and self-reported data from surveys. Future studies could employ a multilevel analysis by incorporating employees' opinions and secondary data to provide a more objective view of organizational resilience and external environmental factors during crises.

Seventh, while data saturation was reached after the eighth interview, the relatively small number of participants might have constrained the breadth and depth of perspectives explored. Given the nature of qualitative research, which aims to delve into the complexities of phenomena through rich and varied participant experiences, a larger sample size could have potentially unveiled additional information and antecedents. Therefore, acknowledging this limitation is imperative, as it underscores the possibility that a more extensive pool of interviewees might have yielded further insights into factors influencing the adoption of effectuation and causation in the context under investigation.

Finally, although this study utilized PLS-SEM, future research could explore alternative analysis methods, such as Fuzzy-Set Qualitative Comparative Analysis (fsQCA). This method can help identify necessary and sufficient conditions influencing the adoption of effectuation or causation, enriching the understanding of the complex interplay among antecedents.

6.6. Chapter Summary

In this concluding chapter, findings related to the main research question and the three key research issues were presented, aiming to explain the unique contribution this thesis makes in addressing the research problem and expanding the existing body of knowledge. The chapter offered insights into the research problems, drawing implications for both theoretical frameworks and practical applications in managerial contexts. In addition, limitations of this study were acknowledged and suggestions for future studies were provided.

This research provides a structured framework for understanding how managers' effectual and causal DMLs impact the resilience of MSMEs in the face of prolonged crises. Furthermore, it sheds light on the conditions that influence the adoption of effectuation or causation. Findings presented contribute valuable insights to the broader understanding of managerial decision-making and organizational resilience, offering practical implications for effectively managing MSMEs during crises.

REFERENCES

Ahmed, A. E., Ucbasaran, D., Cacciotti, G., & Williams, T. A. (2022). Integrating psychological resilience, stress, and coping in entrepreneurship: A critical review and research agenda. *Entrepreneurship Theory and Practice*, *46*(3), 497-538.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211.

Anser, M. K., Yousaf, Z., Sharif, M., Yijun, W., Majid, A., & Yasir, M. (2022). Investigating employee creativity through employee polychronicity and employee resilience: a glimpse of nurses working in the health-care sector. *European Journal of Innovation Management*, *25*(1), 39-54.

Agarwal, R., & Dahm, M. J. (2015). Success Factors in Independent Ethnic Restaurants. *Journal of Foodservice Business Research*, *18*(1), 20–33. https://doi.org/10.1080/15378020.2015.995749

Aggrey, O. K., Djan, A. K., Antoh, N. A. D., & Tettey, L. N. (2021). "Dodging the bullet": are effectual managers better off in a crisis? A case of Ghanaian agricultural SMEs. *Journal of Enterprising Communities: People and Places in the Global Economy*, *ahead-of-p*(ahead-of-print). https://doi.org/10.1108/jec-02-2021-0021

Ahlin, B., Drnovšek, M., & Hisrich, R. D. (2014). Entrepreneurs' creativity and firm innovation: the moderating role of entrepreneurial self-efficacy. *Small business economics*, *43*, 101-117.

Ahmad, N., & Seymour, R. (2008). Defining Entrepreneurial Activity: Definitions Supporting Frameworks for Data Collection. In *OECD Statistics Working Papers*. https://doi.org/10.2139/ssrn.1090372

Ahmed El-Said, O., Smith, M., Al-Yafaei, Y., Aal, S., & Salam, A. (2023). From complexity to evolution: Mapping resilience management practices in the hospitality industry during the COVID-19 crisis. *International Journal of Hospitality Management*, *110*. https://doi.org/10.1016/j.ijhm.2023.103435

Akinboye, A. K. (2020). *Entrepreneurial Growth Intention: The Role of Effectual Logic*. University of Canterbury.

Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., & Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International Journal of Contemporary Hospitality Management*, *30*(1), 514–538.

Alsos, G. A., Clausen, T. H., Hytti, U., & Solvoll, S. (2016). Entrepreneurs' social identity and the preference of causal and effectual behaviours in start-up processes. *Entrepreneurship and Regional Development*, *28*(3–4), 234–258. https://doi.org/10.1080/08985626.2016.1155742

Alsos, G. A., Clausen, T. H., Mauer, R., Read, S., & Sarasvathy, S. D. (2020). Effectual exchange: from entrepreneurship to the disciplines and beyond. *Small Business Economics*, *54*(3), 605–619. https://doi.org/10.1007/s11187-019-00146-9

Altuna, O., & Arslan, F. M. (2016). Impact of the number of scale points on data characteristics and respondents' evaluations: An experimental design approach using 5-point and 7-point likert-type scales. *İstanbul Üniversitesi Siyasal Bilgiler Fakültesi Dergisi*, *55*, 1–20.

Alves, J., Lok, T. C., Luo, Y., & Hao, W. (2020). *Crisis Management for Small Business during the COVID-19 Outbreak:Survival, Resilience and Renewal Strategies of Firms in Macau*. 1–29. https://doi.org/10.21203/rs.3.rs-34541/v1

Alzamora-Ruiz, J., del Mar Fuentes-Fuentes, M., & Martinez-Fiestas, M. (2021). Together or separately? Direct and synergistic effects of Effectuation and Causation on innovation in technology-based SMEs. *International Entrepreneurship and Management Journal*, *17*(4), 1917–1943. https://doi.org/10.1007/s11365-021-00743-9

Amore, A., Prayag, G., & Hall, C. M. (2018). Conceptualizing destination resilience from a multilevel perspective. *Tourism Review International*, *22*(3), 235–250. https://doi.org/10.3727/154427218X15369305779010

An, W., Rüling, C. C., Zheng, X., & Zhang, J. (2020). Configurations of effectuation, causation, and bricolage: implications for firm growth paths. *Small Business Economics*, *54*(3), 843–864. https://doi.org/10.1007/s11187-019-00155-8

Andersson, T., Cäker, M., Tengblad, S., & Wickelgren, M. (2019). Building traits for organizational resilience through balancing organizational structures. *Scandinavian Journal of Management*, *35*(1), 36–45. https://doi.org/10.1016/j.scaman.2019.01.001

Arend, R. J., Sarooghi, H., & Burkemper, A. (2015). Effectuation as ineffectual? Applying the 3E theory-assessment framework to a proposed new theory of entrepreneurship. *Academy of Management Review*, *40*(4), 630–651. https://doi.org/10.5465/amr.2014.0455

Ashill, N. J., & Jobber, D. (2010). Measuring state, effect, and response uncertainty: Theoretical construct development and empirical validation. *Journal of Management*, *36*(5), 1278–1308. https://doi.org/10.1177/0149206308329968

Ashleigh, M., & Mansi, A. (2012). *The psychology of people in organisations*. Financial Times/Prentice Hall.

Ayala, J. C., & Manzano, G. (2014). The resilience of the entrepreneur. Influence on the success of the business. A longitudinal analysis. *Journal of Economic Psychology*, *42*, 126–135. https://doi.org/10.1016/j.joep.2014.02.004

Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science*, *40*, 8–34.

Bailey, K. D. (1994). *Typologies and taxonomies: An introduction to classification techniques* (Vol. 102). Sage.

Baker, T., & Nelson, R. E. (2005). from Nothing: Resource Construction through Entrepreneurial Bricolage. *Administrative Science Quarterly*, *50*, 329–366.

Bakonyi, Z. (2018). Why do firms centralise their strategic decision-making during crisis? A qualitative study. *Journal of Organizational Change Management*, *31*(5), 1191–1205. https://doi.org/10.1108/JOCM-12-2016-0303

Bandura, A. (1986). Social foundations of thought and action. *Englewood Cliffs, NJ*, *1986*(23-28), 2.

Bandura, A., Freeman, W. H., & Lightsey, R. (1999). *Self-efficacy: The exercise of control*. Springer.

Bandura, A., & Wessels, S. (1994). Self-efficacy.

Barbhuiya, M. R., & Chatterjee, D. (2023). Just survive or thrive? Effect of psychological and organizational resilience on adoption of innovative strategies by hospitality sector post COVID-19. *Tourism Planning & Development*, *20*(2), 188-211.

Bartik, A. W., Bertrand, M., Cullen, Z., Glaeser, E. L., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *Proceedings of the*

National Academy of Sciences of the United States of America, *117*(30), 17656–17666. https://doi.org/10.1073/pnas.2006991117

Basurto-Cedeño, E. M., & Pennington-Gray, L. (2018). An applied destination resilience model. *Tourism Review International*, *22*(3), 293–302. https://doi.org/10.3727/154427218X15369305779092

Battisti, M., & Deakins, D. (2017). The relationship between dynamic capabilities, the firm's resource base and performance in a post-disaster environment. *International Small Business Journal*, *35*(1), 78–98. https://doi.org/10.1177/0266242615611471

Becken, S. (2013). Developing a framework for assessing resilience of tourism sub-systems to climatic factors. *Annals of Tourism Research*, *43*, 506–528. https://doi.org/10.1016/j.annals.2013.06.002

Becker, C. (2009). How a natural disaster changed the face of the restaurant industry in Southern Mississippi: A katrina story. *Journal of Foodservice Business Research*, *12*(3), 266–274. https://doi.org/10.1080/15378020903158533

Becker, J.-M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models. *Long Range Planning*, *45*(5–6), 359–394.

Bekos, G. & Chari, S. (2023) Upper Echelons Theory: A review. In S. Papagiannidis (Ed), TheoryHub Book. Available at https://open.ncl.ac.uk / ISBN: 9781739604400

Belas, J., Gavurova, B., Dvorsky, J., Cepel, M., & Durana, P. (2022). The impact of the COVID-19 pandemic on selected areas of a management system in SMEs. *Economic Research-Ekonomska Istrazivanja* , *35*(1), 3754–3777. https://doi.org/10.1080/1331677X.2021.2004187

Berbekova, A., Uysal, M., & Assaf, A. G. (2021). A thematic analysis of crisis management in tourism: A theoretical perspective. *Tourism Management*, *86*(April), 104342. https://doi.org/10.1016/j.tourman.2021.104342

Berends, H., Jelinek, M., Reymen, I., & Stultiëns, R. (2014). Product innovation processes in small firms: Combining entrepreneurial effectuation and managerial causation. *Journal of Product Innovation Management*, *31*(3), 616–635. https://doi.org/10.1111/jpim.12117

Berg, B. (2001). *QUALITATIVERESEARCH METHODSFO RTHE SOCIALSCIENCES*. Boston.

Biggs, D. (2011). Understanding resilience in a vulnerable industry: The case of reef Tourism in Australia. *Ecology and Society*, *16*(1). https://doi.org/10.5751/ES-03948-160130

Biggs, D., Hall, C. M., & Stoeckl, N. (2012). The resilience of formal and informal tourism enterprises to disasters: Reef tourism in Phuket, Thailand. *Journal of Sustainable Tourism*, *20*(5), 645–665. https://doi.org/10.1080/09669582.2011.630080

Biggs, D., Hicks, C. C., Cinner, J. E., & Hall, C. M. (2015). Marine tourism in the face of global change: The resilience of enterprises to crises in Thailand and Australia. *Ocean and Coastal Management*, *105*, 65–74. https://doi.org/10.1016/j.ocecoaman.2014.12.019

Bonn, I., & Rundle-Thiele, S. (2007). Do or die - Strategic decision-making following a shock event. *Tourism Management*, *28*(2), 615–620. https://doi.org/10.1016/j.tourman.2006.04.021

Borekci, D., Rofcanin, Y., & Sahin, M. (2014). Effects of organizational culture and organizational resilience over subcontractor riskiness: A multi-method study in longitudinal time setting. *European Business Review*, *26*(1), 2–22. https://doi.org/10.1108/EBR-07-2013-0099/FULL/HTML

Bouaziz, F., & Smaoui Hachicha, Z. (2018). Strategic human resource management practices and organizational resilience. *Journal of Management Development*, *37*(7), 537–551. https://doi.org/10.1108/JMD-11-2017-0358

Boudreau, J. W., & Ramstad, P. M. (2007). *Beyond HR: The new science of human capital*. Harvard Business Press.

Braes, B., & Brooks, D. (2010). Organisational resilience: a propositional study to understand and identify the essential concepts. *Proceedings 3rd Australian Security and Intelligence Conference*, *November*, 14–22. https://doi.org/10.4225/75/579ec432099ca

Branicki, L. J., Sullivan-Taylor, B., & Livschitz, S. R. (2018). How entrepreneurial resilience generates resilient SMEs. *International Journal of Entrepreneurial Behaviour and Research*, *24*(7), 1244–1263. https://doi.org/10.1108/IJEBR-11-2016-0396

Branicki, L., Steyer, V., & Sullivan-Taylor, B. (2019). Why resilience managers aren't resilient, and what human resource management can do about it. *International Journal of Human Resource Management*, *30*(8), 1261–1286. https://doi.org/10.1080/09585192.2016.1244104

Brettel, M., Mauer, R., Engelen, A., & Küpper, D. (2012). Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. *Journal of Business Venturing*, *27*(2), 167–184. https://doi.org/10.1016/j.jbusvent.2011.01.001

Brinckmann, J. A. N., & Kim, S. M. (2015). Why we plan: The impact of nascent entrepreneurs' cognitive characteristics and human capital on business planning. *Strategic Entrepreneurship Journal*, *9*(2), 153-166.

Brinks, V., & Ibert, O. (2020). From Corona Virus to Corona Crisis: The Value of An Analytical and Geographical Understanding of Crisis. *Tijdschrift Voor Economische En Sociale Geografie*, *111*(3), 275–287. https://doi.org/10.1111/tesg.12428

Brizek, M. G., Frash, R. E., McLeod, B. M., & Patience, M. O. (2021). Independent restaurant operator perspectives in the wake of the COVID-19 pandemic. *International Journal of Hospitality Management*, *93*. https://doi.org/10.1016/j.ijhm.2020.102766

Broker, F. (2020). *Analyzing the resilience of tourism stakeholders during the COVID - 19 pandemic: A case study of Bend, Oregon*. *September*.

Brown, K. (2016). Resilience, development and global change. In *Routledge*. https://doi.org/10.4324/9780203498095

Brown, N. A., Orchiston, C., Rovins, J. E., Feldmann-Jensen, S., & Johnston, D. (2018). An integrative framework for investigating disaster resilience within the hotel sector. *Journal of Hospitality and Tourism Management*, *36*(July), 67–75. https://doi.org/10.1016/j.jhtm.2018.07.004

Brown, N. A., Rovins, J. E., Feldmann-Jensen, S., Orchiston, C., & Johnston, D. (2019). Measuring disaster resilience within the hotel sector: An exploratory survey of Wellington and Hawke's Bay, New Zealand hotel staff and managers. *International Journal of Disaster Risk Reduction*, *33*(July 2018), 108–121. https://doi.org/10.1016/j.ijdrr.2018.09.014

Brown, R., & Rocha, A. (2020). Entrepreneurial uncertainty during the Covid-19 crisis: Mapping the temporal dynamics of entrepreneurial finance. *Journal of Business Venturing Insights*, *14*, e00174. https://doi.org/10.1016/J.JBVI.2020.E00174

Brown, E., & Kasztelnik, K. (2020). The Microeconomics Study of the Relationship Between Resilience and the Strategic Management With the Financial Innovation Process in the United States. *Journal of Strategic Innovation & Sustainability*, *15*(8).

Braun, I., & Sieger, P. (2021). Under pressure: Family financial support and the ambidextrous use of causation and effectuation. *Strategic Entrepreneurship Journal*, *15*(4), 716-749.

Bruneau, M., Chang, S. E., Eguchi, R. T., Lee, G. C., O'Rourke, T. D., Reinhorn, A. M., Shinozuka, M., Tierney, K., Wallace, W. A., & Von Winterfeldt, D. (2003). A Framework to Quantitatively Assess and Enhance the Seismic Resilience of Communities. *Earthquake Spectra*, *19*(4), 733–752. https://doi.org/10.1193/1.1623497

Bufquin, D., Park, J. Y., Back, R. M., de Souza Meira, J. V., & Hight, S. K. (2021). Employee work status, mental health, substance use, and career turnover intentions: An examination of restaurant employees during COVID-19. *International Journal of Hospitality Management*, *93*(December 2020), 102764. https://doi.org/10.1016/j.ijhm.2020.102764

Burgers, H., Senyard, J., & Stuetzer, M. (2013). Intrapreneurial bricolage: a contradiction in terms or a useful construct? *Journal of Chemical Information and Modeling*, *53*(9), 1689–1699.

Burnard, K., & Bhamra, R. (2011). Organisational resilience: development of a conceptual framework for organisational responses. *International Journal of Production Research*, *49*(18), 5581-5599.

Burnard, K., Bhamra, R., & Tsinopoulos, C. (2018). Building organizational resilience: Four configurations. *IEEE Transactions on Engineering Management*, *65*(3), 351–362. https://doi.org/10.1109/TEM.2018.2796181

Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, *12*(1), 9–30.

Byrd, K., Her, E. S., Fan, A., Almanza, B., Liu, Y., & Leitch, S. (2021). Restaurants and COVID-19: What are consumers' risk perceptions about restaurant food and its packaging during the pandemic? *International Journal of Hospitality Management*, *94*, 102821. https://doi.org/10.1016/J.IJHM.2020.102821

Cahyanto, I., & Pennington-Gray, L. (2017). Toward A Comprehensive Destination Crisis Resilience Framework. *Travel and Tourism Research Association: Advancing Tourism Reasearch Globally*, *21*, 1–9.

Cai, L., Guo, R., Fei, Y., & Liu, Z. (2017). Effectuation, Exploratory Learning and New Venture Performance: Evidence from China. *Journal of Small Business Management*, *55*(3), 388–403. https://doi.org/10.1111/jsbm.12247

Camillo, A. A., Connolly, D. J., & Woo Gon, K. (2008). Success and failure in Northern California: Critical success factors for independent restaurants. *Cornell Hospitality Quarterly*, *49*(4), 364–380. https://doi.org/10.1177/1938965508317712

Cannatelli, B., Pedrini, M., & Braun, M. (2019). Individual-level antecedents of the entrepreneurial approach: the role of different types of passion in the Italian craft brewing industry. *International Entrepreneurship and Management Journal*, *15*, 1193–1219.

Carmeli, A., & Markman, G. D. (2011). Capture, governance, and resilience: strategy implications from the history of Rome. *Strategic Management Journal*, *32*(3), 322–341. https://doi.org/10.1002/SMJ.880

Carmeli, A., Schaubroeck, J., & Tishler, A. (2011). How CEO empowering leadership shapes top management team processes: Implications for firm performance. *The Leadership Quarterly*, *22*(2), 399-411.

Corner, P. D., Singh, S., & Pavlovich, K. (2017). Entrepreneurial resilience and venture failure. *International Small Business Journal*, *35*(6), 687-708.

Carriero, A., Clark, T. E., Marcellino, M., & Mertens, E. (2022). *Measuring Uncertainty and Its Effects in the COVID-19 Era* (20-32R; Issue 20).

Chandler, G. N., DeTienne, D. R., McKelvie, A., & Mumford, T. V. (2011). Causation and effectuation processes: A validation study. *Journal of Business Venturing*, *26*(3), 375–390. https://doi.org/10.1016/j.jbusvent.2009.10.006

Chang, S.-J., Van Witteloostuijn, A., & Eden, L. (2020). Common method variance in international business research. *Research Methods in International Business*, 385–398.

Chapman, D. W., & Carter, J. F. (1979). Translation procedures for the cross cultural use of measurement instruments. *Educational Evaluation and Policy Analysis*, *1*(3), 71–76.

Cheah, J.-H., Ting, H., Ramayah, T., Memon, M. A., Cham, T.-H., & Ciavolino, E. (2019). A comparison of five reflective–formative estimation approaches: reconsideration and recommendations for tourism research. *Quality & Quantity*, *53*, 1421–1458.

Chen, C., Lee, S., & Stevenson, H. W. (1995). Response style and cross-cultural comparisons of rating scales among East Asian and North American students. *Psychological Science*, *6*(3), 170–175.

Chen, J., & Liu, L. (2022). Effectuation, SME service innovation, and business customers' value perception. *The Service Industries Journal*, 1-36.

Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?. *Journal of business venturing*, *13*(4), 295-316.

Chen, H., & Eyoun, K. (2021). Do mindfulness and perceived organizational support work? Fear of COVID-19 on restaurant frontline employees' job insecurity and emotional exhaustion. *International Journal of Hospitality Management*, *94*(December 2020), 102850. https://doi.org/10.1016/j.ijhm.2020.102850

Chen, R., Xie, Y., & Liu, Y. (2021). Defining, conceptualizing, and measuring organizational resilience: A multiple case study. *Sustainability (Switzerland)*, *13*(5), 1–24. https://doi.org/10.3390/su13052517

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, *295*(2), 295–336.

Cho, T. S., & Hambrick, D. C. (2006). Attention as the mediator between top management team characteristics and strategic change: The case of airline deregulation. *Organization science*, *17*(4), 453-469.

Chowdhury, M., Prayag, G., Orchiston, C., & Spector, S. (2019). Postdisaster Social Capital, Adaptive Resilience and Business Performance of Tourism Organizations in Christchurch, New Zealand. *Journal of Travel Research*, *58*(7), 1209–1226. https://doi.org/10.1177/0047287518794319

Cimellaro, G. P., Reinhorn, A. M., & Bruneau, M. (2010). Framework for analytical quantification of disaster resilience. *Engineering Structures*, *32*(11), 3639–3649. https://doi.org/10.1016/j.engstruct.2010.08.008

Clifford, N., Cope, M., Gillespie, T., & French, S. (2010). *Key methods in geography* (Second Edd). Sage.

Cohen, E. (1988). Authenticity and commoditization in tourism. *Annals of Tourism Research*, *15*(3), 371–386.

Collis, J., & Hussey, R. (2003). *Business research* (Vol. 142). Basingstoke: Palgrave macmillan.

Coltman, T., Devinney, T. M., Midgley, D. F., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business research*, *61*(12), 1250-1262.

Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and anxiety*, *18*(2), 76-82.

Conz, E., & Magnani, G. (2020). A dynamic perspective on the resilience of firms: A systematic literature review and a framework for future research. *European Management Journal*, *38*(3), 400–412. https://doi.org/10.1016/j.emj.2019.12.004

Cooper, D. R., Schindler, P. S., & Sun, J. (2006). *Business research methods* (Vol. 9). Mcgraw-hill New York.

Coudounaris, D., & Arvidsson, H. G. S. (2019). Recent Literature Review on Effectuation. *SSRN Electronic Journal*, 1–18. https://doi.org/10.2139/ssrn.3776163

Coudounaris, D. N., & Arvidsson, H. G. S. (2021). How effectuation, causation and bricolage influence the international performance of firms via internationalisation strategy: a literature review. *Review of International Business and Strategy*. https://doi.org/10.1108/RIBS-08-2020-0092

Couper, M. P. (2000). Web surveys: A review of issues and approaches. *The Public Opinion Quarterly*, *64*(4), 464–494.

Cowling, B. J., Ali, S. T., Ng, T. W. Y., Tsang, T. K., Li, J. C. M., Fong, M. W., Liao, Q., Kwan, M. Y., Lee, S. L., Chiu, S. S., Wu, J. T., Wu, P., & Leung, G. M. (2020). Impact assessment of non-pharmaceutical interventions against coronavirus disease 2019 and influenza in Hong Kong: an observational study. *The Lancet Public Health*, *5*(5), e279–e288. https://doi.org/10.1016/S2468-2667(20)30090-6

Creswell, J. W. (2012). *Educational research*. pearson.

Creswell, J. W., & Clark., V. L. P. (2007). CHOOSING A MIXED METHODS DESIGN. In *Designing and conducting mixed methods research* (pp. 58–89).

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. *Handbook of Mixed Methods in Social and Behavioral Research*, *209*(240), 209–240.

Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.

Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.

Curley, A., Garber, R., Krishnan, V., & Tellez, J. (2020). For corporate travel, a long recovery ahead. *McKinsey & Company*, *August*, 1–9.

Dahles, H. (2018). The sustainability of small business resilience: the local tourism industry of Yogyakarta, Indonesia a decade after the crisis. In A. A. Lew & J. Cheer (Eds.), *Tourism, Resilience and Sustainability Adapting to Social, Political and Economic Change* (Issue January, pp. 149–165). Routledge.

Dahles, H., & Susilowati, T. P. (2015). Business resilience in times of growth and crisis. *Annals of Tourism Research*, *51*, 34–50. https://doi.org/10.1016/j.annals.2015.01.002

D'andria, A., Gabarret, I., & Vedel, B. (2018). Resilience and effectuation for a successful business takeover. *International Journal of Entrepreneurial Behaviour and Research*, *24*(7), 1200–1221. https://doi.org/10.1108/IJEBR-11-2016-0367

Daniel, E. M., Domenico, M. D., & Sharma, S. (2015). Effectuation and home-based online business entrepreneurs. *International Small Business Journal*, *33*(8), 799-823.

Darvishmotevali, M., Altinay, L., & Köseoglu, M. A. (2020). The link between environmental uncertainty, organizational agility, and organizational creativity in the hotel industry. *International Journal of Hospitality Management*, *87*(August 2019), 102499. https://doi.org/10.1016/j.ijhm.2020.102499

Darvishmotevali, M., & Tajeddini, K. (2020). Understanding Organizational Agility: Evidence from the hotel industry in Iran. In *TOURISM, HOSPITALITY AND DIGITAL TRANSFORMATION*. Routledge.

Davidsson, P., Baker, T., & Senyard, J. M. (2017). A measure of entrepreneurial bricolage behavior. *International Journal of Entrepreneurial Behaviour and Research*, *23*(1), 114–135. https://doi.org/10.1108/IJEBR-11-2015-0256

Davoudi, S., Shaw, K., Haider, L. J., Quinlan, A. E., Peterson, G. D., Wilkinson, C., Fünfgeld, H., McEvoy, D., & Porter, L. (2012). Resilience: A Bridging Concept or a Dead End? "Reframing" Resilience: Challenges for Planning Theory and Practice Interacting Traps: Resilience Assessment of a Pasture Management System in Northern Afghanistan Urban Resilience: What Does it Mean in Planni. *Planning Theory and Practice*, *13*(2), 299–333. https://doi.org/10.1080/14649357.2012.677124

de la Cruz, M. E., Verdú Jover, A. J., & Gómez Gras, J. M. (2018). Influence of the entrepreneur's social identity on business performance through effectuation. *European Research on Management and Business Economics*, *24*(2), 90–96. https://doi.org/10.1016/J.IEDEEN.2017.11.003

Deligianni, I., Voudouris, I., & Lioukas, S. (2017). Do Effectuation Processes Shape the Relationship Between Product Diversification and Performance in New Ventures? *Entrepreneurship: Theory and Practice*, *41*(3), 349–377. https://doi.org/10.1111/etap.12210

Delladio, S., Caputo, A., Magrini, A., & Pellegrini, M. M. (2023). Italian entrepreneurial decision-making under lockdown: the path to resilience. *Management Decision*, *61*(13), 272–294. https://doi.org/10.1108/MD-12-2022-1746

Deng, C., Yang, J., Loh, L., & Mu, T. (2021). Exploring the antecedents and consequences of effectuation in NPD: the moderating role of firm size. *Technology Analysis & Strategic Management*, *0*(0), 1–15. https://doi.org/10.1080/09537325.2021.1926966

Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research*. sage.

DesJardine, M., Bansal, P., & Yang, Y. (2019). Bouncing back: Building resilience through social and environmental practices in the context of the 2008 global financial crisis. *Journal of Management*, *45*(4), 1434-1460.

Dess, G. G., & Robinson Jr, R. B. (1984). Measuring organizational performance in the absence of objective measures: the case of the privately-held firm and conglomerate business unit. *Strategic Management Journal*, *5*(3), 265–273.

De Vries, H. E. R. B., & Shields, M. I. C. H. E. L. L. E. (2006). Towards a theory of entrepreneurial resilience: A case study analysis of New Zealand SME owner operators. *New Zealand Journal of Applied Business Research*, *5*(1), 33-43.

Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, *24*(4), 287–309. https://doi.org/10.1016/j.jbusvent.2008.02.002

Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: a predictive validity perspective. *Journal of the Academy of Marketing Science*, *40*, 434–449.

Didier, T., Huneeus, F., Larrain, M., & Schmukler, S. L. (2021). Financing firms in hibernation during the COVID-19 pandemic. *Journal of Financial Stability*, *53*, 100837.

do Valle, P. O., & Assaker, G. (2016). Using partial least squares structural equation modeling in tourism research: A review of past research and recommendations for future applications. *Journal of Travel Research*, *55*(6), 695–708.

Doern, R. (2016). Entrepreneurship and crisis management: The experiences of small businesses during the London 2011 riots. *International Small Business Journal*, *34*(3), 276–302. https://doi.org/10.1177/0266242614553863

Doern, R. (2017). Strategies for resilience in entrepreneurship: Building resources for small business survival after a crisis. In *Creating Resilient Economies: Entrepreneurship, Growth and Development in Uncertain Times* (pp. 11–27). Edward Elgar Publishing. https://doi.org/10.4337/9781785367649.00008

Doern, R., Williams, N., & Vorley, T. (2019). Special issue on entrepreneurship and crises: business as usual? An introduction and review of the literature. *Entrepreneurship and Regional Development*, *31*(5–6), 400–412. https://doi.org/10.1080/08985626.2018.1541590

Dube, K., Nhamo, G., & Chikodzi, D. (2021). COVID-19 cripples global restaurant and hospitality industry. *Current Issues in Tourism*, *24*(11), 1–4. https://doi.org/10.1080/13683500.2020.1773416

Duchek, S. (2020). Organizational resilience: a capability-based conceptualization. *Business Research*, *13*(1), 215–246. https://doi.org/10.1007/s40685-019-0085-7

Duchek, S., Raetze, S., & Scheuch, I. (2020). The role of diversity in organizational resilience: a theoretical framework. *Business Research*, *13*(2), 387–423. https://doi.org/10.1007/s40685-019-0084-8

Eggers, F. (2020). Masters of disasters? Challenges and opportunities for SMEs in times of crisis. *Journal of Business Research*, *116*(May), 199–208. https://doi.org/10.1016/j.jbusres.2020.05.025

Ehrenhuber, I., Treiblmaier, H., Nowitzki, C. E., & Gerschberger, M. (2015). Toward a framework for supply chain resilience. *International Journal of Supply Chain and Operations Resilience*, *1*(4), 339. https://doi.org/10.1504/ijscor.2015.075084

Eijdenberg, E. L., Paas, L. J., & Masurel, E. (2017). Decision-making and small business growth in Burundi. *Journal of Entrepreneurship in Emerging Economies*, *9*(1), 35–64. https://doi.org/10.1108/jeee-12-2015-0065

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), 25–32.

Elbanna, S., & Fadol, Y. (2016). The role of context in intuitive decision-making. *Journal of Management & Organization*, *22*(5), 642–661. https://doi.org/10.1017/JMO.2015.63

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107–115.

Elshaer, I. A., & Saad, S. K. (2022). Entrepreneurial resilience and business continuity in the tourism and hospitality industry: The role of adaptive performance and institutional orientation. *Tourism Review*, *77*(5), 1365-1384.

Engel, Y., Dimitrova, N. G., Khapova, S. N., & Elfring, T. (2014). Uncertain but able: Entrepreneurial self-efficacy and novices' use of expert decision-logic under uncertainty. *Journal of Business Venturing Insights*, *1–2*, 12–17. https://doi.org/10.1016/j.jbvi.2014.09.002

Engel, Y., Kleijn, E., & Khapova, S. (2013). Career as Antecedent of Entrepreneurial Decision-making: Uncovering The Role of Prediction and Control. *Academy of Management Proceedings*.

Erikson, T. (2002). Entrepreneurial capital: the emerging venture's most important asset and competitive advantage. *Journal of Business Venturing*, *17*(3), 275–290.

Erol, O., Sauser, B. J., & Mansouri, M. (2010). A framework for investigation into extended enterprise resilience. *Enterprise Information Systems*, *4*(2), 111–136. https://doi.org/10.1080/17517570903474304

EstradaCruz, M., VerdúJover, A. J., & GómezGras, J. M. (2019). The influence of culture on the relationship between the entrepreneur's social identity and decision-making: Effectual and causal logic. *BRQ Business Research Quarterly*, *22*(4), 226–244. https://doi.org/10.1016/j.brq.2018.10.002

Etemad, H. (2020). Managing uncertain consequences of a global crisis: SMEs encountering adversities, losses, and new opportunities. *Journal of International Entrepreneurship*, *18*(2), 125–144. https://doi.org/10.1007/s10843-020-00279-z

Eyana, S. M., Masurel, E., & Paas, L. J. (2018). Causation and effectuation behaviour of Ethiopian entrepreneurs: Implications on performance of small tourism firms. *Journal of Small Business and Enterprise Development*, *25*(5), 791–817. https://doi.org/10.1108/JSBED-02-2017-0079

Fang, S. (Echo), Prayag, G., Ozanne, L. K., & de Vries, H. (2020). Psychological capital, coping mechanisms and organizational resilience: Insights from the 2016 Kaikoura earthquake, New Zealand. *Tourism Management Perspectives*, *34*(March 2019), 100637. https://doi.org/10.1016/j.tmp.2020.100637

Farazmand, A. (2017). Crisis and Emergency Management: Theory and Practice. *Crisis and Emergency Management*, 1–10. https://doi.org/10.4324/9781315095264-1

Faulkner, B. (2001). Towards a framework for tourism disaster management. *Tourism Management*, *22*(2), 135–147. https://doi.org/10.1016/S0261-5177(00)00048-0

FEHD. Food and Environmental Hygiene Department (2021). List of licensed general restaurants. https://www.fehd.gov.hk/english/licensing/licence-foodPremises-rest.html

FEHD. Food and Environmental Hygiene Department (2022). *A GUIDE TO APPLICATION FOR RESTAURANT LICENCES*. https://www.fehd.gov.hk/english/howtoseries/forms/new/A_Guide_to_Restaurant.PDF

Fernandes, N. (2020). *Economic effects of coronavirus outbreak (COVID-19) on the world economy*.

Ferrier, W. J., Smith, K. G., & Grimm, C. M. (1999). The role of competitive action in market share erosion and industry dethronement: A study of industry leaders and challengers. *Academy of management journal*, *42*(4), 372-388.

Few, R., Chhotray, V., Tebboth, M., Forster, J., White, C., Armijos, T., & Shelton, C. (2020). *COVID-19 Crisis: Lessons for Recovery*.

Fielding, N., & Schreier, M. (2001). Introduction: On the compatibility between qualitative and quantitative research methods. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, *2*(1).

Fiksel, J. (2006). Sustainability and resilience: toward a systems approach. *Sustainability: Science, Practice and Policy*, *2*(2), 14–21. https://doi.org/10.1080/15487733.2006.11907980

Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship: Theory and Practice*, *36*(5), 1019–1051. https://doi.org/10.1111/j.1540-6520.2012.00537.x

Fisher, D. M., Ragsdale, J. M., & Fisher, E. C. (2019). The importance of definitional and temporal issues in the study of resilience. *Applied psychology*, *68*(4), 583-620.

Fitzsimmons, J. R., & Douglas, E. J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of business venturing*, *26*(4), 431-440.

Fletcher, D., & Sarkar, M. (2013). Psychological resilience. *European psychologist*.

Fong, L. H. N., Sun, S., Chan, I. C. C., & Law, R. (2023). The Influence of Time Orientation on Infection Risk Evaluation: Moderating Role of Public Health Crisis. *Journal of Hospitality and Tourism Research*. https://doi.org/10.1177/10963480221147437

Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research*, *19*(4), 440–452.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1), 39. https://doi.org/10.2307/3151312

Frese, M., & Gielnik, M. M. (2014). The psychology of entrepreneurship. *Annual Review of Organizational Psychology and Organizational Behavio*r, *1*, 413–438.

Frese, T., Geiger, I., & Dost, F. (2020). An empirical investigation of determinants of effectual and causal decision logics in online and high-tech start-up firms. *Small Business Economics*, *54*(3), 641–664. https://doi.org/10.1007/s11187-019-00147-8

Fu, H., Chen, W., Huang, X., Li, M., & Köseoglu, M. A. (2020). Entrepreneurial bricolage, ambidexterity structure, and new venture growth: Evidence from the hospitality and

tourism sector. *International Journal of Hospitality Management*, *85*(December 2018), 102355. https://doi.org/10.1016/j.ijhm.2019.102355

Fuchs, K. (2021). How are small businesses adapting to the new normal? Examining tourism development amid COVID-19 in Phuket. *Current Issues in Tourism*, *24*(24), 3420–3424. https://doi.org/10.1080/13683500.2021.1942439

Gabrielsson, J., & Politis, D. (2011). Career motives and entrepreneurial decision-making: Examining preferences for causal and effectual logics in the early stage of new ventures. *Small Business Economics*, *36*(3), 281–298. https://doi.org/10.1007/s11187-009-9217-3

Ganlin, P., Qamruzzaman, M. D., Mehta, A. M., Naqvi, F. N., & Karim, S. (2021). Innovative finance, technological adaptation and smes sustainability: The mediating role of government support during covid-19 pandemic. *Sustainability (Switzerland)*, *13*(16). https://doi.org/10.3390/su13169218

Gao, J., Kerstetter, D. L., Mowen, A. J., & Hickerson, B. (2018). Changes in tourists' perception of well-being based on their use of emotion regulation strategies during vacation. *Journal of Travel and Tourism Marketing*, *35*(5), 567–582. https://doi.org/10.1080/10548408.2017.1374908

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, *4*(1), 7.

Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, *61*(1), 101–107.

Ghaderi, Z., King, B., & Hall, C. M. (2022). Crisis preparedness of hospitality managers: evidence from Malaysia. *Journal of Hospitality and Tourism Insights*, *5*(2), 292–310. https://doi.org/10.1108/JHTI-10-2020-0199

Ghaderi, Z., Mat Som, A. P., & Wang, J. (2014). Organizational Learning in Tourism Crisis Management: An Experience from Malaysia. *Journal of Travel and Tourism Marketing*, *31*(5), 627–648. https://doi.org/10.1080/10548408.2014.883951

Giancotti, M., Mauro, M., & Giancotti, M. (2020). Building and improving the resilience of enterprises in a time of crisis: from a systematic scoping review to a new conceptual framework. *Economia Aziendale Online*, *11*(3), 307–339. https://doi.org/10.13132/2038-5498/11.3.307-339

Gibson, C. A., & Tarrant, M. (2010). A "Conceptual Models" approach to organisational resilience. *The Australian Journal of Emergency Management*, *25*(2), 6–12.

Gielnik, M. M., Uy, M. A., Funken, R., & Bischoff, K. M. (2017). Boosting and sustaining passion: A long-term perspective on the effects of entrepreneurship training. *Journal of Business Venturing*, *32*(3), 334-353.

Giones, F., Brem, A., Pollack, J. M., Michaelis, T. L., Klyver, K., & Brinckmann, J. (2020). Revising entrepreneurial action in response to exogenous shocks: Considering the COVID-19 pandemic. *Journal of Business Venturing Insights*, *14*(May), e00186. https://doi.org/10.1016/j.jbvi.2020.e00186

Given, L. (2008). Semi-structured interview. In *The SAGE Encyclopedia of Qualitative Research Methods* (pp. 811–812). SAGE Publications, Inc. https://doi.org/10.4135/9781412963909

Gkoumas, A. (2022). Developing an indicative model for preserving restaurant viability during the COVID-19 crisis. *Tourism and Hospitality Research*, *22*(1), 18–31. https://doi.org/10.1177/1467358421998057

Gligor, D. M., Esmark, C. L., & Holcomb, M. C. (2015). Performance outcomes of supply chain agility: when should you be agile?. *Journal of operations management*, *33*, 71-82.

Godwin, Ikpe. U., & Edwinah, A. (2013). Knowledge Management and Organizational Resilience in Nigerian Manufacturing Organizations. *Developing Country Studies*, *3*(9), 104–120.

Goktan, A., & Breeze, F. (2021). Buyer Dependence, Industry Regulation, and Effectuation: Examples from the Covid-19 Pandemic. *Global Journal of Business Disciplines*, *5*(1), 70–83.

Goodhue, D. L., Lewis, W., & Thompson, R. (2012). Does PLS have advantages for small sample size or non-normal data? *MIS Quarterly*, 981–1001.

Green, C. G., Bartholomew, P., & Murrmann, S. (2004). New York restaurant industry: Strategic responses to september 11, 2001. *Journal of Travel and Tourism Marketing*, *15*(2–3), 63–79. https://doi.org/10.1300/J073v15n02_04

Grégoire, D. A., & Cherchem, N. (2020). A structured literature review and suggestions for future effectuation research. *Small Business Economics*, *54*(3), 621–639. https://doi.org/10.1007/s11187-019-00158-5

Gritz, A. S. (2004). The impact of material incentives on response quantity, response quality, sample composition, survey outcome and cost in online access panels. *International Journal of Market Research*, *46*(3), 327–345.

Guo, R. (2019). Effectuation, opportunity shaping and innovation strategy in high-tech new ventures. *Management Decision*, *57*(1), 115-130.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–152.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, *26*(2), 106–121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, J., Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage publications.

Haleblian, J., & Finkelstein, S. (1993). Top management team size, CEO dominance, and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of management journal*, *36*(4), 844-863.

Hall, C. M. (2019). Resilience theory and tourism. In *Resilient Destinations and Tourism* (pp. 34–47). https://doi.org/10.4324/9781315162157-3

Hall, C. M., Prayag, G., & Amore, A. (2017). *Tourism and resilience: Individual, organisational and destination perspectives*. Channel View Publications.

Hall, C. M., Prayag, G., & Amore, A. (2018). *Tourism and resilience: Individual, organisational and destination perspectives*. Channel View Publications.

Hallak, R., Assaker, G., & Lee, C. (2015). Tourism Entrepreneurship Performance: The Effects of Place Identity, Self-Efficacy, and Gender. *Journal of Travel Research*, *54*(1), 36–51. https://doi.org/10.1177/0047287513513170

Hallak, R., Assaker, G., O'Connor, P., & Lee, C. (2018). Firm performance in the upscale restaurant sector: The effects of resilience, creative self-efficacy, innovation and industry

experience. *Journal of Retailing and Consumer Services*, *40*(October 2017), 229–240. https://doi.org/10.1016/j.jretconser.2017.10.014

Halme, M., Lindeman, S., & Linna, P. (2012). Innovation for Inclusive Business: Intrapreneurial Bricolage in Multinational Corporations. *Journal of Management Studies*, *49*(4), 743–784. https://doi.org/10.1111/j.1467-6486.2012.01045.x

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of management review*, *32*(2), 334-343.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, *9*(2), 193-206.

Han, Y.-J., Yong Chung, J., & Seo Son, J. (2017). THE EFFECTS OF THE INNOVATION TYPES OF VENTURE FIRMS AND GOVERNMENT SUPPORT ON FIRM PERFORMANCE AND NEW JOB CREATION: EVIDENCE FROM SOUTH KOREA. *Academy of Strategic Management Journal*, *16*(2), 1939–6104.

Haneberg, D. H. (2021). SME managers' learning from crisis and effectual behaviour. *Journal of Small Business and Enterprise Development*. https://doi.org/10.1108/JSBED-01-2021-0009

Harcourt, H., & Ateke, B. W. (2018). Customer-contact employee empowerment and resilience of quick service restaurants. *European Journal of Human Resource Management Studies*. *1*(2).

Harms, R., Alfert, C., Cheng, C. F., & Kraus, S. (2021). Effectuation and causation configurations for business model innovation: Addressing COVID-19 in the gastronomy industry. *International Journal of Hospitality Management*, *95*(January), 102896. https://doi.org/10.1016/j.ijhm.2021.102896

Harms, R., & Schiele, H. (2012). Antecedents and consequences of effectuation and causation in the international new venture creation process. *Journal of International Entrepreneurship*, *10*(2), 95–116. https://doi.org/10.1007/s10843-012-0089-2

Hartmann, S., Backmann, J., Newman, A., Brykman, K. M., & Pidduck, R. J. (2022). Psychological resilience of entrepreneurs: A review and agenda for future research. *Journal of Small Business Management*, *00*(00), 1–39. https://doi.org/10.1080/00472778.2021.2024216

Hauser, A., Eggers, F., & Güldenberg, S. (2020). Strategic decision-making in SMEs: effectuation, causation, and the absence of strategy. *Small Business Economics*, *54*(3), 775–790. https://doi.org/10.1007/s11187-019-00152-x

He, H., Lin, Z., & Li, H. (2020). Key survival factors in the exhibition industry. *International Journal of Hospitality Management*, *89*(May), 102561. https://doi.org/10.1016/j.ijhm.2020.102561

Helgeson, J. F., Fung, J. F., & Roa-Henriquez, A. R. (2020). Rationally bounded in a storm of complex events: Small businesses facing natural hazard resilience during a pandemic. *Journal of Behavioral Economics for Policy*, *4*(January 2021), 55–65.

Henry, D., & Ramirez-Marquez, J. E. (2010). A generic quantitative approach to resilience: A proposal. *20th Annual International Symposium of the International Council on Systems Engineering, INCOSE 2010*, *1*(2007), 291–301. https://doi.org/10.1002/j.2334-5837.2010.tb01071.x

Henninger, P., Brem, A., Giones, F., Bican, P. M., & Wimschneider, C. (2020). Effectuation vs. causation: Can established firms use start-up decision-making principles to stay innovative?. *International Journal of Innovation Management*, *24*(01), 2050002.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*, 115–135.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In *New challenges to international marketing* (Vol. 20, pp. 277–319). Emerald Group Publishing Limited.

Herbane, B. (2010). Small business research: Time for a crisis-based view. *International Small Business Journal*, *28*(1), 43–64. https://doi.org/10.1177/0266242609350804

Hillmann, J., & Guenther, E. (2021). Organizational Resilience: A Valuable Construct for Management Research? *International Journal of Management Reviews*, *23*(1), 7–44. https://doi.org/10.1111/ijmr.12239

Hilton, A., & Skrutkowski, M. (2002). Translating instruments into other languages: development and testing processes. *Cancer Nursing*, *25*(1), 1–7.

Hinz, A. (2017). Entrepreneurial behaviour revisited: Linking self-efficacy with effectuation. *International Journal of Business and Society*, *18*(S2), 245–260.

Holling, C. S. (2001). Understanding the complexity of economic, ecological, and social systems. *Ecosystems*, *4*(5), 390–405. https://doi.org/10.1007/s10021-001-0101-5

Holling, C. S. (2012). Engineering resilience versus ecological resilience. In lance h. Gunderson, C. R. Allen, & C. S. Holling (Eds.), *Foundations of Ecological Resilience*. Island Press.

Holsti, O. R. (1969). Content analysis for the social sciences and humanities. *Reading. MA: Addison-Wesley (Content Analysis)*.

Horne, J. F., III, & Orr, J. E. (1997). Assessing behaviors that create resilient organizations. *Employment Relations Today*, *24*(4), 29– 39.

Horvath, A., & Lang, P. (2021). Do loan subsidies boost the real activity of small firms? *Journal of Banking & Finance*, *122*, 105988.

Howell, L. (2013). Global risk 2013. In *World Economic Forum*. https://doi.org/10.1002/9781118739044.ch27

Hsu, D. K., Wiklund, J., & Cotton, R. D. (2017). Success, failure, and entrepreneurial reentry: An experimental assessment of the veracity of self–efficacy and prospect theory. *Entrepreneurship theory and practice*, *41*(1), 19-47.

Hu, X., Yan, H., Casey, T., & Wu, C. H. (2021). Creating a safe haven during the crisis: How organizations can achieve deep compliance with COVID-19 safety measures in the hospitality industry. *International Journal of Hospitality Management*, *92*(June 2020), 102662. https://doi.org/10.1016/j.ijhm.2020.102662

Hubner, S., Most, F., Wirtz, J., & Auer, C. (2021). Narratives in entrepreneurial ecosystems: drivers of effectuation versus causation. In *Small Business Economics*. Springer US. https://doi.org/10.1007/s11187-021-00531-3

Huit, G. T. M., Hair, J. F., Proksch, D., Sarstedt, M., Pinkwart, A., & Ringle, C. M. (2018). Addressing endogeneity in international marketing applications of partial least squares structural equation modeling. *Journal of International Marketing*, *26*(3), 1–21. https://doi.org/10.1509/jim.17.0151

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, *20*(2), 195–204.

Iborra, M., Safón, V., & Dolz, C. (2019). Strategic responsiveness of medium-sized enterprises during an economic and financial crisis: Antecedents of resilience. In *Strategic responsiveness and adaptive organizations: New research frontiers in international strategic management* (pp. 81-95). Emerald Publishing Limited.

Ivkov, M., Blešić, I., Janićević, S., Kovačić, S., Miljković, D., Lukić, T., & Sakulski, D. (2019). Natural Disasters vs Hotel Industry Resilience: An Exploratory Study among Hotel Managers from Europe. *Open Geosciences, 11*(1), 378–390. https://doi.org/10.1515/geo-2019-0030

Jackson, S. (2007, June). 6.1. 3 System resilience: capabilities, culture and infrastructure. In *INCOSE International Symposium* (Vol. 17, No. 1, pp. 885-899).

Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of consumer research, 30*(2), 199-218.

Jia, X., Chowdhury, M., Prayag, G., & Hossan Chowdhury, M. M. (2020). The role of social capital on proactive and reactive resilience of organizations post-disaster. *International Journal of Disaster Risk Reduction*, *48*(April), 101614. https://doi.org/10.1016/j.ijdrr.2020.101614

Jiang, Y., Ritchie, B. W., & Verreynne, M. L. (2021). Developing disaster resilience: A processual and reflective approach. *Tourism Management*, *87*(January), 104374. https://doi.org/10.1016/j.tourman.2021.104374

Jiang, Y., & Tornikoski, E. T. (2019). Perceived uncertainty and behavioral logic: Temporality and unanticipated consequences in the new venture creation process. *Journal of Business Venturing, 34*(1), 23–40. https://doi.org/10.1016/j.jbusvent.2018.06.002

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112–133.

Jones, B. A. (2015). *Benchmarking organizational resilience: A cross-sectional comparative research study*. New Jersey City University.

Jones, P., & Comfort, D. (2020). The Role of Resilience in Research and Planning in the Tourism Industry. *Athens Journal of Tourism, 7*, 1–17. https://doi.org/10.30958/ajt.X-Y-Z

Jung, H. S., & Yoon, H. H. (2015). The impact of employees' positive psychological capital on job satisfaction and organizational citizenship behaviors in the hotel. *International Journal of Contemporary Hospitality Management*, *27*(6), 1135–1156. https://doi.org/10.1108/IJCHM-01-2014-0019

Jurdana, D. S., Frleta, D. S., & Agbaba, R. (2020). CRISIS MANAGEMENT IN TOURISM – LITERATURE REVIEW. *Economic and Social Development 51st International Scientific Conference on Economic and Social Development Development*. https://doi.org/10.4324/9780203004937

Kale, E., Aknar, A., & Başar, Ö. (2019). Absorptive capacity and firm performance: The mediating role of strategic agility. *International Journal of Hospitality Management*, *78*(January 2018), 276–283. https://doi.org/10.1016/j.ijhm.2018.09.010

Kalinic, I., Sarasvathy, S. D., & Forza, C. (2014). "Expect the unexpected": Implications of effectual logic on the internationalization process. *International Business Review*, *23*(3), 635–647. https://doi.org/10.1016/j.ibusrev.2013.11.004

Kantur, D., & Iseri-Say, A. (2015). Measuring organizational resilience: A scale development. *Journal of Business Economics and Finance*, *4*(3), 456–472. https://doi.org/10.17261/Pressacademia.2015313066

Karami, M., Wooliscroft, B., & McNeill, L. (2020). Effectuation and internationalisation: a review and agenda for future research. *Small Business Economics*, *55*(3), 777–811. https://doi.org/10.1007/s11187-019-00183-4

Kerlinger, F. N. (1986). *Foundations of behavioral research: Educational and psychological inquiry.* (Third). Holt, Rinehard and Winston.

Kaushik, V., & Walsh, C. A. (2019). Pragmatism as a research paradigm and its implications for social work research. *Social sciences*, *8*(9), 255.

Kickul, J., & D'Intino, R. S. (2005). Measure for measure: modeling entrepreneurial self-efficacy onto instrumental tasks within the new venture creation process. *New England Journal of Entrepreneurship*, *8*(2), 39-47.

Kickul, J., Gundry, L. K., Barbosa, S. D., & Whitcanack, L. (2009). Intuition versus analysis? Testing differential models of cognitive style on entrepreneurial self–efficacy and the new venture creation process. *Entrepreneurship theory and practice*, *33*(2), 439-453.

Kim, J., Kim, J., Lee, S. K., & Tang, L. (Rebecca). (2020). Effects of epidemic disease outbreaks on financial performance of restaurants: Event study method approach. *Journal of Hospitality and Tourism Management*, *43*(February), 32–41. https://doi.org/10.1016/j.jhtm.2020.01.015

Kim, J., Kim, J., & Wang, Y. (2021). Uncertainty risks and strategic reaction of restaurant firms amid COVID-19: Evidence from China. *International Journal of Hospitality Management*, *92*(November 2020), 102752. https://doi.org/10.1016/j.ijhm.2020.102752

Kim, J., & Lee, J. C. (2020). Effects of COVID-19 on preferences for private dining facilities in restaurants. *Journal of Hospitality and Tourism Management*, *45*, 67–70. https://doi.org/10.1016/J.JHTM.2020.07.008

Kim, Y. (2020). Organizational resilience and employee work-role performance after a crisis situation: exploring the effects of organizational resilience on internal crisis communication. *Journal of Public Relations Research*, *32*(1–2), 47–75. https://doi.org/10.1080/1062726X.2020.1765368

Klein, R. J. T., Nicholls, R. J., & Thomalla, F. (2003). Resilience to natural hazards: How useful is this concept? *Environmental Hazards*, *5*(1), 35–45. https://doi.org/10.1016/j.hazards.2004.02.001

Klofsten, M., Urbano, D., & Heaton, S. (2021). Managing intrapreneurial capabilities: An overview. *Technovation*, *99*(August 2020), 102177. https://doi.org/10.1016/j.technovation.2020.102177

Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, *28*(1), 227–261. https://doi.org/10.1111/isj.12131

Kock, N., & Lynn, G. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems*, *13*(7).

Korber, S., & McNaughton, R. B. (2018). Resilience and entrepreneurship: a systematic literature review. *International Journal of Entrepreneurial Behaviour and Research*, *24*(7), 1129–1154. https://doi.org/10.1108/IJEBR-10-2016-0356

Koronis, E., & Ponis, S. (2018). Better than before: the resilient organization in crisis mode. *Journal of Business Strategy*, *39*(1), 32–42. https://doi.org/10.1108/JBS-10-2016-0124

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.

Kotler, P. (1991), *Marketing Management - Analysis, Planning, Implementation and Control*, Prentice Hall International Inc.

Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.

Kuckertz, A., Brändle, L., Gaudig, A., Hinderer, S., Morales Reyes, C. A., Prochotta, A., Steinbrink, K. M., & Berger, E. S. C. (2020). Startups in times of crisis – A rapid response to the COVID-19 pandemic. *Journal of Business Venturing Insights*, *13*(April). https://doi.org/10.1016/j.jbvi.2020.e00169

Kuntz, J. C. (2021). Resilience in Times of Global Pandemic: Steering Recovery and Thriving Trajectories. *Applied Psychology*, *70*(1), 188–215. https://doi.org/10.1111/apps.12296

Kuntz, J., Naswall, K., & Malinen, S. (2016). Resilient employees in resilient organizations: Flourishing beyond adversity. *Industrial and Organizational Psychology*, *9*(2), 456–462. https://doi.org/10.1017/iop.2016.39

Lafuente, E., Vaillant, Y., Vendrell-Herrero, F., & Gomes, E. (2019). Bouncing back from failure: Entrepreneurial resilience and the internationalisation of subsequent ventures created by serial entrepreneurs. *Applied Psychology*, *68*(4), 658-694.

Lai, H. B. J., Zainal Abidin, M. R., Hasni, M. Z., Ab Karim, M. S., & Che Ishak, F. A. (2020). Key adaptations of SME restaurants in Malaysia amidst the COVID-19 Pandemic. *International Journal of Research in Business and Social Science*, *9*(6), 12–23. https://doi.org/10.20525/ijrbs.v9i6.916

Lai, S. (2023). *Why Hong Kong does have the Highest density of restaurants in world? Where is the highest density of restaurants in Hong Kong?* https://lacrucci.com/why-hong-kong-highest-density-restaurants-in-world/

Laskovaia, A., Marino, L., Shirokova, G., & Wales, W. (2019). Expect the unexpected: examining the shaping role of entrepreneurial orientation on causal and effectual decision-making logic during economic crisis. *Entrepreneurship and Regional Development*, *31*(5–6), 456–475. https://doi.org/10.1080/08985626.2018.1541593

Laskovaia, A., Shirokova, G., & Morris, M. H. (2017). National culture, effectuation, and new venture performance: global evidence from student entrepreneurs. *Small Business Economics*, *49*(3), 687–709. https://doi.org/10.1007/s11187-017-9852-z

Le, P. N., & Needham, C. R. (2019). Factors Contributing to the Success of Ethnic Restaurant Businesses in Canada. *Open Journal of Business and Management*, *07*(04), 1586–1609. https://doi.org/10.4236/ojbm.2019.74110

Lee, C., Hallak, R., & Sardeshmukh, S. R. (2016). Drivers of success in independent restaurants: A study of the Australian restaurant sector. *Journal of Hospitality and Tourism Management, 29*, 99–111. https://doi.org/10.1016/j.jhtm.2016.06.003

Lee, J. W., Jones, P. S., Mineyama, Y., & Zhang, X. E. (2002). Cultural differences in responses to a Likert scale. *Research in Nursing & Health*, *25*(4), 295–306.

Lee, K., & Ha, I. (2014). How Do Economic Recessions Affect the U.S. Restaurant Industry? *Journal of Foodservice Business Research*, *17*(4), 353–362. https://doi.org/10.1080/15378020.2014.945891

Lee, K., & Ha, I. S. (2012). Exploring the Impacts of Key Economic Indicators and Economic Recessions in the Restaurant Industry. *Journal of Hospitality Marketing and Management*, *21*(3), 330–343. https://doi.org/10.1080/19368623.2011.611752

Lee, A. V., Vargo, J., & Seville, E. (2013). Developing a Tool to Measure and Compare Organizations' Resilience. *Natural Hazards Review*, *14*(1), 29–41. https://doi.org/10.1061/(asce)nh.1527-6996.0000075

Lee, J., & Wang, J. (2017). Developing entrepreneurial resilience: Implications for human resource development. *European Journal of Training and Development*, *41*(6), 519-539.

Lengnick-Hall, C. A., & Beck, T. E. (2005). Adaptive fit versus robust transformation: How organizations respond to environmental change. *Journal of Management*, *31*(5), 738–757. https://doi.org/10.1177/0149206305279367

Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, *21*(3), 243–255. https://doi.org/10.1016/j.hrmr.2010.07.001

Leung, S.-O. (2011). A comparison of psychometric properties and normality in 4-, 5-, 6-, and 11-point Likert scales. *Journal of Social Service Research, 37*(4), 412–421.

Li, B., Zhong, Y. Y., Zhang, T., & Hua, N. (2021). Transcending the COVID-19 crisis: Business resilience and innovation of the restaurant industry in China. *Journal of Hospitality and Tourism Management*, *49*(January), 44–53. https://doi.org/10.1016/j.jhtm.2021.08.024

Li, C., Coates, G., Johnson, N., & Mcguinness, M. (2015). *Designing an Agent-Based Model of SMEs to Assess Flood Response Strategies and Resilience*. *44*(January).

Lietz, P. (2010). Research into questionnaire design A summary of the literature. *International Journal of Market Research*, *52*(2), 249–272. https://doi.org/10.2501/S147078530920120X

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*, California, USA: Sage Publications.

Linnenluecke, M. K. (2017). Resilience in Business and Management Research: A Review of Influential Publications and a Research Agenda. *International Journal of Management Reviews*, *19*(1), 4–30. https://doi.org/10.1111/ijmr.12076

Linnenluecke, M. K., Griffiths, A., & Winn, M. (2012). Extreme weather events and the critical importance of anticipatory adaptation and organizational resilience in responding to impacts. *Business Strategy and the Environment*, *21*(1), 17–32. https://doi.org/10.1002/bse.708

Liu, Y.-T. (2019). Exploring the role of original aspiration in effectuation tendency. *International Entrepreneurship and Management Journal*, *15*(3), 977–1016. https://doi.org/10.1007/s11365-019-00575-8

Liu, W., Choi, T. M., Niu, X., Zhang, M., & Fan, W. (2022). Determinants of Business Resilience in the Restaurant Industry During the COVID-19 Pandemic: A Textual Analytics Study on an O2O Platform Case. *IEEE transactions on engineering management*.

Liu, Y., Shi, W., Yu, Y., Peng, L., & Zhang, A. (2023). Evaluation of the Resilience of the Catering Industry in Hong Kong before and after the COVID-19 Outbreak Based on Point-of-Interest Data. *ISPRS International Journal of Geo-Information*, *12*(11), 443.

Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology*, *69*(2), 241.

Lohmöller, J.-B. (1989). Latent Variable Path Modeling with Partial Least Squares. *(No Title)*.

Luan, S., Reb, J., & Gigerenzer, G. (2019). Ecological rationality: Fast-and-frugal heuristics for managerial decision making under uncertainty. *Academy of Management Journal*, *62*(6), 1735–1759. https://doi.org/10.5465/amj.2018.0172

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, *60*(3), 541–572. https://doi.org/10.1111/j.1744-6570.2007.00083.x

Luthans, F., Vogelgesang, G. R., & Lester, P. B. (2006). Developing the Psychological Capital of Resiliency. *Human Resource Development Review*, *5*(1), 25–44. https://doi.org/10.1177/1534484305285335

MacKenzie, S. B., Podsakoff, P. M., & Jarvis, C. B. (2005). The problem of measurement model misspecification in behavioral and organizational research and some recommended solutions. *Journal of applied psychology*, *90*(4), 710.

Madeira, A., Palrão, T., & Mendes, A. S. (2021). The impact of pandemic crisis on the restaurant business. In *Sustainability (Switzerland)* (Vol. 13, Issue 1, pp. 1–13). https://doi.org/10.3390/su13010040

Maguire, B., & Cartwright, S. (2008). Assessing a community's capacity to manage change: A resilience approach to social assessment. In *Canberra: Bureau of Rural Sciences* (Issue May).

Manfield, R. C., & Newey, L. R. (2018). Resilience as an entrepreneurial capability: integrating insights from a cross-disciplinary comparison. *International Journal of Entrepreneurial Behaviour and Research*, *24*(7), 1155–1180. https://doi.org/10.1108/IJEBR-11-2016-0368

Markman, G. M., & Venzin, M. (2014). Resilience: Lessons from banks that have braved the economic crisis—And from those that have not. *International Business Review*, *23*(6), 1096-1107.

Martens, H. M., Feldesz, K., & Merten, P. (2016). Crisis Management in Tourism – A Literature Based Approach on the Proactive Prediction of a Crisis and the Implementation of Prevention Measures. *Athens Journal of Tourism*, *3*(2), 89–101. https://doi.org/10.30958/ajt.3-2-1

Martinelli, E., Tagliazucchi, G., & Marchi, G. (2018). The resilient retail entrepreneur: dynamic capabilities for facing natural disasters. *International Journal of Entrepreneurial*

Behaviour and Research, *24*(7), 1222–1243. https://doi.org/10.1108/IJEBR-11-2016-0386

Marwa, S. M., & Milner, C. D. (2013). Underwriting corporate resilience via creativity: the pliability model. *Total Quality Management & Business Excellence*, *24*(7–8), 835–846. https://doi.org/10.1080/14783363.2013.791110

Matalamäki, M. J. (2017). Effectuation, an emerging theory of entrepreneurship – towards a mature stage of the development. *Journal of Small Business and Enterprise Development*, *24*(4), 928–949. https://doi.org/10.1108/JSBED-02-2017-0030

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist*, *56*(3), 227.

Mayring, P. (2015). Qualitative Content Analysis: Theoretical Background and Procedures. *Advances in Mathematics Education*, 365–380. https://doi.org/10.1007/978-94-017-9181-6_13

McCann, J. E., & Selsky, J. W. (2012). Mastering Turbulence: The Essential Capabilities of Agile and Resilient Individuals, Teams and Organizations. In *John Wiley & Sons*.

Mcgorry, S. Y. (2000). Measurement in a cross-cultural environment: Survey translation issues. *Qualitative Market Research: An International Journal*, *3*(2), 74–81. https://doi.org/10.1108/13522750010322070

McKelvie, A., Chandler, G. N., DeTienne, D. R., & Johansson, A. (2020). The measurement of effectuation: highlighting research tensions and opportunities for the future. *Small Business Economics*, *54*, 689-720.

McKelvie, A., Haynie, J. M., & Gustavsson, V. (2011). Unpacking the uncertainty construct: Implications for entrepreneurial action. *Journal of Business Venturing*, *26*(3), 273–292. https://doi.org/10.1016/j.jbusvent.2009.10.004

McLarnon, M. J. W., & Rothstein, M. G. (2013). Development and initial validation of the workplace resilience inventory. *Journal of Personnel Psychology*.

McManus, S. (2008). Organisational Resilience in New Zealand. In *University of Canterbury*.

McManus, S., Seville, E., Vargo, J., & Brunsdon, D. (2008). Facilitated Process for Improving Organizational Resilience. *Natural Hazards Review*, *9*(2), 81–90. https://doi.org/10.1061/(asce)1527-6988(2008)9:2(81)

Melián-Alzola, L., Fernández-Monroy, M., & Hidalgo-Peñate, M. (2020a). Hotels in contexts of uncertainty: Measuring organisational resilience. *Tourism Management Perspectives*, *36*(September), 100747. https://doi.org/10.1016/j.tmp.2020.100747

Melián-Alzola, L., Fernández-Monroy, M., & Hidalgo-Peñate, M. (2020b). Information technology capability and organisational agility: A study in the Canary Islands hotel industry. *Tourism Management Perspectives*, *33*(November 2019), 100606. https://doi.org/10.1016/j.tmp.2019.100606

Messabia, N., Fomi, P. R., & Kooli, C. (2022). Managing restaurants during the COVID-19 crisis: Innovating to survive and prosper. *Journal of Innovation and Knowledge*, *7*(4). https://doi.org/10.1016/j.jik.2022.100234

Michaelis, T. L., Carr, J. C., Scheaf, D. J., & Pollack, J. M. (2020). The frugal entrepreneur: A self-regulatory perspective of resourceful entrepreneurial behavior. *Journal of Business Venturing*, *35*(4), 105969. https://doi.org/10.1016/j.jbusvent.2019.105969

Miescu, M., & Rossi, R. (2021). COVID-19-induced shocks and uncertainty. *European Economic Review*, *139*.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. sage.

Milliken, F. J. (1987). Three Types of Perceived Uncertainty About the Environment: State, Effect, and Response Uncertainty. *Academy of Management Review*, *12*(1), 133–143. https://doi.org/10.5465/amr.1987.4306502

Mintzberg, H., & Waters, J. A. (1985). Of strategies, deliberate and emergent. *Strategic Management Journal*, *6*(3), 257–272.

Mizrahi, S., Vigoda-Gadot, E., & Cohen, N. (2021). How Well Do They Manage a Crisis? The Government's Effectiveness During the COVID-19 Pandemic. *Public Administration Review*, *81*(6), 1120–1130. https://doi.org/10.1111/puar.13370

Monllor, J., Pavez, I., & Pareti, S. (2020). Understanding informal volunteer behavior for fast and resilient disaster recovery: an application of entrepreneurial effectuation theory. *Disaster Prevention and Management: An International Journal*, *29*(4), 575–589. https://doi.org/10.1108/DPM-05-2019-0151

Moraga, M., Abalos, J. S., Molina, A. D., Ortiz, P. A., & Vinluan, A. R. (2024). Organizational Resilience and its Effect on Economic Sustainability of Selected SME Restaurants in

Makati City, Philippines. *Review of Integrative Business and Economics Research*, *13*(2), 268-282.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of mixed methods research*, *1*(1), 48-76.

Morrish, S. C., & Jones, R. (2020). Post-disaster business recovery: An entrepreneurial marketing perspective. *Journal of Business Research*, *113*(October 2017), 83–92. https://doi.org/10.1016/j.jbusres.2019.03.041

Morse, J. M. (2000). Determining sample size. In *Qualitative health research* (Vol. 10, Issue 1, pp. 3–5). Sage Publications Sage CA: Thousand Oaks, CA.

Motoc, A. (2020). Crisis management and resilience for restaurants in Romania during the COVID-19 pandemic. *Management dynamics in the knowledge economy*, *8*(4), 435-449.

Mthanti, T. S., & Urban, B. (2014). Effectuation and entrepreneurial orientation in high-technology firms. *Technology analysis & strategic management*, *26*(2), 121-133.

Najib, M., Rahman, A. A. A., & Fahma, F. (2021). Business survival of small and medium-sized restaurants through a crisis: The role of government support and innovation. *Sustainability (Switzerland)*, *13*(19). https://doi.org/10.3390/su131910535

Nakku, V. B., Agbola, F. W., Miles, M. P., & Mahmood, A. (2020). The interrelationship between SME government support programs, entrepreneurial orientation, and performance: A developing economy perspective. *Journal of Small Business Management*, *58*(1), 2–31. https://doi.org/10.1080/00472778.2019.1659671

Namatovu, R., & Larsen, M. M. (2021). Responding to COVID-19: Insights from African firms. *Africa Journal of Management*, *7*(1), 104–120. https://doi.org/10.1080/23322373.2021.1878809

Näswall, K., Kuntz, J., & Malinen, S. (2015). Employee Resilience Scale (EmpRes) Measurement Properties. *Resilient Organisations Research Report*, *August*, 1–4.

Näswall, K., Malinen, S., Kuntz, J., & Hodliffe, M. (2019). Employee resilience: development and validation of a measure. *Journal of Managerial Psychology*, *34*(5), 353–367. https://doi.org/10.1108/JMP-02-2018-0102

Ndiaye, N., Razak, L. A., Nagayev, R., & Ng, A. (2018). Demystifying small and medium enterprises'(SMEs) performance in emerging and developing economies. *Borsa Istanbul Review*, *18*(4), 269–281.

Neise, T., Verfürth, P., & Franz, M. (2021). Rapid responding to the COVID-19 crisis: Assessing the resilience in the German restaurant and bar industry. *International Journal of Hospitality Management*, *96*, 102960. https://doi.org/10.1016/j.ijhm.2021.102960

Nelson, R., & Lima, E. (2020). Effectuations, social bricolage and causation in the response to a natural disaster. *Small Business Economics*, *54*(3), 721–750. https://doi.org/10.1007/s11187-019-00150-z

Newman, A., Obschonka, M., Schwarz, S., Cohen, M., & Nielsen, I. (2019). Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research. *Journal of vocational behavior*, *110*, 403-419.

Nguyen, N. M., Killen, C. P., Kock, A., & Gemünden, H. G. (2018). The use of effectuation in projects: The influence of business case control, portfolio monitoring intensity and project innovativeness. *International Journal of Project Management*, *36*(8), 1054–1067. https://doi.org/10.1016/j.ijproman.2018.08.005

Nguyen, Q., Kuntz, J. R. C., Näswall, K., & Malinen, S. (2016). Employee resilience and leadership styles: The moderating role of proactive personality and optimism. *New Zealand Journal of Psychology*, *45*(2), 13–21.

Nhamo, G., Dube, K., & Chikodzi, D. (2020). Counting the Cost of COVID-19 on the Global Tourism Industry. In *Counting the Cost of COVID-19 on the Global Tourism Industry*. https://doi.org/10.1007/978-3-030-56231-1

Nilakant, V., Walker, B., Van Heugten, K., Baird, R., & De Vries, H. (2014). Conceptualising Adaptive Resilience using Grounded Theory. *New Zealand Journal of Employment Relations*, *39*(1), 79–86. https://search.proquest.com/docview/1620818935?accountid=31562

Nordqvist, M., Hall, A., & Melin, L. (2009). Qualitative research on family businesses: The relevance and usefulness of the interpretive approach. *Journal of Management & Organization*, *15*(3), 294–308.

Norris, J. I., Casa de Calvo, M. P., & Mather, R. D. (2020). Managing an existential threat: how a global crisis contaminates organizational decision-making. *Management Decision*, *58*(10), 2117–2138. https://doi.org/10.1108/MD-08-2020-1034

Nouri, B. A., & Mousavi, M. M. (2020). Effect of cooperative management on organizational agility with the mediating role of employee empowerment in public transportation sector. *Cuadernos de Gestion*, *20*(2), 15–46. https://doi.org/10.5295/CDG.170873BA

Okuwa, J. A., Nwuche, C. A., & Anyanwu, S. A. C. (2016). Human Capital Development and Organizational Resilience in Selected Manufacturing Firms in Rivers State. *International Journal of Novel Research in Humanity and Social Sciences*, *3*(2), 43–50.

Oppenheim, A. N. (Abraham N. (1992). *Questionnaire design, interviewing, and attitude measurement*.

Orchiston, C., Prayag, G., & Brown, C. (2016). Organizational resilience in the tourism sector. *Annals of Tourism Research*, *56*, 145–148. https://doi.org/10.1016/j.annals.2015.11.002

Osiyevskyy, O., & Dewald, J. (2018). The pressure cooker: When crisis stimulates explorative business model change intentions. *Long Range Planning*, *51*(4), 540–560. https://doi.org/10.1016/J.LRP.2017.09.003

Ozanne, L. K., Chowdhury, M., Prayag, G., & Mollenkopf, D. A. (2022). SMEs navigating COVID-19: The influence of social capital and dynamic capabilities on organizational resilience. *Industrial Marketing Management*, *104*(April), 116–135. https://doi.org/10.1016/j.indmarman.2022.04.009

Pal, R., Torstensson, H., & Mattila, H. (2014). Antecedents of organizational resilience in economic crises - An empirical study of Swedish textile and clothing SMEs. *International Journal of Production Economics*, *147*(PART B), 410–428. https://doi.org/10.1016/j.ijpe.2013.02.031

Papadakis, V. M., & Barwise, P. (2002). How much do CEOs and top managers matter in strategic decision-making?. *British Journal of management*, *13*(1), 83-95.

Panpakdee, C., & Limnirankul, B. (2018). Indicators for assessing social-ecological resilience: A case study of organic rice production in northern Thailand. *Kasetsart Journal of Social Sciences*, *39*(3), 414-421.

Pappas, N., & Brown, A. E. (2020). Entrepreneurial decisions in tourism and hospitality during crisis. *Management Decision*, *59*(5), 1025–1042. https://doi.org/10.1108/MD-10-2019-1412

Parsa, H. G., Kreeger, J. C., van der Rest, J. P., Xie, L. K., & Lamb, J. (2021). Why Restaurants Fail? Part V: Role of Economic Factors, Risk, Density, Location, Cuisine, Health Code Violations and GIS Factors. *International Journal of Hospitality and Tourism Administration*, *22*(2), 142–167. https://doi.org/10.1080/15256480.2019.1598908

Parsa, H. G., Self, J., Sydnor-Busso, S., & Yoon, H. J. (2011). Why Restaurants Fail? Part II - The Impact of Affiliation, Location, and Size on Restaurant Failures: Results from a Survival Analysis. *Journal of Foodservice Business Research*, *14*(4), 360–379. https://doi.org/10.1080/15378020.2011.625824

Parsa, H. G., Self, J. T., Njite, D., & King, T. (2005). Why restaurants fail. *Cornell Hotel and Restaurant Administration Quarterly*, *46*(3), 304–322. https://doi.org/10.1177/0010880405275598

Parsa, H. G., van der Rest, J. P. I., Smith, S. R., Parsa, R. A., & Bujisic, M. (2015). Why Restaurants Fail? Part IV: The Relationship between Restaurant Failures and Demographic Factors. *Cornell Hospitality Quarterly*, *56*(1), 80–90. https://doi.org/10.1177/1938965514551959

Parsa, H., & Gregory, A. (2011). *Why Do Restaurants Fail? Part III: An Analysis of Macro and Micro Factors*. http://library.ucf.edu

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. SAGE Publications, inc.

Peng, X., Liu, Y., & Lin, Y. (2015). The Impact of Environment Uncertainty and Effectual Flexibility on Entrepreneurial Resource Combination: The Moderating Effect of Entrepreneurial Self-efficacy. *Frontiers of Business Research in China*, *9*(4), 559–575. https://doi.org/10.3868/s070-004-015-0022-9

Perry, C. (1998). A structured approach for presenting theses. *Australasian Marketing Journal (AMJ)*, *6*(1), 63–85.

Perry, J. T., Chandler, G. N., & Markova, G. (2012). Entrepreneurial Effectuation: A Review and Suggestions for Future Research. *Entrepreneurship: Theory and Practice*, *36*(4), 837–861. https://doi.org/10.1111/j.1540-6520.2010.00435.x

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879.

Ponis, S. T., & Koronis, E. (2012). Supply Chain Resilience? Definition of concept and its formative elements. *The journal of applied business research*, *28*(5), 921-935.

Portuguez Castro, M., & Gómez Zermeño, M. G. (2020). Being an entrepreneur post-COVID-19 – resilience in times of crisis: a systematic literature review. *Journal of Entrepreneurship in Emerging Economies*. https://doi.org/10.1108/JEEE-07-2020-0246

Powell, E. E., & Baker, T. (2014). Creating slack: institutional constraints and entrepreneurial discretion. *Frontiers of Entrepreneurship Research*, *34*(1).

Prashantham, S., Kumar, K., Bhagavatula, S., & Sarasvathy, S. D. (2019). Effectuation, network-building and internationalisation speed. *International Small Business Journal: Researching Entrepreneurship*, *37*(1), 3–21. https://doi.org/10.1177/0266242618796145

Prayag, G. (2018). Symbiotic relationship or not? Understanding resilience and crisis management in tourism. *Tourism Management Perspectives*, *25*(November 2017), 133–135. https://doi.org/10.1016/j.tmp.2017.11.012

Prayag, G. (2019). Building destination resilience through community and organizational resilience. In R. K. Isaac, E. Çakmak, & R. Butler (Eds.), *Tourism and Hospitality in Conflict-Ridden Destinations* (pp. 56–68). https://doi.org/10.4324/9780429463235

Prayag, G. (2023). Tourism resilience in the 'new normal': Beyond jingle and jangle fallacies? *Journal of Hospitality and Tourism Management*, *54*(October 2022), 513–520. https://doi.org/10.1016/j.jhtm.2023.02.006

Prayag, G., Chowdhury, M., Spector, S., & Orchiston, C. (2018). Organizational resilience and financial performance. *Annals of Tourism Research*, *73*(July), 193–196. https://doi.org/10.1016/j.annals.2018.06.006

Prayag, G., & Dassanayake, D. M. C. (2022). Tourism employee resilience, organizational resilience and financial performance: the role of creative self-efficacy. *Journal of Sustainable Tourism*, 1–25. https://doi.org/10.1080/09669582.2022.2108040

Prayag, G., Jiang, Y., Chowdhury, M., Hossain, M. I., & Akter, N. (2023). Building Dynamic Capabilities and Organizational Resilience in Tourism Firms During COVID-19: A

Staged Approach. *Journal of Travel Research*. https://doi.org/10.1177/00472875231164976

Prayag, G., Muskat, B., & Dassanayake, C. (2023). Leading for Resilience: Fostering Employee and Organizational Resilience in Tourism Firms. *Journal of Travel Research*. https://doi.org/10.1177/00472875231164984

Prayag, G., Spector, S., Orchiston, C., & Chowdhury, M. (2020). Psychological resilience, organizational resilience and life satisfaction in tourism firms: insights from the Canterbury earthquakes. *Current Issues in Tourism*, *23*(10), 1216–1233. https://doi.org/10.1080/13683500.2019.1607832

Prescott, R. K. (2012). *The Encyclopedia of Human Resource Management, Volume 1: Short Entries*. John Wiley & Sons.

Preston, C. C., & Colman, A. M. (2000). Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. *Acta Psychologica*, *104*(1), 1–15. https://doi.org/10.1016/S0001-6918(99)00050-5

Purnomo, B. R., Adiguna, R., Widodo, W., Suyatna, H., & Nusantoro, B. P. (2021). Entrepreneurial resilience during the Covid-19 pandemic: navigating survival, continuity and growth. *Journal of Entrepreneurship in Emerging Economies*, *ahead-of-p*(ahead-of-print). https://doi.org/10.1108/jeee-07-2020-0270

Raetze, S., Duchek, S., Maynard, M. T., & Wohlgemuth, M. (2022). Resilience in organization-related research: An integrative conceptual review across disciplines and levels of analysis. *Journal of Applied Psychology*, *107*(6), 867.

Rahi, K. (2019). Indicators to assess organizational resilience-a review of empirical literature. *International Journal of Disaster Resilience in the Built Environment*, *10*(2/3), 85–98. https://doi.org/10.1108/IJDRBE-11-2018-0046

Ranabahu, N., & Barrett, M. (2020). Does practice make micro-entrepreneurs perfect? An investigation of expertise acquisition using effectuation and causation. *Small Business Economics*, *54*, 883-905.

Randerson, K. (2016). Entrepreneurial Orientation: do we actually know as much as we think we do? *Entrepreneurship and Regional Development*, *28*(7–8), 580–600. https://doi.org/10.1080/08985626.2016.1221230

Rasoolimanesh, S. M., Jaafar, M., Marzuki, A., & Abdullah, S. (2017). Tourist's perceptions of crowding at recreational sites: the case of the Perhentian Islands. *Anatolia*, *28*(1), 41–51. https://doi.org/10.1080/13032917.2016.1247288

Ratten, V. (2020). Coronavirus (covid-19) and entrepreneurship: changing life and work landscape. *Journal of Small Business and Entrepreneurship*, *32*(5), 503–516. https://doi.org/10.1080/08276331.2020.1790167

Read, S., Dew, N., Sarasvathy, S. D., Song, M., & Wiltbank, R. (2009). Marketing Under Uncertainty: The Logic of an Effectual Approach. *Journal of Marketing*, *73*(3), 1–18. https://doi.org/10.1509/jmkg.73.3.1

Read, S., & Sarasvathy, S. D. (2005). Knowing What to Do and Doing What You Know. *The Journal of Private Equity*, *9*(1), 45–62. https://doi.org/10.3905/jpe.2005.605370

Reuber, A. R., Fischer, E., & Coviello, N. (2016). Deepening the dialogue: New directions for the evolution of effectuation theory. *Academy of Management Review*, *41*(3), 536-540.

Reyes-Mercado, P., & Verma, R. (2019). Effectuation and Causation Approaches in Entrepreneurial Marketing: A Set-Theoretical Model. In Rajagopal & R. Behl (Eds.), *Innovation, Technology, and Market Ecosystems: Managing Industrial Growth in Emerging Markets* (Issue January). https://doi.org/10.1007/978-3-030-23010-4

Reymen, I. M. M. J., Andries, P., Berends, H., Mauer, R., Stephan, U., & Van Burg, E. (2015). Understanding dynamics of strategic decision making in venture creation: a process study of effectuation and causation. *Strategic Entrepreneurship Journal*, *9*(4), 351–379.

Richards, L. (2014). Handling qualitative data: A practical guide. *Handling Qualitative Data*, 1–264.

Richtnér, A., & Löfsten, H. (2014). Managing in turbulence: How the capacity for resilience influences creativity. *R and D Management*, *44*(2), 137–151. https://doi.org/10.1111/RADM.12050

Rigdon, E. E. (1998). Structural equation modeling. In *Modern methods for business research* (pp. 251–294). Psychology Press.

Rigdon, E. E. (2012). Rethinking partial least squares path modeling: In praise of simple methods. *Long Range Planning*, *45*(5–6), 341–358.

Ringle, C., Da Silva, D., & Bido, D. (2015). Structural equation modeling with the SmartPLS. *Bido, D., Da Silva, D., & Ringle, C. (2014). Structural Equation Modeling with the Smartpls. Brazilian Journal of Marketing*, *13*(2).

Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). Editor's comments: a critical look at the use of PLS-SEM in" MIS Quarterly". *MIS Quarterly*, iii–xiv.

Riolli, L., & Savicki, V. (2003). Information system organizational resilience. *Omega*, *31*(3), 227–233. https://doi.org/10.1016/S0305-0483(03)00023-9

Ritchie, B. W. (2009). Tourism crises: management responses and theoretical insight. *Current Issues in Tourism*, *12*(4), 405–408. https://doi.org/10.1080/13683500802420519

Ritchie, B. W., & Jiang, Y. (2019). A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management. *Annals of Tourism Research*, *79*(October), 102812. https://doi.org/10.1016/j.annals.2019.102812

Roach, D. C., Ryman, J. A., & Makani, J. (2016). Effectuation, innovation and performance in SMEs: an empirical study. *European Journal of Innovation Management*, *19*(2), 214–238. https://doi.org/10.1108/EJIM-12-2014-0119

Roberts, K. H., Madsen, P., & Desai, V. (2007). Organizational sensemaking during crisis. In *International Handbook of Organizational Crisis Management*. SAGE Publications, Inc. https://doi.org/10.4135/9781412982757

Rodrigues, M., Franco, M., Sousa, N., & Silva, R. (2021). Covid 19 and the business management crisis: An empirical study in smes. *Sustainability (Switzerland)*, *13*(11). https://doi.org/10.3390/su13115912

Ruan, W., Kang, S., & Song, H. (2020). Applying protection motivation theory to understand international tourists' behavioural intentions under the threat of air pollution: A case of Beijing, China. *Current Issues in Tourism*, *23*(16), 2027–2041.

Ruan, W. Q., Yang, T. T., & Zhang, S. N. (2022). Restoration path of small tourism enterprise managers' confidence in the COVID-19 period. *Journal of Travel and Tourism Marketing*, *39*(2), 137–151. https://doi.org/10.1080/10548408.2022.2061675

Ruiz-Jiménez, J. M., Ruiz-Arroyo, M., & del Mar Fuentes-Fuentes, M. (2021). The impact of effectuation, causation, and resources on new venture performance: novice versus expert entrepreneurs. *Small Business Economics*, *57*, 1761-1781.

Ruiz-Martin, C., Lopez-Paredes, A., & Wainer, G. (2018). What we know and do not know about organizational resilience. *International Journal of Production Management and Engineering*, *6*(1), 11. https://doi.org/10.4995/ijpme.2018.7898

Runyan, R. C. (2006). Small business in the face of crisis: Identifying barriers to recovery from a natural disaster. *Journal of Contingencies and Crisis Management*, *14*(1), 12–26. https://doi.org/10.1111/j.1468-5973.2006.00477.x

Runyan, R., Droge, C., & Swinney, J. (2008). Entrepreneurial orientation versus small business orientation: what are their relationships to firm performance? *Journal of Small Business Management*, *46*(4), 567–588.

Saad, M. H., Hagelaar, G., Van Der Velde, G., & Omta, S. W. F. (2021). Conceptualization of SMEs' business resilience: A systematic literature review. *Cogent Business & Management*, *8*(1), 1938347.

Sabatino, M. (2016). Economic crisis and resilience: Resilient capacity and competitiveness of the enterprises. *Journal of Business Research*, *69*(5), 1924–1927. https://doi.org/10.1016/j.jbusres.2015.10.081

Salem, I. E., Elbaz, A. M., Elkhwesky, Z., & Ghazi, K. M. (2021). The COVID-19 pandemic: The mitigating role of government and hotel support of hotel employees in Egypt. *Tourism Management*, *85*. https://doi.org/10.1016/j.tourman.2021.104305

Santoro, G., Messeni-Petruzzelli, A., & Del Giudice, M. (2020). Searching for resilience: the impact of employee-level and entrepreneur-level resilience on firm performance in small family firms. *Small Business Economics*, *57*, 455–471. https://doi.org/10.1007/s11187-020-00319-x

Santos, L. L., Borini, F. M., Oliveira, M. de M., Rossetto, D. E., & Bernardes, R. C. (2020). Bricolage as capability for frugal innovation in emerging markets in times of crisis. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-06-2020-0225

Sarasvathy, S. (2001). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency. *The Academy of Management Review*, *26*(2), 243–263.

Sarasvathy, S. D., & Dew, N. (2008). Is effectuation lachmannian? A response to Chiles, Bluedorn, and Gupta (2007). *Organization Studies*, *29*(2), 239–245. https://doi.org/10.1177/0170840607088153

Sarasvathy, S., Kumar, K., York, J. G., & Bhagavatula, S. (2014). An Effectual Approach to International Entrepreneurship: Overlaps, Challenges, and Provocative Possibilities. *Entrepreneurship: Theory and Practice*, *38*(1), 71–93. https://doi.org/10.1111/etap.12088

Sarstedt, M., Ringle, C. M., Henseler, J., & Hair, J. F. (2014). On the emancipation of PLS-SEM: A commentary on Rigdon (2012). *Long Range Planning*, *47*(3), 154–160.

Saunders, M., Lewis, P., & Thornhill, A. (2009). Research methods for business students (4th ed.). Essex: Person Education Limited.

Sayegh, L., Anthony, W. P., & Perrewé, P. L. (2004). Managerial decision-making under crisis: The role of emotion in an intuitive decision process. *Human Resource Management Review*, *14*(2), 179–199. https://doi.org/10.1016/j.hrmr.2004.05.002

Scarpino, M. R., & Gretzel, U. (2015). Conceptualizing Organizational Resilience in Tourism Crisis. In B. W. Ritchie & K. Campiranon (Eds.), *Tourism Crisis and Disaster Management in the Asia-Pacific*. CAB International.

Scheaffer, R. L., Mendenhall III, W., Ott, R. L., & Gerow, K. G. (2011). *Elementary Survey Sampling* (Seventh Edition). Cengage Learning.

Schmidt, J., & Heidenreich, S. (2018). The role of human capital for entrepreneurial decision-making – investigating experience , skills and knowledge as antecedents to effectuation and causation. *International Journal of Entrepreneurial Venturing*, *10*(3), 287–311.

Schmidt, J., & Heidenreich, S. (2019). Empowering for effectuation: Examining organisational preparedness for corporate entrepreneurship as antecedent of psychological empowerment and entrepreneurial behaviour. *International Journal of Entrepreneurial Venturing*, *11*(1), 47–80. https://doi.org/10.1504/IJEV.2019.096638

Schmitt, A., Rosing, K., Zhang, S. X., & Leatherbee, M. (2018). A Dynamic Model of Entrepreneurial Uncertainty and Business Opportunity Identification: Exploration as a Mediator and Entrepreneurial Self-Efficacy as a Moderator. *Entrepreneurship Theory and Practice*, *42*(6), 835–859. https://doi.org/10.1177/1042258717721482

Scholten, K., Sharkey Scott, P., & Fynes, B. (2014). Mitigation processes–antecedents for building supply chain resilience. *Supply Chain Management: An International Journal*, *19*(2), 211-228.

Schonfeld, I. S., & Mazzola, J. J. (2015). A qualitative study of stress in individuals self-employed in solo businesses. *Journal of occupational health psychology*, *20*(4), 501.

Schulman, P. R. (1993). The negotiated order of organizational reliability. *Administration & society*, *25*(3), 353-372.

Senbeto, D. L., & Hon, A. H. Y. (2020a). Market turbulence and service innovation in hospitality: examining the underlying mechanisms of employee and organizational resilience. *Service Industries Journal*, *40*(15–16), 1119–1139. https://doi.org/10.1080/02642069.2020.1734573

Senbeto, D. L., & Hon, A. H. Y. (2020b). The impacts of social and economic crises on tourist behaviour and expenditure: an evolutionary approach. *Current Issues in Tourism*, *23*(6), 740–755. https://doi.org/10.1080/13683500.2018.1546674

Senbeto, D. L., & Hon, A. H. Y. (2021). Development of employees' resilience in technologically turbulent environments: probing the mechanisms of consonance–dissonance and crisis leadership. *International Journal of Contemporary Hospitality Management*, *33*(8), 2721–2740. https://doi.org/10.1108/IJCHM-11-2020-1263

Senyard, J., Baker, T., & Davidsson, P. (2009). ENTREPRENEURIAL BRICOLAGE: TOWARDS SYSTEMATIC EMPIRICAL TESTING. *Frontiers of Entrepreneurship Research*, *29*(5).

Senyard, J., Baker, T., Steffens, P., & Davidsson, P. (2014). Bricolage as a path to innovativeness for resource-constrained new firms. *Journal of Product Innovation Management*, *31*(2), 211–230. https://doi.org/10.1111/jpim.12091

Seo, S., Jang, S. C. S., Almanza, B., Miao, L., & Behnke, C. (2014). The negative spillover effect of food crises on restaurant firms: Did Jack in the box really recover from an E. coli scare? *International Journal of Hospitality Management*, *39*, 107–121. https://doi.org/10.1016/j.ijhm.2014.02.011

Seo, S., Miao, L., Almanza, B., & Behnke, C. (2018). How Have Restaurant Firms Responded to Food Safety Crises? Evidence From Media Coverage. *Journal of Foodservice Business Research*, *21*(1), 83–105. https://doi.org/10.1080/15378020.2017.1297922

Seow, A. N., Choong, Y. O., & Ramayah, T. (2021). Small and medium-size enterprises' business performance in tourism industry: the mediating role of innovative practice and moderating role of government support. *Asian Journal of Technology Innovation*, *29*(2), 283–303. https://doi.org/10.1080/19761597.2020.1798796

Seville, E., Brunsdon, D., Dantas, A., Le Masurier, J., Wilkinson, S., & Vargo, J. (2008). Organisational resilience: Researching the reality of New Zealand organisations. *Journal of Business Continuity & Emergency Planning*, *2*(3), 258–266.

Sharma, S., & Rautela, S. (2022). Entrepreneurial resilience and self-efficacy during global crisis: study of small businesses in a developing economy. Journal of Entrepreneurship in Emerging Economies, 14(6), 1369-1386.

Sharifi, H., & Zhang, Z. (2001). Agile manufacturing in practice Application of a methodology. *International Journal of Operations and Production Management*, *21*(5–6), 772–779. https://doi.org/10.1108/01443570110390462

Sheffi, Y. (2007). *The resilient enterprise: overcoming vulnerability for competitive advantage*. Cambridge: MIT Press.

Sheffi, Y., & Rice, J. B. (2005). A supply chain view of the resilient enterprise. *MIT Sloan Management Review*, *47*(1).

Sheng, S., Zhou, K. Z., & Li, J. J. (2011). The effects of business and political ties on firm performance: Evidence from China. *Journal of Marketing*, *75*(1), 1–15.

Shi, F., Shi, D., Weaver, D., & Samaniego Chavez, C. E. (2021). Adapt to not just survive but thrive: resilience strategies of five-star hotels at difficult times. *International Journal of Contemporary Hospitality Management*, *33*(9), 2886–2906. https://doi.org/10.1108/IJCHM-10-2020-1194

Shirokova, G., Morris, M. H., Laskovaia, A., & Micelotta, E. (2021). Effectuation and causation, firm performance, and the impact of institutions: A multi-country moderation analysis. *Journal of Business Research*, *129*(March 2020), 169–182. https://doi.org/10.1016/j.jbusres.2021.02.045

Shirokova, G., Osiyevskyy, O., Laskovaia, A., & MahdaviMazdeh, H. (2020). Navigating the emerging market context: Performance implications of effectuation and causation for small and medium enterprises during adverse economic conditions in Russia. *Strategic Entrepreneurship Journal*, *14*(3), 470–500. https://doi.org/10.1002/sej.1353

Short, J. C., Ketchen Jr, D. J., & Palmer, T. B. (2002). The role of sampling in strategic management research on performance: A two-study analysis. *Journal of Management*, *28*(3), 363–385.

Simms, C., McGowan, P., Pickernell, D., Vazquez-Brust, D., & Williams, A. (2022). Uncovering the effectual-causal resilience nexus in the era of Covid-19: A case of a food sector SME's resilience in the face of the global pandemic. *Industrial marketing management*, *106*, 166-182.

Sinclair, V. G., & Wallston, K. A. (2004). The development and psychometric evaluation of the Brief Resilient Coping Scale. *Assessment*, *11*(1), 94–101. https://doi.org/10.1177/1073191103258144

Singer, E., Van Hoewyk, J., & Maher, M. P. (2000). Experiments with incentives in telephone surveys. *Public Opinion Quarterly*, *64*(2), 171–188.

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, *15*, 194-200.

Smith, B. W., Tooley, E. M., Christopher, P. J., & Kay, V. S. (2010). Resilience as the ability to bounce back from stress: A neglected personal resource?. *The Journal of Positive Psychology*, *5*(3), 166-176.

Smolka, K. M., Verheul, I., Burmeister–Lamp, K., & Heugens, P. P. M. A. R. (2018). Get it Together! Synergistic Effects of Causal and Effectual Decision–Making Logics on Venture Performance. In *Entrepreneurship Theory and Practice* (Vol. 42, Issue 4). https://doi.org/10.1177/1042258718783429

Sobaih, A. E. E., Elshaer, I., Hasanein, A. M., & Abdelaziz, A. S. (2021). Responses to COVID-19: The role of performance in the relationship between small hospitality enterprises' resilience and sustainable tourism development. *International Journal of Hospitality Management*, *94*(June 2020), 102824. https://doi.org/10.1016/j.ijhm.2020.102824

Song, H. J., Yeon, J., & Lee, S. (2021). Impact of the COVID-19 pandemic: Evidence from the U.S. restaurant industry. *International Journal of Hospitality Management*, *92*(June 2020), 102702. https://doi.org/10.1016/j.ijhm.2020.102702

Soni, U., Jain, V., & Kumar, S. (2014). Measuring supply chain resilience using a deterministic modeling approach. *Computers & Industrial Engineering*, *74*, 11-25.

Sonnet, M. (2016). *Employee behaviors, beliefs, and collective resilience: An exploratory study in organizational resilience capacity*. Fielding Graduate University.

Sopha, B. M., Jie, F., & Himadhani, M. (2021). Analysis of the uncertainty sources and SMEs' performance. *Journal of Small Business and Entrepreneurship*, *33*(1), 1–27. https://doi.org/10.1080/08276331.2020.1764737

Starr, R., Newfrock, J., & Delurey, M. (2003). Enterprise Resilience: Managing Risk in the Networked Economy. *Strategy and Business*, *30*, 70–79.

Stephens, S., McLaughlin, C., & McLaughlin, K. (2021). Entrepreneurs responding to the COVID-19 crisis: evidence from Ireland. *The Irish Journal of Management*, *40*(2), 143-156.

Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society: Series B (Methodological)*, *36*(2), 111–133.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research techniques: Techniques and procedures for developing grounded theory*. Sage Publications.

Stroe, S., Parida, V., & Wincent, J. (2018). Effectuation or causation: An fsQCA analysis of entrepreneurial passion, risk perception, and self-efficacy. *Journal of Business Research*, *89*(February), 265–272. https://doi.org/10.1016/j.jbusres.2018.01.035

SUCCESS. (2022). *Small and medium enterprises (SME)*. https://www.success.tid.gov.hk/english/aboutus/sme/service_detail_6863.html

Sullivan-Taylor, B., & Branicki, L. (2011). Creating resilient SMEs: Why one size might not fit all. *International Journal of Production Research*, *49*(18), 5565–5579. https://doi.org/10.1080/00207543.2011.563837

Sung, Y. K., Hu, H. H. "Sunny," & King, B. (2021). Restaurant preventive behaviors and the role of media during a pandemic. *International Journal of Hospitality Management*, *95*(June 2020), 102906. https://doi.org/10.1016/j.ijhm.2021.102906

Suryaningtyas, D., Sudiro, A., Eka, A. T., & Dodi, W. I. (2019). Organizational resilience and organizational performance: Examining the mediating roles of resilient leadership and organizational culture. *Academy of Strategic Management Journal*, *18*(2), 2–9.

Sutcliffe, K. M., & Vogus, T. J. (2003). Organizing for resilience. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 94–110). Berrett- Koehler.

Swafford, P. M., Ghosh, S., & Murthy, N. N. (2006). A framework for assessing value chain agility. *International Journal of Operations & Production Management*, *26*(2), 118-140.

Swann, L., Tracie, S., Colette, B., Chandra, W., & Jody, T. (2015). *TOURISM RESILIENCE INDEX: A Business Self-Assessment*.

Symonds, P. M. (1924). On the Loss of Reliability in Ratings Due to Coarseness of the Scale. *Journal of Experimental Psychology*, *7*(6), 456.

Szambelan, S. M., & Jiang, Y. D. (2020). Effectual control orientation and innovation performance: clarifying implications in the corporate context. *Small Business Economics*, *54*(3), 865–882. https://doi.org/10.1007/s11187-019-00156-7

Tabesh, P., & Vera, D. M. (2020). Top managers' improvisational decision-making in crisis: a paradox perspective. *Management Decision*, *58*(10), 2235–2256. https://doi.org/10.1108/MD-08-2020-1060

Tagliazucchi, G., De Canio, F., & Martinelli, E. (2023). Exploring perceived post-disaster performance in micro-businesses: how does entrepreneur psychological resilience matter?. *Entrepreneurship & Regional Development*, *35*(5-6), 445-459.

Taleb, N. N. (2007). Black Swans and the domains of statistics. *American Statistician*, *61*(3), 198–200. https://doi.org/10.1198/000313007X219996

Tang, X., Fong, L. H. N., & So, A. S. I. (2022). Feeling Lucky and Novelty Seeking during Vacation: The Mediating Role of Time Orientation. *Leisure Sciences*. https://doi.org/10.1080/01490400.2022.2099492

Tanner, S., Prayag, G., & Kuntz, J. C. (2022). Psychological Capital, Social Capital and Organizational Resilience: A Herringbone Model Perspective. *International Journal of Disaster Risk Reduction*, *78*(February). https://doi.org/10.2139/ssrn.4041258

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches* (Vol. 46). sage.

Taylor, M. G., & Carr, D. (2021). Psychological resilience and health among older adults: A comparison of personal resources. *The Journals of Gerontology: Series B*, *76*(6), 1241-1250.

Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, *58*(4), 13–35. https://doi.org/10.1525/cmr.2016.58.4.13

The Government of Hong Kong Special Administrative Region. (2023). *Anti-epidemic Fund*. https://www.coronavirus.gov.hk/eng/anti-epidemic-fund.html#:~:text=The%20fourth%20round%20of%20%246.4,Council%20on%2015%20February%202022

Thukral, E. (2021). COVID-19: Small and medium enterprises challenges and responses with creativity, innovation, and entrepreneurship. *Strategic Change, 30*(2), 153–158. https://doi.org/10.1002/jsc.2399

Tibay, V., Miller, J., Chang-Richards, A., Egbelakin, T., Seville, E., & Wilkinson, S. (2018). Business resilience: A study of Auckland hospitality sector. *Procedia Engineering*, *212*(2017), 1217–1224. https://doi.org/10.1016/j.proeng.2018.01.157

Tierney, K. J. (2003). *Conceptualizing and Measuring Organizational and Community Resilience: Lessons from the Emergency Response Following the Attack on the World Trade Center*.

Tse, A. C. B., So, S., & Sin, L. (2006). Crisis management and recovery: How restaurants in Hong Kong responded to SARS. *International Journal of Hospitality Management*, *25*(1), 3–11. https://doi.org/10.1016/j.ijhm.2004.12.001

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of personality and social psychology*, *86*(2), 320.

Türkeș, M. C., Stăncioiu, A. F., Băltescu, C. A., & Marinescu, R. C. (2021). Resilience Innovations and the Use of Food Order & Delivery Platforms by the Romanian Restaurants during the COVID-19 Pandemic. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(7), 3218–3247. https://doi.org/10.3390/jtaer16070175

Usher, L. E., Yusuf, J. E. (Wie), & Covi, M. (2019). Assessing tourism business resilience in Virginia Beach. *International Journal of Tourism Cities*, *6*(2), 397–414. https://doi.org/10.1108/IJTC-02-2019-0019

Uzkurt, C., Ceyhan, S., Ekmekcioglu, E. B., & Akpinar, M. T. (2023). Government support, employee motivation and job performance in the COVID-19 times: evidence from Turkish SMEs during the short work period. *International Journal of Emerging Markets*. https://doi.org/10.1108/IJOEM-04-2022-0689

Van Der Vegt, G. S., Essens, P., Wahlström, M., & George, G. (2015). MANAGING RISK AND RESILIENCE. *Academy of Management Journal*, *58*(4), 971–980. https://doi.org/10.5465/amj.2015.4004

Vargo, J., & Seville, E. (2011). Crisis strategic planning for SMEs: Finding the silver lining. *International Journal of Production Research*, *49*(18), 5619–5635. https://doi.org/10.1080/00207543.2011.563902

Vedadi, A., & Greer, T. H. (2021). Revisiting how perceived uncertainty and herd behavior influence technology choice. *Journal of Organizational and End User Computing (JOEUC)*, *33*(6), 1-19.

Villani, E., Linder, C., & Grimaldi, R. (2018). Effectuation and causation in science-based new venture creation: A configurational approach. *Journal of Business Research*, *83*(October 2017), 173–185. https://doi.org/10.1016/j.jbusres.2017.10.041

Vogus, T. J., & Sutcliffe, K. M. (2007). Organizational resilience: Towards a theory and research agenda. *Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics*, *October 2007*, 3418–3422. https://doi.org/10.1109/ICSMC.2007.4414160

Wacker, J. G. (1998). A definition of theory: research guidelines for different theory-building research methods in operations management. *Journal of Operations Management*, *16*(4), 361–385. https://doi.org/10.1016/S0272-6963(98)00019-9

Wall, T. D., Michie, J., Patterson, M., Wood, S. J., Sheehan, M., Clegg, C. W., & West, M. (2004). On the validity of subjective measures of company performance. *Personnel Psychology*, *57*(1), 95–118.

Wang, X., French, B. F., & Clay, P. F. (2015). Convergent and discriminant validity with formative measurement: A mediator perspective. *Journal of Modern Applied Statistical Methods*, *14*(1), 83–106.

Wang, Q., Wu, Q., Xie, L., & Zhang, X. (2023). CEO's self-oriented perfectionism, strategic decision comprehensiveness and firm resilience. *Management Decision*, *61*(11), 3343-3360.

Watanabe, C., Kishioka, M., & Nagamatsu, A. (2004). Resilience as a source of survival strategy for high-technology firms experiencing megacompetition. *Technovation*, *24*(2), 139-152.

Weathers, D., Sharma, S., & Niedrich, R. W. (2005). The impact of the number of scale points, dispositional factors, and the status quo decision heuristic on scale reliability and response accuracy. *Journal of Business Research*, *58*(11), 1516–1524.

Wei, J., & Liu, Y. (2015). Government support and firm innovation performance: Empirical analysis of 343 innovative enterprises in China. *Chinese Management Studies*, *9*(1), 38–55.

Weis, M., & Klarner, P. (2022). A CEO's future temporal depth and organizational resilience. *Schmalenbach Journal of Business Research*, *74*(4), 659-693.

Welter, C., & Kim, S. (2018). Effectuation under risk and uncertainty: A simulation model. *Journal of Business Venturing*, *33*(1), 100–116. https://doi.org/10.1016/j.jbusvent.2017.11.005

Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly*, 177–195.

Whitman, Z. R., Kachali, H., Roger, D., Vargo, J., & Seville, E. (2013). Short-form version of the Benchmark Resilience Tool (BRT-53). *Measuring Business Excellence*, *17*(3), 3–14. https://doi.org/10.1108/MBE-05-2012-0030

Wicker, P., Filo, K., & Cuskelly, G. (2013). Organizational Resilience of Community Sport Clubs Impacted by Natural Disasters. *Journal of Sport Management*.

Wieland, A., & Wallenburg, C. M. (2013). The influence of relational competencies on supply chain resilience: a relational view. *International journal of physical distribution & logistics management*, *43*(4), 300-320.

Williams, C., You, J. J., & Joshua, K. (2020). Small-business resilience in a remote tourist destination: exploring close relationship capabilities on the island of St Helena. *Journal of Sustainable Tourism*, *28*(7), 937–955. https://doi.org/10.1080/09669582.2020.1712409

Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *Academy of management annals*, *11*(2), 733-769.

Wilson, C. (2014). *Interview Techniques for UX Practitioners*. https://doi.org/10.1016/b978-0-12-410393-1.00002-8

Wiltbank, R., Dew, N., Read, S., & Sarasvathy, S. D. (2006). What to do next? The case for non-predictive strategy. *Strategic Management Journal*, *27*(10), 981–998. https://doi.org/10.1002/smj.555

Windle, G. (2011). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology*, *21*(2), 152–169. https://doi.org/10.1017/S0959259810000420

Wishart, M. (2018). Business resilience in an SME context: A literature review. *Enterprise Research Centre*, *July*, 1–31. https://www.enterpriseresearch.ac.uk/wp-content/uploads/2018/07/Resilience-review-Final.pdf

Witell, L., Gebauer, H., Jaakkola, E., Hammedi, W., Patricio, L., & Perks, H. (2017). A bricolage perspective on service innovation. *Journal of Business Research*, *79*, 290–298. https://doi.org/10.1016/j.jbusres.2017.03.021

Wold, H. (2004). Partial least squares. *Encyclopedia of Statistical Sciences*, *9*.

Wong, K. K.-K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, *24*(1), 1–32.

Woods, D. D. (2015). Four concepts for resilience and the implications for the future of resilience engineering. *Reliability Engineering and System Safety*, *141*, 5–9. https://doi.org/10.1016/j.ress.2015.03.018

Wu, L., Liu, H., & Su, K. (2020). Exploring the dual effect of effectuation on new product development speed and quality. *Journal of Business Research*, *106*(135), 82–93. https://doi.org/10.1016/j.jbusres.2019.09.016

Wut, T. M., Xu, J. (Bill), & Wong, S. mun. (2021). Crisis management research (1985–2020) in the hospitality and tourism industry: A review and research agenda. *Tourism Management*, *85*(January), 104307. https://doi.org/10.1016/j.tourman.2021.104307

Yang, Y., Liu, H., & Chen, X. (2020). COVID-19 and restaurant demand: early effects of the pandemic and stay-at-home orders. *International Journal of Contemporary Hospitality Management*, *13*(12), 3809–3834. https://doi.org/10.1108/IJCHM-06-2020-0504

Yang, T., Hughes, K. D., & Zhao, W. (2021). Resource combination activities and new venture growth: Exploring the role of effectuation, causation, and entrepreneurs' gender. *Journal of Small Business Management*, *59*(sup1), S73-S101.

Yağmur, Ö. B., & Myrvang, N. A. (2023). The effect of organizational agility on crisis management process and organizational resilience: Health sector example. *International journal of disaster risk reduction* , *96* , 103955.

Yau, C. (2022). *'All doom and gloom': thousands of Hong Kong restaurants shut down, suspend operations as Covid-19 cases bring harsh restrictions | South China Morning Post*. https://www.scmp.com/news/hong-kong/hong-kong-economy/article/3166802/all-doom-and-gloom-thousands-hong-kong-restaurants

Yin, R. K. (2006). Mixed methods research: Are the methods genuinely integrated or merely parallel. *Research in the Schools*, *13*(1), 41–47.

Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). sage.

Yu, X., Li, Y., Su, Z., Tao, Y., Nguyen, B., & Xia, F. (2020). Entrepreneurial bricolage and its effects on new venture growth and adaptiveness in an emerging economy. *Asia Pacific Journal of Management*, *37*(4), 1141–1163. https://doi.org/10.1007/s10490-019-09657-1

Yu, X., Tao, Y., Tao, X., Xia, F., & Li, Y. (2018). Managing uncertainty in emerging economies: The interaction effects between causation and effectuation on firm performance. *Technological Forecasting and Social Change*, *135*(December 2017), 121–131. https://doi.org/10.1016/j.techfore.2017.11.017

Yufra, S. M. T., Noya, S., Melany, M., & Astridya SETIYATI, E. (2022). The Role of Local Government in Improving Resilience and Performance of Small and Medium-Sized Enterprises in Indonesia. *Journal of Asian Finance, Economics and Business*, *9*(3), 245–0256. https://doi.org/10.13106/jafeb.2022.vol9.no3.0245

Zapata-Cuervo, N., Montes-Guerra, M. I., & Jeong, M. (2021). How do restaurants respond to the COVID-19 pandemic? Lessons from Colombian restauranteurs and their survival strategies. *Journal of Foodservice Business Research*, *00*(00), 1–22. https://doi.org/10.1080/15378020.2021.2006037

Zhang, M., Wang, Y., & Olya, H. (2022). Shaping Social Media Analytics in the Pursuit of Organisational Agility: A Real Options Theory Perspective. *Tourism Management*, *88*(August 2021), 104415. https://doi.org/10.1016/j.tourman.2021.104415

Zhang, W., Zhao, W., Gao, Y., & Xiao, Z. (2020). How do managerial ties influence the effectuation and causation of entrepreneurship in China? The role of entrepreneurs' cognitive bias. *Asia Pacific Business Review*, *26*(5), 613–641. https://doi.org/10.1080/13602381.2020.1765537

Zhang, Y., Cui, L., Zhang, G., Sarasvathy, S., & Anusha, R. (2019). An Exploratory Study of Antecedents of Entrepreneurial Decision-Making Logics: The Role of Self-Efficacy, Optimism, and Perspective Taking. *Emerging Markets Finance and Trade*, *55*(4), 781–794. https://doi.org/10.1080/1540496X.2018.1478283

Zhao, H., Hills, G. E., & Seibert, S. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, *90*(6), 1265–1272. https://doi.org/10.1037/0021-9010.90.6.1265

Zhu, C., Fong, L. H. N., Shang, Z., & Gan, M. (2022). Rethinking the Impact of Theme Park Image on Perceived Value and Behavioral Intention: The Case of Chimelong Ocean Kingdom, China. *Sustainability (Switzerland)*, *14*(4). https://doi.org/10.3390/su14042349

Zighan, S., Abualqumboz, M., Dwaikat, N., & Alkalha, Z. (2021). The role of entrepreneurial orientation in developing SMEs resilience capabilities throughout COVID-19. *The International Journal of Entrepreneurship and Innovation*, 146575032110468. https://doi.org/10.1177/14657503211046849

Zona, A., Kammouh, O., & Cimellaro, G. P. (2020). Resourcefulness quantification approach for resilient communities and countries. *International Journal of Disaster Risk Reduction*, *46*(September 2019), 101509. https://doi.org/10.1016/j.ijdrr.2020.101509

Zutshi, A., Mendy, J., Sharma, G. D., Thomas, A., & Sarker, T. (2021). From challenges to creativity: Enhancing smes' resilience in the context of covid-19. *Sustainability (Switzerland)*, *13*(12), 1–16. https://doi.org/10.3390/su13126542

APPENDICES

Appendix A: Semi-Structured Interview Guide Questions

Section	General Questions	Probing Questions
Introduction	Short introduction: • Explaining the goals of the study. • Reviewing the use of data and confidentiality.	---
General Questions about the business and crisis	• Can you please tell me about yourself and your business? • How did COVID-19 affect your business activities?	• Operations, sales, supply chain
Uncertainty	• Did you face significant uncertainty during the COVID-19 pandemic, and how did you manage it?	Uncertainty in environment: • Effects on business • Responses.
Crisis coping	• Can you explain your business's approach to cope with to the crisis?	What were the important factors? • Related to yourself. • Related to your business. • Related to environment.
Causation	• Did you have clear goals for responding to the COVID-19 crisis from the beginning? • Did you plan everything in your business from the beginning to find solutions in the face of the crisis? • Did you have any crisis plan to respond to the COVID-19 pandemic? • Did you do comprehensive research to collect data and write a complete plan to respond to the crisis? To what extent?	• How did you acquire or achieve those goals? • Did you change your planning activities during a pandemic? When and in what situations?
Effectuation	• How did your resources affect your business crisis responses? • How did you manage your available resources? • How did you approach investors, partners, or stakeholders in your crisis responses? • Do you think the networks you had created led to new solutions to cope with the situation? • Did experiencing different processes or products during your responses affect your following responses? • Did you try to find solutions based on trial and error? If yes, how?	• What type of resources did you have? • How do they provide more resources or information for you? • Did you take advantage of any opportunities as they arose?
Resilience	• How do you define the resilience of your business? • Overall, do you think your business was resilient enough to cope with the COVID-19 pandemic?	• If yes, what factors did make your business resilient? • What do you believe have been the most important aspects of responding to the crisis?
Closing comments	• Do you have any facts or personal explorations you would like to mention regarding your business during the COVID-19 pandemic?	---

Appendix B: Main Survey - English Version

English

Introduction

Dear Study Participant,

Welcome to this study!

As a manager/owner of a small and medium-sized business, you are making an important contribution by participating in a scientific study of the resilience of firms during COVID-19.

Study results will help us understand how decision-making logic can affect business resilience and survival during a prolonged crisis. The study has several sections in which I would like to learn about your views on environmental factors, government support, your business responses, decisions, resilience, entrepreneurial activities, and your opinions on your employees' resilience.

Please mark the response to each question that best reflects your opinion - there are no "right" or "wrong" answers.

Answering the questions takes an average of 10-15 minutes. As a token of appreciation for you taking the time to complete this survey, I'd be happy to share a report of the final results in aggregate form. You will be asked to provide an email address at the end of this survey to receive the report if interested.

I'd like to thank you once again for your support of this study, which is invaluable to the completion of my doctoral studies at the Hong Kong Polytechnic University.

Reza ABBASI

Ph.D. Student

School of Hotel & Tourism Management,

The Hong Kong Polytechnic University

reza.abbasi@

Data protection and privacy: The survey is carried out in strict compliance with data protection regulations. The survey is anonymous, and the storing of responses takes place independently of the name of participants.

1 - restaurant characteristics

Please select your ***current business***, which you have owned or managed during COVID-19.

Restaurant Location

HK Island
Kowloon
New Territories

When did you start this business?

How many employees did you have before COVID-19?

How many employees do you have now?

2 - Environment

The following questions deal with your **perceived uncertainty** during COVID-19. Please think about the past three years of COVID-19 and respond to the following questions on a scale from "Strongly Disagree (1)" to "Strongly Agree (7)".

During COVID-19, I felt like

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I did not have the information I needed to understand how situations related to COVID-19 would change in the future.	○	○	○	○	○	○	○
I did not have adequate information to make business decisions.	○	○	○	○	○	○	○
I was not able to get the necessary information for my business decisions.	○	○	○	○	○	○	○

During COVID-19, I felt like...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I was not able to predict the impact of COVID-19 on my business and management decision making.	○	○	○	○	○	○	○
I was not able to understand the effect of COVID-19 on my business decision making.	○	○	○	○	○	○	○
I was not sure how COVID-19 was going to affect my business.	○	○	○	○	○	○	○

During COVID-19, I felt like...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I was not able to accurately predict the outcomes of my business decisions before making them.	○	○	○	○	○	○	○
I did not know how to respond to changes in the external business environment.	○	○	○	○	○	○	○
I was not able to determine and evaluate alternative crisis response options before making a decision.	○	○	○	○	○	○	○

The following statements describe your opinion about **government support** during COVID-19. Please think about the past three years and indicate your level of agreement with the following statements on a scale from "Strongly Disagree (1)" to "Strongly Agree (7)."

During COVID-19, ...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
the government's financial support was inadequet.	○	○	○	○	○	○	○
the government's financial support was easily accessible.	○	○	○	○	○	○	○
the government provided sufficient non-financial assistance on implementing pandemic control measures (e.g., information and guidelines).	○	○	○	○	○	○	○
the government's policies to support businesses during COVID-19 were effective and efficient.	○	○	○	○	○	○	○

3- Effectuation and Causation

The following statements deal with your **effectual decision-making logic** to cope with COVID-19.
Please think about the past three years and indicate your views on the following statements on a scale from "Strongly Disagree (1)" to "Strongly Agree (7)."

During COVID-19, ...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
We experimented with different products and business models in our crisis responses.	○	○	○	○	○	○	○
The product/service that we now provide is essentially the same as originally conceptualized.	○	○	○	○	○	○	○
The product/service that we now provide is substantially different than we first imagined.	○	○	○	○	○	○	○
We tried a number of different approaches until we found a business model that worked.	○	○	○	○	○	○	○
We were careful not to commit more resources than we could afford to lose.	○	○	○	○	○	○	○
We were careful not to risk more money than we were willing to lose with our initial idea.	○	○	○	○	○	○	○
We were careful not to risk so much money that the company would be in real trouble financially if things did not work out.	○	○	○	○	○	○	○
We allowed the business to evolve as opportunities emerged.	○	○	○	○	○	○	○
We adapted the way of using the resources we had.	○	○	○	○	○	○	○
We were flexible and took advantage of opportunities when they arose.	○	○	○	○	○	○	○
We avoided actions that restricted our flexibility and adaptability.	○	○	○	○	○	○	○
We used a large number of agreements with customers, suppliers, and other organizations and people to reduce the amount of uncertainty.	○	○	○	○	○	○	○
We used pre-commitments from customers and suppliers as often as possible.	○	○	○	○	○	○	○

We approached customers and suppliers actively to coordinate business opportunities.	○	○	○	○	○	○	○
Our decisions have been coordinated with customers and suppliers.	○	○	○	○	○	○	○

During COVID-19, ...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
We leveraged available resources, experimented with several products/services, assessed affordability, and engaged in collaborative efforts to navigate changing situations.	○	○	○	○	○	○	○

The following statements deal with your ***causal decision-making logic*** to cope with COVID-19.
Please think about the overall COVID-19 period rather than one particular situation and indicate your views on the following statements on a scale from "Strongly Disagree (1)" to "Strongly Agree (7)."

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
We analyzed long run opportunities and selected what we thought would provide the best returns.	○	○	○	○	○	○	○
We developed a strategy to best take advantage of resources and capabilities.	○	○	○	○	○	○	○
We designed and planned business strategies.	○	○	○	○	○	○	○
We organized and implemented control processes to make sure we met objectives.	○	○	○	○	○	○	○
We researched and selected target markets and did meaningful competitive analysis.	○	○	○	○	○	○	○
We had a clear and consistent vision for where I wanted to end up.	○	○	○	○	○	○	○
We designed and planned production and marketing efforts.	○	○	○	○	○	○	○

Part 4 - Business

In this section, I would like to know more about your business.

The following questions deal with your ***business performance before COVID-19 and NOW***. Please respond to the following questions on a scale from "Significantly worse off (1)" to "Significantly better off (7)."

	Significantly worse off (1)	Somewhat worse off (2)	Worse off (3)	Neither worse off nor better off (4)	Somewhat better off (5)	Better off (6)	Significantly better off (7)
How was your business's overall performance **before COVID-19**?	○	○	○	○	○	○	○
How is your business's overall performance **NOW**?	○	○	○	○	○	○	○

Please respond to the following questions about your ***business's overall debt*** on a scale from "Very negative (1)" to "Very positive (7)".

	Very negative (1)	Negative (2)	Somewhat negative (3)	Neither positive nor negative (4)	Somewhat positive (5)	Positive (6)	Very positive (7)
How was your business's **overall debt before COVID-19**?	○	○	○	○	○	○	○
How is your business's **overall debt NOW**?	○	○	○	○	○	○	○

Please respond to the following questions about your ***business profitability level*** on a scale from "Very poor (1)" to "Excellent (7)".

	Very poor (1)	Poor (2)	Somewhat Poor (3)	Average (4)	Somewhat Good (5)	Good (6)	Excellent (7)
How was your business **profitability level before COVID-19**?	○	○	○	○	○	○	○
How is your business **profitability level NOW**?	○	○	○	○	○	○	○

Please respond to the following questions about your business ***cash flow*** on a scale from "Very poor (1)" to "Excellent (7)".

	Very poor (1)	Poor (2)	Somewhat Poor (3)	Average (4)	Somewhat Good (5)	Good (6)	Excellent (7)
How was your business's **cash flow before COVID-19**?	○	○	○	○	○	○	○
How was/is your business's **cash flow NOW**?	○	○	○	○	○	○	○

The following statements describe your business ***resourcefulness*** during COVID-19.
Please think about your business during COVID-19 in general and indicate your response on a scale from "Strongly Disagree (1)" to "Strongly Agree (7).".

During COVID-19, ...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
our business was able to prioritize tasks during unexpected events.	○	○	○	○	○	○	○
our business was able to generate revenue from multiple sources.	○	○	○	○	○	○	○
our business was able to mobilize resources during unexpected events.	○	○	○	○	○	○	○
our business was able to employ sufficient backup resources to sustain operations during unexpected events.	○	○	○	○	○	○	○
our business was able to identify problems during unexpected events.	○	○	○	○	○	○	○
our business was able to acquire support from other businesses when needed.	○	○	○	○	○	○	○

The following statements describe ***your business agility*** during COVID-19. Please think about the overall COVID-19 period rather than one particular situation and respond on a scale from "Strongly Disagree (1)" to "Strongly Agree (7).".

During COVID-19, ...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
our business identified changes in consumer preferences for products without delay.	○	○	○	○	○	○	○
our business identified competitors' changes without delay.	○	○	○	○	○	○	○
our business identified technological changes without delay.	○	○	○	○	○	○	○
our business analyzed important events concerning customers, competitors, and technology without any delay.	○	○	○	○	○	○	○
our business qdetected the opportunities and threats to changes in customers, competitors, and technology in time.	○	○	○	○	○	○	○
our business carried out a specific action plan in order to meet customer needs without any delay.	○	○	○	○	○	○	○
our business implemented strategies in response to competitors' movements without delay.	○	○	○	○	○	○	○

our business implemented new technology without delay.	○	○	○	○	○	○	○
our business quickly reconfigured resources.	○	○	○	○	○	○	○
our business re-adjusted operations immediately when needed.	○	○	○	○	○	○	○
our business used new technologies at the best time.	○	○	○	○	○	○	○
our businessour business introduced new products and services at the best time.	○	○	○	○	○	○	○
our business could change prices quickly in the proper time.	○	○	○	○	○	○	○
our business changed and implemented strategic actions on time.	○	○	○	○	○	○	○
our business solved customers' complaints without delay.	○	○	○	○	○	○	○

Please respond to the following questions about your restaurant on a scale from"Strongly Disagree (1)" to "Strongly Agree (7)."

In the face of changes during COVID-19, ...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
My restaurant achieved a new organizational equilibrium by adapting to changes in the environment (offering new products or services, incorporating new technologies, and negotiating with suppliers)	○	○	○	○	○	○	○
My restaurant recovered and strengthened at a strategic and operational level.	○	○	○	○	○	○	○
my restaurant adapted strategically and operationally to new environmental conditions.	○	○	○	○	○	○	○

The following statements deal with your view on your ***employees' resilience***.
Please think about your employees in general, regardless of COVID-19, and indicate your views on the following statements on a scale from "Strongly Disagree (1)" to "Strongly Agree (7)."

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
My employees effectively collaborate with others to handle unexpected challenges at work.	○	○	○	○	○	○	○
My employees successfully manage a high workload for long periods of time.	○	○	○	○	○	○	○

My employees resolve crises competently at work.	○	○	○	○	○	○	○
My employees learn from mistakes at work and improve the way they do their jobs.	○	○	○	○	○	○	○
My employees re-evaluate their performance and continually improve the way they do their work.	○	○	○	○	○	○	○
My employees effectively respond to feedback at work, even criticism.	○	○	○	○	○	○	○
My employees seek assistance at work when they need specific resources.	○	○	○	○	○	○	○
My employees approach me when they need my support.	○	○	○	○	○	○	○
My employees use change at work as an opportunity for growth.	○	○	○	○	○	○	○

Part 5 - Manager

The following statements deal with ***your personal resilience***.

To what extent do the below statements describe **you** in general?

	Does not describe me at all (1)	Does not describe me very well (2)	Describes me slightly (3)	Describes me moderately (4)	Describes me mostly (5)	Describes me very well (6)	Describes me extremely well (7)
I actively look for ways to replace the losses I encounter in life.	○	○	○	○	○	○	○
I believe that I can grow in positive ways by dealing with difficult situations.	○	○	○	○	○	○	○
I look for creative ways to alter difficult situations.	○	○	○	○	○	○	○
Regardless of what happens to me, I believe I can control my reaction to it.	○	○	○	○	○	○	○

The following statements describe how **you** use ***various resources*** to deal with new challenges. "Resources" refers to things such as materials, equipment, people, finance, or anything else that can be used to get a job done. And "challenges" refers to both new problems and new opportunities.
Please respond on a scale from "Never (1)" to "Always (7)."

	Never (1)	Rarely (2)	Occasionally (3)	About half the time (4)	Usually (5)	Most of the time (6)	Always (7)
I am confident of my ability to find workable solutions to new challenges by using my existing resources.	○	○	○	○	○	○	○
In comparison to others who have similar resources, I can tackle a broader range of challenges.	○	○	○	○	○	○	○

I use any existing resource that seems useful to responding to a new problem or opportunity.	○	○	○	○	○	○	○
I deal with new challenges by combining my existing resources with other available and inexpensive resources.	○	○	○	○	○	○	○
When dealing with new problems or opportunities, I take action by assuming that I will find a workable solution.	○	○	○	○	○	○	○
By combining our existing resources, I take on a surprising variety of new challenges.	○	○	○	○	○	○	○
When I face new challenges, I put together workable solutions from our existing resources.	○	○	○	○	○	○	○
I combine resources to accomplish new challenges that the resources were not originally intended to accomplish.	○	○	○	○	○	○	○

The following questions deal with your confidence in successfully identifying new business opportunities, creating new products, thinking creatively, and commercializing an idea or new development.
Please respond on a scale from "Not confident at all (1)" and "Completely confident (7)".

	Not confident at all (1)	Slightly confident (2)	Somewhat confident (3)	Confident (4)	Fairly confident (5)	Mostly Confident (6)	Completely confident (7)
How confident are you in successfully identifying new business opportunities?	○	○	○	○	○	○	○
How confident are you in successfully creating new products?	○	○	○	○	○	○	○
How confident are you in successfully thinking creatively?	○	○	○	○	○	○	○
How confident are you in successfully commercializing an idea or new development?	○	○	○	○	○	○	○

6 - Demographics

Please let us know your age, gender, and education level by answering the following questions.

How old are you?

What is your gender?

What is the highest level of education you have completed?

Appendix B: Main Survey – Chinese Version

親愛的研究參與者，

歡迎參與此次研究！

作為一家中小型企業的管理人或持有者，您將參與貢獻一項有關新冠肺炎疫情下企業抗逆力的科學研究。研究結果將幫助我們了解決策邏輯如何影響企業在長期危機中的抗逆力和生存能力。

這項研究包含了數個部分，包括環境因素，政府支持，企業反應、決策和抗逆力，企業活動，以及您對員工抗逆力的意見。

請在每個問題中選擇最能夠反映您看法的回答 – 答案沒有絕對的「對」或「錯」。

完成這份問卷平均需要10-15分鐘。為答謝您花時間完成本次調查，我將以所得資料撰寫一份調查報告並分享給您。如感興趣，請在問卷最後提供您的電郵地址。

再次感謝您對這項研究的支持，您的參與為我在香港理工大學的博士研究提供了寶貴的價值。

Reza ABBASI
香港理工大學
酒店及旅遊業管理學院博士生
reza.abbasi@

數據和私隱保護：

本調查嚴格按照個人信息保護條例執行。本調查採取匿名方式，答案與參與者的姓名將分開儲存。

請選擇您目前，在新冠肺炎疫情期間擁有或管理的企業。

餐廳位置

香港島
九龍
新界

您什麼時候開始開啟這項業務的？

新冠肺炎疫情前，您的企業有多少員工？

您的企業現在有多少員工？

以下問題涉及到您於新冠肺炎疫情期間所**感知到的不確定性**。請回想過去三年間新冠肺炎疫情的情況，並根據「非常不同意（1）」到「非常同意（7）」的評分來回答以下問題。

在這三年新冠肺炎疫情期間，我覺得

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我沒有足夠的信息來理解新冠肺炎疫情在未來會如何變化。	○	○	○	○	○	○	○
我沒有足夠的信息來做出商業決策。	○	○	○	○	○	○	○
我未能獲得必要的信息來做出商業決策。	○	○	○	○	○	○	○

在這三年新冠肺炎疫情期間，我覺得

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我未能預測新冠肺炎疫情怎樣影響我的企業和管理決策。	○	○	○	○	○	○	○
我未能了解新冠肺炎疫情對我的企業決策所產生的影響。	○	○	○	○	○	○	○
我不確定新冠肺炎疫情將怎樣影響我的企業。	○	○	○	○	○	○	○

在這三年新冠肺炎疫情期間，我覺得

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
在做出商業決策前，我未能準確預測其結果。	○	○	○	○	○	○	○
我不知道該如何應對外部商業環境的變化。	○	○	○	○	○	○	○
在做出決策之前，我未能找出和評估應對危機的不同選擇。	○	○	○	○	○	○	○

以下句子陳述了您對於新冠肺炎疫情期間**政府支援**的看法。請回想過去三年，並根據「非常不同意（1）」到「非常同意（7）」的評分表示您對以下句子的看法。

在這三年新冠肺炎疫情期間，

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
政府的財政支援不足。	○	○	○	○	○	○	○
很容易就可以得到政府的資金支持。	○	○	○	○	○	○	○
政府在實施防疫措施方面，提供了充足的非財政援助（例如資訊和指引）。	○	○	○	○	○	○	○
政府在新冠肺炎疫情期間，支持企業的政策是有效和高效的。	○	○	○	○	○	○	○

以下句子涉及您應對新冠肺炎疫情的**有效決策邏輯**。請回想過去三年，並根據「非常不同意（1）」到「非常同意（7）」的評分表示您對以下句子的看法。

在這三年新冠肺炎疫情期間，

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我們試驗性地推出不同產品和商業模式來應對危機。	○	○	○	○	○	○	○
我們應對危機的最終方案與最初的計劃本質上有所不同。	○	○	○	○	○	○	○
我們應對危機的最終解決方案與最初想像的大不相同。	○	○	○	○	○	○	○
我們嘗試過不同的方法，直到找到一個適合的解決方案。	○	○	○	○	○	○	○
我們謹慎地避免投入超出我們承受能力的資源。	○	○	○	○	○	○	○
我們謹慎避免冒險，將損失的資金控制在最初預想可損失的金額範圍內。	○	○	○	○	○	○	○
我們謹慎不冒險投入太多資金，避免在進展不順利的時候讓公司陷入財務危機。	○	○	○	○	○	○	○
我們允許業務因應新的機會而不斷發展。	○	○	○	○	○	○	○
我們根據現有資源調整採取的行動。	○	○	○	○	○	○	○
我們靈活應變，抓住每一個機會。	○	○	○	○	○	○	○
我們避免採取限制靈活度和適應能力的行為。	○	○	○	○	○	○	○
我們與客戶、供應商和持份者簽訂了大量協定，以減少不確定性。	○	○	○	○	○	○	○
我們盡可能讓客戶和供應商預先作出承諾。	○	○	○	○	○	○	○
我們積極接觸客戶和供應商，以共同創造商業機遇。	○	○	○	○	○	○	○
我們與客戶和供應商協調作出決策。	○	○	○	○	○	○	○

在這三年新冠肺炎疫情期間，

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我們善用現有資源，嘗試多種產品和服務，評估負擔能力，並協作應對不斷變化的情況。	○	○	○	○	○	○	○

以下句子涉及您應對新冠肺炎疫情的**因果決策邏輯**。請回想過去三年的新冠肺炎疫情而非單一情境，並根據「非常不同意（1）」到「非常同意（7）」的評分表示您對以下句子的看法。

在這三年新冠疫情期間，

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我們分析長期機遇，並選擇了能夠提供最佳回報的機遇。	○	○	○	○	○	○	○
我們充分利用資源和能力。	○	○	○	○	○	○	○
我們設計和規劃商業策略。	○	○	○	○	○	○	○
我們組織並實施了控制流程，以確保達到目標。	○	○	○	○	○	○	○
我們調查和選擇目標市場，並進行有意義的競爭分析。	○	○	○	○	○	○	○
我們對目標有著清晰且一致的規劃。	○	○	○	○	○	○	○
我們事先詳細設計並計畫生產和行銷工作。	○	○	○	○	○	○	○

以下問題有關您的企業**在新冠肺炎疫情前和現在的營運表現**。
請根據「顯著變差（1）」到「顯著變好（7）」的評分回答以下問題。

	明顯變好 (7)	變好 (6)	稍微變好 (5)	沒有變差也沒有變好 (4)	變差 (3)	稍微變差 (2)	明顯變差 (1)
您的企業在新冠肺炎之前的總體表現如何?	○	○	○	○	○	○	○
您的企業現在的總體表現如何?	○	○	○	○	○	○	○

請回答以下關於您**企業總體債務**的問題，從「負債非常多（1）」到「盈餘非常多（7）」範圍內選擇答案。

	負債非常多 (1)	有負債 (2)	有一點負債 (3)	既無負債也無盈餘 (4)	有一點盈餘 (5)	有盈餘 (6)	盈餘非常多 (7)
您的企業在新冠肺炎之前的總體債務情況如何?	○	○	○	○	○	○	○
您的企業現在的總體債務情況如何?	○	○	○	○	○	○	○

請回答以下關於您的**企業盈利水平**的問題，從「非常差（1）」到「非常好（7）」範圍內選擇答案。

	非常差 (1)	差 (2)	有點差 (3)	普通 (4)	有點好 (5)	好 (6)	非常好 (7)
您的企業在新冠肺炎之前的盈利水平如何?	○	○	○	○	○	○	○
您的企業現在的盈利水平如何?	○	○	○	○	○	○	○

請回答以下關於您的企業**現金流**的問題，從「非常差（1）」到「非常好（7）」範圍內選擇答案。

	非常差 (1)	差 (2)	有點差 (3)	普通 (4)	有點好 (5)	好 (6)	非常好 (7)
您的企業在新冠肺炎之前的現金流如何?	○	○	○	○	○	○	○
您的企業現在的現金流如何?	○	○	○	○	○	○	○

以下句子描述了您在新冠肺炎疫情期間的**業務應變力**。
請回想您的企業在過去三年新冠肺炎疫情的整體情況，並根據「非常不同意（1）」到「非常同意（7）」的評分表示您對以下句子的看法。

在這三年新冠肺炎疫情期間，

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我們的企業能夠在突發事件中優先處理任務。	○	○	○	○	○	○	○

我們的企業能夠擁有不同收入來源。	○	○	○	○	○	○	○
我們的企業能夠在突發事件中調動資源。	○	○	○	○	○	○	○
我們的企業能夠在突發事件期間使用足夠的後備資源來維持運營。	○	○	○	○	○	○	○
我們的企業能夠找到突發事件中的問題。	○	○	○	○	○	○	○
如有必要，我們的企業能夠獲得其他企業的支持。	○	○	○	○	○	○	○

以下句子描述了您在新冠肺炎疫情期間的**商務靈敏度**。請回想過去三年，並根據「非常不同意（1）」到「非常同意（7）」的評分回答以下問題。

在這三年新冠肺炎疫情期間，

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我們的業務迅速識別了消費者行為的變化。	○	○	○	○	○	○	○
我們的企業快速感知競爭者的變化。	○	○	○	○	○	○	○
我們的企業快速感知技術的變化。	○	○	○	○	○	○	○
我們的企業及時分析與客戶、競爭對手和技術有關的重要事件。	○	○	○	○	○	○	○
我們及時發現與客戶、競爭對手和技術變化有關的機遇和危機。	○	○	○	○	○	○	○
我們及時執行具體的行動計劃，以滿足客戶需求。	○	○	○	○	○	○	○
我們的業務實施戰略以應對競爭對手的行動。	○	○	○	○	○	○	○
我們的企業能夠立即執行新策略。	○	○	○	○	○	○	○
我們的企業在最佳的時機重新配置資源。	○	○	○	○	○	○	○
我們的業務在必要時會立即重新調整營運方向。	○	○	○	○	○	○	○
我們的企業在最佳的時機採取新的技術。	○	○	○	○	○	○	○
我們的企業在最佳的時機推出新產品和服務。	○	○	○	○	○	○	○
我們的企業在最佳的時機快速改變價格。	○	○	○	○	○	○	○
我們的企業及時改變和執行策略。	○	○	○	○	○	○	○
我們的企業立即解決客人的投訴。	○	○	○	○	○	○	○

以下問題涉及新冠肺炎疫情期間您**企業的規劃活動**。
請考慮這三年新冠肺炎疫情期間的整體情況，並從「非常不同意（1）」到「非常同意（7）」範內選擇答案。

在這三年新冠肺炎疫情期間，

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我們的餐廳通過適應環境的變化（例如提供新產品或服務，整合新技術，與供應商協商等），實現了新的組織平衡。	○	○	○	○	○	○	○
我們的餐廳在戰略和營運層面得到了恢復和改善。	○	○	○	○	○	○	○
我們的餐廳在戰略和營運上適應了新的環境條件。	○	○	○	○	○	○	○

以下陳述涉及您對**員工抗逆性**的看法。
請就您的員工整體而言，不論是否與新冠肺炎疫情有關，根據「非常不同意（1）」到「非常同意（7）」的評分回答以下問題。

	非常不同意 (1)	不同意 (2)	不太同意 (3)	沒有同意或不同意 (4)	部分同意 (5)	同意 (6)	非常同意 (7)
我的員工能有效地與他人合作，以應對工作中的突發挑戰。	○	○	○	○	○	○	○
我的員工長期能夠成功完成大量的工作。	○	○	○	○	○	○	○
我的員工有能力應對與工作相關的危機。	○	○	○	○	○	○	○
我的員工從工作中的錯誤中汲取教訓，並改進自己的工作方式。	○	○	○	○	○	○	○
我的員工會評估他們的表現，持續改進他們的工作。	○	○	○	○	○	○	○
我的員工能夠有效回應意見及批評。	○	○	○	○	○	○	○
我的員工在需要特定資源時會尋求幫助。	○	○	○	○	○	○	○
我的員工在需要支援的時候會聯繫我。	○	○	○	○	○	○	○
我的員工將工作中的變化當成成長的機遇。	○	○	○	○	○	○	○

以下陳述涉及您的***個人抗逆力***。
以下陳述在多大程度上概括了**您**的情況？

	完全不符 (1)	不太符合(2)	有點相符 (3)	中度相符 (4)	大多符合(5)	相當符合(6)	極其符合(7)
我積極尋找方法來彌補總體損失。	○	○	○	○	○	○	○
我認為我能夠通過解決困境來積極成長。	○	○	○	○	○	○	○
我尋找創新獨到的方法來扭轉困境。	○	○	○	○	○	○	○
無論發生了什麼事情，我覺得我都可以控制自己的反應。	○	○	○	○	○	○	○

以下陳述描述了**您**如何使用***各種資源***來應對新挑戰。「資源」是指材料、設備、人員、資金或任何其他可以用來完成工作的項目。「挑戰」既指新問題，也指新機遇。
請根據「非常不同意（1）」到「非常同意（7）」的評分回答以下問題。

	從不 (1)	很少 (2)	偶爾 (3)	大約一半的時間 (4)	通常 (5)	大部分時間 (6)	經常 (7)
我有信心可以利用現有的資源，找到應對新挑戰的可行解決方案。	○	○	○	○	○	○	○
比起擁有類似資源的其他人，我可以應對更廣泛的挑戰。	○	○	○	○	○	○	○
我能運用手上的資源，有效地應對新的問題或機遇。	○	○	○	○	○	○	○
我會結合現有資源與其他可用且實惠的資源來應對新挑戰。	○	○	○	○	○	○	○
在應對新的問題或機遇時，我會採取行動，有信心自己能找到可行的解決方案。	○	○	○	○	○	○	○
我會結合現有資源來應對各種新挑戰。	○	○	○	○	○	○	○
當我面對新挑戰時，我會從現有資源中創造出可行的解決方案。	○	○	○	○	○	○	○
我結合不同的資源來解決新挑戰，即使其本來用途並非如此。	○	○	○	○	○	○	○

以下問題涉及到您的**信心**，探討您是否有信心成功找到新商機、創造新產品、擁有創造性思維、將想法或新開發業務商業化。
請從「完全沒信心（1）」到「完全有信心（7）」的範圍內選擇答案。

	完全沒信心 (1)	稍有信心 (2)	有點信心 (3)	有信心 (4)	相當有信心 (5)	大多時候有信心 (6)	完全有信心 (7)
您有多大信心能夠成功找到新商機?	○	○	○	○	○	○	○
您有多大信心能夠成功創造新產品?	○	○	○	○	○	○	○
您有多大信心能夠成功擁有創造性思維?	○	○	○	○	○	○	○
您有多大信心能夠將想法或者新開發業務商業化?	○	○	○	○	○	○	○

6 - Demographics

請回答以下有關您的年齡、性別及教育程度的問題。

年齡

性別

最高教育水平

Appendix C: Reliability and Validity of Reflective Measurement Models

Construct	Indicator	Loadings	t-statistics	Cronbach's α	CR (rho_a)	CR (rho_c)	AVE
State Uncertainty				0.828	0.830	0.897	0.744
	SU1	0.880	57.935***				
	SU2	0.842	37.389***				
	SU3	0.866	52.828***				
Effect Uncertainty				0.819	0.821	0.892	0.734
	EU1	0.855	41.559***				
	EU2	0.865	56.655***				
	EU3	0.851	42.527***				
Response Uncertainty				0.817	0.853	0.891	0.731
	RU_1	0.802	24.364***				
	RU_2	0.848	37.189***				
	RU_3	0.912	76.735***				
Perceived Government Support				0.898	0.930	0.928	0.762
	PGS1	0.802	19.750***				
	PGS2	0.888	34.763***				
	PGS3	0.910	42.330***				
	PGS4	0.889	44.389***				
Business Pre-crisis Performance				0.827	0.843	0.885	0.658
	BPP1	0.747	17.971***				
	BPP2	0.842	32.862***				
	BPP3	0.834	34.658***				
	BPP4	0.817	26.720***				
Causation				0.866	0.865	0.897	0.555
	CDML_1	0.705	23.216***				
	CDML_2	0.797	27.700***				
	CDML_3	0.734	21.476***				
	CDML_4	0.701	20.743***				
	CDML_5	0.794	26.555***				
	CDML_6	0.758	27.655***				
	CDML_7	0.718	20.935***				
Organizational Resourcefulness				0.849	0.852	0.889	0.572
	ResFul_1	0.672	16.036***				
	ResFul_2	0.748	27.814***				
	ResFul_3	0.783	29.996***				
	ResFul_4	0.823	41.159***				
	ResFul_5	0.735	24.087***				
	ResFul_6	0.767	28.486***				
Organizational Agility				0.900 (0.879)	0.906 (0.880)	0.915 (0.903)	0.423 (0.508) [b]
	OAG1	0.669	16.195***				
	OAG2	0.669	20.048***				
	OAG3	0.674	19.912***				
	OAG4	0.638	13.114***				
	OAG5[a]	0.581	15.434***				
	OAG6	0.665	18.169***				
	OAG7[a]	0.644	15.165***				
	OAG8	0.704	20.837***				
	OAG9	0.764	21.187***				
	OAG10[a]	0.608	12.058***				
	OAG11	0.720	21.743***				
	OAG12[a]	0.661	18.569***				
	OAG13[a]	0.536	10.250***				
	OAG14	0.713	21.881***				
	OAG15[a]	0.410	7.027***				

Construct	Indicator	Loadings	t-statistics	Cronbach's α	CR (rho_a)	CR (rho_c)	AVE
Perceived Employee Resilience				0.908	0.917	0.924	0.578
	PER1	0.754	20.550***				
	PER2	0.714	20.715***				
	PER3	0.760	23.732***				
	PER4	0.716	19.321***				
	PER5	0.749	22.203***				
	PER6	0.609	12.082***				
	PER7	0.731	19.584***				
	PER8	0.703	14.525***				
	PER9	0.777	27.428***				
Psychological Resilience				0.851	0.859	0.899	0.690
	PR1	0.839	41.963***				
	PR2	0.823	31.709***				
	PR3	0.855	55.805***				
	PR4	0.804	29.056***				
Entrepreneurial Bricolage Behavior				0.864	0.869	0.894	0.515
	EBB1	0.740	22.816***				
	EBB2	0.648	13.293***				
	EBB3	0.726	19.756***				
	EBB4	0.703	20.213***				
	EBB5	0.846	29.357***				
	EBB6	0.661	16.716***				
	EBB7	0.695	19.999***				
	EBB8	0.702	18.041***				
Entrepreneurial Self-Efficacy				0.936	0.940	0.954	0.839
	ESE1	0.925	117.078***				
	ESE2	0.890	70.932***				
	ESE3	0.927	117.458***				
	ESE4	0.920	112.378***				
Organizational Resilience				0.799	0.815	0.882	0.715
	OR1	0.791	23.848***				
	OR2	0.902	93.013***				
	OR3	0.837	36.448***				

Note: ***p < 0.001; based on two tailed tests; [a] removed to increase AVE; [b] AVE after removing indicators with lower loadings

Appendix D: Fornell-Larcker Criterion

	AL	OAG	CDML	EBB	ESE	EU	EX	FL	PGS	PR	OR	PC	PER	BPP	RU	ORF	SU
AL	0.807																
OAG	0.527	0.713															
CDML	0.51	0.637	0.745														
EBB	0.614	0.629	0.55	0.717													
ESE	0.404	0.494	0.457	0.497	0.916												
EU	0.533	0.452	0.479	0.437	0.367	0.857											
EX	0.371	0.53	0.49	0.436	0.407	0.42	0.729										
FL	0.462	0.584	0.616	0.555	0.405	0.607	0.473	0.769									
PGS	0.136	0.19	0.161	0.078	0.199	0.154	0.378	0.149	0.873								
PR	0.412	0.454	0.436	0.544	0.638	0.331	0.333	0.4	0.073	0.831							
OR	0.481	0.557	0.42	0.587	0.356	0.251	0.386	0.471	0.192	0.331	0.846						
PC	0.398	0.491	0.511	0.423	0.459	0.539	0.493	0.591	0.286	0.288	0.296	0.78					
PER	0.525	0.425	0.347	0.634	0.28	0.427	0.442	0.536	0.143	0.342	0.429	0.412	0.741				
BPP	0.259	0.17	0.219	0.233	0.306	0.228	0.295	0.292	0.155	0.359	0.175	0.247	0.251	0.811			
RU	0.392	0.251	0.277	0.304	0.182	0.632	0.242	0.421	0.005	0.164	0.166	0.379	0.319	0.15	0.855		
ORF	0.484	0.665	0.646	0.582	0.587	0.441	0.614	0.58	0.357	0.445	0.488	0.598	0.395	0.275	0.232	0.756	
SU	0.466	0.401	0.405	0.418	0.285	0.688	0.494	0.56	0.132	0.233	0.322	0.545	0.496	0.235	0.543	0.402	0.863

Appendix E: Heterotrait-Monotrait (HTMT) Ratio

	AL	OAG	CDML	EBB	ESE	EU	EX	FL	PGS	PR	OR	PC	PER	BPP	RU	ORF	SU
AL																	
OAG	0.657																
CDML	0.635	0.727															
EBB	0.768	0.719	0.629														
ESE	0.484	0.541	0.502	0.551													
EU	0.685	0.531	0.565	0.518	0.415												
EX	0.493	0.647	0.607	0.538	0.466	0.534											
FL	0.614	0.698	0.75	0.675	0.463	0.765	0.608										
PGS	0.16	0.208	0.175	0.085	0.196	0.168	0.46	0.164									
PR	0.521	0.517	0.502	0.63	0.709	0.395	0.401	0.482	0.081								
OR	0.624	0.662	0.502	0.701	0.407	0.31	0.494	0.596	0.229	0.394							
PC	0.517	0.587	0.607	0.508	0.532	0.665	0.642	0.741	0.325	0.344	0.362						
PER	0.648	0.469	0.382	0.718	0.293	0.491	0.531	0.641	0.158	0.393	0.508	0.473					
BPP	0.327	0.197	0.256	0.265	0.341	0.27	0.37	0.363	0.175	0.417	0.214	0.296	0.291				
RU	0.501	0.292	0.319	0.36	0.194	0.76	0.305	0.519	0.063	0.193	0.205	0.457	0.371	0.173			
ORF	0.606	0.765	0.748	0.67	0.656	0.526	0.772	0.704	0.397	0.509	0.585	0.731	0.442	0.318	0.268		
SU	0.598	0.468	0.477	0.493	0.322	0.835	0.639	0.702	0.152	0.274	0.394	0.674	0.565	0.286	0.66	0.476	

Appendix F: Cross Loadings

	OR	CDML	EX	AL	FL	PC	OAG	ORF	PR	EBB	ESE	PER	BPP	SU	EU	RU	PGS
OR1	0.791	0.375	0.329	0.448	0.39	0.202	0.432	0.384	0.266	0.483	0.252	0.373	0.177	0.277	0.215	0.123	0.071
OR2	0.902	0.381	0.367	0.444	0.433	0.319	0.52	0.455	0.328	0.56	0.367	0.397	0.191	0.297	0.234	0.177	0.198
OR3	0.839	0.308	0.279	0.326	0.369	0.218	0.457	0.396	0.238	0.438	0.275	0.315	0.07	0.239	0.186	0.116	0.213
CDML1	0.292	0.706	0.42	0.368	0.459	0.424	0.479	0.465	0.305	0.386	0.36	0.273	0.185	0.346	0.409	0.227	0.179
CDML2	0.275	0.797	0.318	0.33	0.434	0.348	0.432	0.448	0.331	0.391	0.374	0.182	0.131	0.275	0.325	0.173	0.077
CDML3	0.27	0.733	0.365	0.388	0.438	0.391	0.456	0.484	0.278	0.418	0.287	0.278	0.146	0.324	0.381	0.202	0.114
CDML4	0.38	0.701	0.407	0.44	0.505	0.397	0.516	0.486	0.317	0.408	0.334	0.291	0.208	0.361	0.388	0.247	0.132
CDML5	0.318	0.794	0.343	0.329	0.441	0.363	0.435	0.45	0.31	0.38	0.275	0.237	0.145	0.325	0.337	0.196	0.144
CDML6	0.323	0.758	0.347	0.433	0.478	0.349	0.496	0.499	0.384	0.438	0.355	0.327	0.198	0.243	0.323	0.174	0.094
CDML7	0.317	0.719	0.343	0.35	0.439	0.38	0.489	0.522	0.337	0.431	0.383	0.209	0.121	0.231	0.325	0.216	0.095
EX1	0.368	0.379	0.77	0.329	0.453	0.448	0.444	0.524	0.31	0.385	0.442	0.406	0.283	0.402	0.365	0.205	0.301
EX2	0.255	0.361	0.773	0.277	0.292	0.398	0.392	0.498	0.188	0.278	0.315	0.296	0.242	0.384	0.296	0.208	0.382
EX3	0.182	0.212	0.633	0.136	0.176	0.265	0.205	0.299	0.112	0.214	0.111	0.262	0.123	0.302	0.189	0.074	0.224
EX4	0.287	0.443	0.731	0.298	0.402	0.295	0.452	0.427	0.317	0.362	0.248	0.304	0.182	0.342	0.34	0.19	0.186
AL1	0.452	0.453	0.328	0.851	0.426	0.344	0.446	0.423	0.389	0.548	0.379	0.466	0.224	0.391	0.491	0.347	0.183
AL2	0.351	0.378	0.282	0.79	0.324	0.307	0.419	0.364	0.31	0.446	0.299	0.387	0.209	0.325	0.363	0.276	0.121
AL3	0.355	0.399	0.285	0.778	0.362	0.31	0.412	0.383	0.292	0.486	0.295	0.416	0.193	0.411	0.429	0.322	0.017
FL1	0.406	0.46	0.418	0.316	0.808	0.553	0.499	0.52	0.367	0.445	0.407	0.426	0.243	0.461	0.511	0.341	0.118
FL2	0.284	0.401	0.261	0.337	0.655	0.289	0.286	0.327	0.211	0.357	0.155	0.378	0.249	0.377	0.404	0.255	0.06
FL3	0.37	0.471	0.386	0.33	0.789	0.438	0.489	0.427	0.265	0.449	0.3	0.417	0.163	0.442	0.495	0.35	0.118
FL4	0.377	0.552	0.373	0.439	0.812	0.502	0.49	0.486	0.365	0.448	0.349	0.429	0.252	0.439	0.453	0.339	0.15
PC1	0.287	0.367	0.374	0.289	0.458	0.771	0.398	0.485	0.241	0.329	0.416	0.329	0.221	0.421	0.36	0.251	0.234
PC2	0.12	0.243	0.345	0.232	0.363	0.741	0.309	0.399	0.15	0.278	0.282	0.269	0.153	0.387	0.362	0.26	0.252
PC3	0.251	0.472	0.442	0.38	0.496	0.815	0.395	0.495	0.212	0.373	0.367	0.352	0.193	0.468	0.475	0.353	0.244
PC4	0.251	0.484	0.369	0.324	0.513	0.79	0.422	0.477	0.287	0.332	0.359	0.329	0.2	0.419	0.473	0.31	0.169
OAG1	0.355	0.456	0.391	0.339	0.425	0.345	0.719	0.417	0.335	0.405	0.293	0.392	0.135	0.254	0.314	0.149	0.077
OAG2	0.421	0.438	0.402	0.408	0.355	0.332	0.715	0.502	0.335	0.468	0.413	0.299	0.152	0.241	0.297	0.166	0.207

	OR	CDML	EX	AL	FL	PC	OAG	ORF	PR	EBB	ESE	PER	BPP	SU	EU	RU	PGS
OAG3	0.371	0.487	0.453	0.341	0.406	0.366	0.715	0.538	0.355	0.448	0.448	0.285	0.189	0.242	0.259	0.068	0.138
OAG4	0.352	0.42	0.318	0.354	0.368	0.291	0.673	0.406	0.26	0.414	0.283	0.213	0.059	0.265	0.326	0.235	0.112
OAG6	0.393	0.435	0.313	0.32	0.393	0.352	0.67	0.461	0.264	0.435	0.299	0.319	0.085	0.285	0.303	0.181	0.119
OAG8	0.419	0.426	0.358	0.422	0.428	0.328	0.7	0.469	0.346	0.445	0.391	0.282	0.124	0.326	0.37	0.217	0.235
OAG9	0.431	0.475	0.398	0.406	0.476	0.337	0.791	0.482	0.337	0.482	0.296	0.344	0.11	0.326	0.343	0.196	0.096
OAG11	0.405	0.421	0.442	0.399	0.441	0.434	0.727	0.537	0.348	0.469	0.372	0.295	0.089	0.359	0.358	0.204	0.114
OAG14	0.419	0.524	0.317	0.387	0.444	0.361	0.7	0.444	0.322	0.466	0.365	0.293	0.144	0.266	0.327	0.195	0.119
ORF1	0.419	0.534	0.39	0.347	0.519	0.375	0.464	0.672	0.37	0.479	0.396	0.363	0.219	0.311	0.33	0.179	0.159
ORF2	0.28	0.415	0.491	0.27	0.331	0.486	0.441	0.748	0.215	0.324	0.458	0.203	0.163	0.244	0.306	0.137	0.379
ORF3	0.368	0.51	0.449	0.346	0.457	0.428	0.548	0.783	0.383	0.462	0.431	0.302	0.184	0.273	0.32	0.147	0.275
ORF4	0.436	0.517	0.506	0.482	0.483	0.474	0.574	0.823	0.391	0.526	0.457	0.391	0.29	0.36	0.391	0.23	0.327
ORF5	0.323	0.479	0.419	0.357	0.439	0.46	0.476	0.735	0.337	0.429	0.375	0.29	0.185	0.304	0.375	0.21	0.206
ORF6	0.364	0.461	0.529	0.367	0.376	0.493	0.494	0.767	0.294	0.393	0.543	0.213	0.189	0.316	0.272	0.138	0.282
PR1	0.27	0.378	0.305	0.338	0.366	0.193	0.39	0.357	0.839	0.443	0.523	0.275	0.324	0.185	0.24	0.082	0.031
PR2	0.239	0.359	0.304	0.307	0.29	0.271	0.358	0.365	0.823	0.473	0.527	0.265	0.331	0.171	0.23	0.134	0.071
PR3	0.339	0.399	0.305	0.358	0.38	0.3	0.44	0.45	0.855	0.468	0.594	0.289	0.279	0.247	0.339	0.162	0.112
PR4	0.239	0.299	0.172	0.371	0.28	0.179	0.301	0.284	0.804	0.421	0.46	0.312	0.257	0.16	0.289	0.173	0.014
EBB1	0.444	0.427	0.398	0.521	0.451	0.344	0.476	0.482	0.502	0.74	0.428	0.501	0.276	0.333	0.368	0.252	0.092
EBB2	0.356	0.376	0.329	0.466	0.344	0.233	0.461	0.449	0.41	0.648	0.374	0.419	0.122	0.275	0.332	0.244	0.049
EBB3	0.508	0.389	0.256	0.426	0.398	0.257	0.415	0.394	0.428	0.726	0.389	0.498	0.106	0.248	0.262	0.188	0.047
EBB4	0.399	0.427	0.32	0.423	0.406	0.34	0.496	0.42	0.321	0.703	0.332	0.407	0.168	0.304	0.31	0.202	0.058
EBB5	0.509	0.442	0.335	0.482	0.442	0.325	0.474	0.446	0.392	0.846	0.341	0.526	0.176	0.368	0.347	0.248	0.056
EBB6	0.336	0.321	0.288	0.375	0.344	0.327	0.406	0.382	0.314	0.661	0.308	0.429	0.12	0.334	0.286	0.269	0.036
EBB7	0.4	0.306	0.259	0.416	0.336	0.247	0.377	0.337	0.328	0.695	0.327	0.415	0.102	0.26	0.279	0.172	0.042
EBB8	0.399	0.436	0.294	0.398	0.434	0.337	0.485	0.41	0.404	0.702	0.346	0.43	0.224	0.265	0.307	0.167	0.057
ESE1	0.366	0.452	0.378	0.386	0.408	0.431	0.518	0.562	0.566	0.487	0.925	0.258	0.259	0.248	0.326	0.142	0.181
ESE2	0.307	0.364	0.321	0.337	0.357	0.387	0.415	0.483	0.546	0.428	0.89	0.228	0.268	0.221	0.287	0.128	0.129
ESE3	0.318	0.395	0.362	0.372	0.332	0.437	0.42	0.519	0.591	0.431	0.927	0.266	0.295	0.27	0.344	0.185	0.172
ESE4	0.31	0.452	0.421	0.382	0.383	0.422	0.448	0.575	0.63	0.471	0.92	0.27	0.299	0.3	0.38	0.207	0.237

	OR	CDML	EX	AL	FL	PC	OAG	ORF	PR	EBB	ESE	PER	BPP	SU	EU	RU	PGS
PER1	0.304	0.282	0.372	0.406	0.407	0.34	0.345	0.332	0.257	0.463	0.209	0.751	0.239	0.394	0.375	0.261	0.109
PER2	0.299	0.236	0.316	0.419	0.346	0.274	0.291	0.3	0.239	0.44	0.208	0.716	0.172	0.298	0.282	0.143	0.119
PER3	0.254	0.234	0.355	0.374	0.376	0.326	0.252	0.304	0.273	0.469	0.182	0.758	0.189	0.4	0.311	0.303	0.142
PER4	0.357	0.214	0.242	0.387	0.376	0.229	0.336	0.265	0.255	0.443	0.169	0.706	0.137	0.264	0.293	0.162	0.069
PER5	0.37	0.265	0.304	0.413	0.395	0.26	0.345	0.324	0.22	0.532	0.241	0.742	0.122	0.327	0.286	0.244	0.125
PER6	0.349	0.296	0.277	0.354	0.403	0.298	0.334	0.28	0.285	0.483	0.216	0.745	0.139	0.332	0.288	0.242	0.06
PER7	0.264	0.128	0.204	0.329	0.312	0.174	0.157	0.067	0.205	0.377	0.066	0.711	0.235	0.318	0.233	0.234	-0.041
PER8	0.339	0.335	0.463	0.416	0.508	0.448	0.392	0.372	0.275	0.516	0.296	0.791	0.248	0.529	0.409	0.278	0.189
BPP1	0.133	0.181	0.214	0.162	0.194	0.106	0.138	0.156	0.217	0.159	0.175	0.156	0.747	0.191	0.141	0.112	0.136
BPP2	0.178	0.146	0.242	0.25	0.247	0.231	0.122	0.226	0.277	0.25	0.253	0.26	0.834	0.224	0.207	0.144	0.115
BPP3	0.143	0.165	0.243	0.18	0.188	0.195	0.128	0.229	0.269	0.151	0.239	0.214	0.817	0.158	0.15	0.055	0.144
BPP4	0.119	0.216	0.256	0.234	0.3	0.247	0.162	0.266	0.377	0.189	0.305	0.185	0.842	0.191	0.226	0.163	0.114
SU1	0.303	0.382	0.436	0.411	0.508	0.472	0.383	0.348	0.208	0.371	0.238	0.418	0.182	0.88	0.594	0.465	0.073
SU2	0.28	0.321	0.447	0.37	0.476	0.45	0.34	0.332	0.227	0.351	0.249	0.403	0.251	0.842	0.599	0.493	0.133
SU3	0.248	0.343	0.397	0.424	0.466	0.49	0.312	0.36	0.167	0.36	0.251	0.462	0.179	0.866	0.589	0.449	0.138
EU1	0.231	0.355	0.355	0.482	0.512	0.409	0.359	0.356	0.267	0.394	0.267	0.364	0.195	0.58	0.855	0.555	0.132
EU2	0.218	0.423	0.388	0.457	0.514	0.514	0.464	0.394	0.316	0.369	0.351	0.374	0.248	0.615	0.864	0.547	0.165
EU3	0.198	0.449	0.336	0.433	0.534	0.458	0.334	0.382	0.267	0.362	0.321	0.361	0.142	0.574	0.851	0.524	0.097
RU1	0.139	0.192	0.191	0.337	0.305	0.213	0.173	0.132	0.112	0.247	0.059	0.256	0.12	0.438	0.438	0.803	-0.035
RU2	0.157	0.202	0.212	0.283	0.322	0.337	0.189	0.201	0.106	0.236	0.154	0.278	0.087	0.461	0.526	0.847	0.039
RU3	0.136	0.299	0.218	0.379	0.434	0.397	0.266	0.245	0.19	0.291	0.226	0.284	0.168	0.494	0.632	0.912	0.004
PGS1	0.184	0.063	0.256	0.064	0.059	0.131	0.12	0.21	-0.016	0.032	0.046	0.096	0.078	0.099	0.071	-0.048	0.802
PGS2	0.14	0.169	0.31	0.133	0.154	0.305	0.198	0.364	0.07	0.083	0.206	0.134	0.156	0.136	0.205	0.056	0.888
PGS3	0.172	0.165	0.357	0.138	0.158	0.279	0.169	0.33	0.068	0.084	0.203	0.136	0.145	0.113	0.144	0.015	0.91
PGS4	0.191	0.128	0.377	0.116	0.118	0.233	0.157	0.3	0.099	0.056	0.183	0.123	0.139	0.109	0.085	-0.037	0.889