

ABSTRACT

Toward a Process View of Entrepreneurial Action: An Empirical Investigation of Activities, Mechanisms and Outcomes

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Entrepreneurial action is of keen interest to entrepreneurship scholars, and research on the topic centers on studying the different dynamics of entrepreneurial action as the underlying mechanism for engagement in the entrepreneurial process. This dissertation seeks to understand the underlying mechanism of enterprising activities in the formation process of entrepreneurial action. Building on the existing opportunity evaluation literature, I theorize a process framework with the argument that the event-based enterprising activities and the formation of entrepreneurial action processes are interrelated. With that, the process of entrepreneurial action formation consists of many types of enterprising activities, and over time, these enterprising activities accumulate into the market entry as an entrepreneurial action outcome. I test the theoretical framework in two studies. In the first study, I use a Kauffman Firm Survey, eight years of longitudinal data to test the direct effect of each type of activity, and the moderation effect of venture age on the likelihood of market entry as a proxy for the outcome of entrepreneurial action process. In the second study, using the concept regulatory focus, I

study the cognitive mechanism of the entrepreneurial action and use a free-choice experiment to further explore the underlying cognitive mechanism that drives one's choice for enterprising activities, and validate the causal relationship between enterprising activities and market entry as a proxy for entrepreneurial action outcome.

Keywords: Entrepreneurial Action, Entrepreneurial Process, Opportunity, Market Entry

Toward a Process View of Entrepreneurial Action: An Empirical Investigation of
Activities, Mechanism, and Outcomes

by

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DEDICATION

I dedicate this dissertation to my family and God. To my parents, who made me read scientific articles at the age of nine, thank you for your constant support, encouragement, and presence in walking through this journey with me from thousands of miles away. Patrick, my awesome husband, thank you for being my cheerleader, my rock, and, most of all, for taking care of everything else in our lives so I can focus on writing this dissertation. To my lovely three fur children, Amber, Freya, and Odin, thanks to your daily craziness at sunrise, I have learned to start writing at dawn. Finally, to my Heavenly Father, thank you for always answering my prayers, and quest me for the journey of wisdom.

CHAPTER ONE

Introduction

Overview and Research Questions

Entrepreneurship is a journey in which individuals take action in the process of transforming ideas into new market offerings through a series of enterprising activities. As a result, entrepreneurial action is of keen interest to entrepreneurship scholars, and research on the topic centers on studying the different dynamics of entrepreneurial action as the underlying mechanism for engagement in the entrepreneurial process (McMullen and Shepherd, 2006; Shepherd et al., 2007). Studies on entrepreneurial action have emerged into two major research streams. The first stream focuses on studying the outcomes of entrepreneurial action as an event. In particular, scholars focus on the outcome event resulting from an entrepreneur actively engaging in a series of organized activities (Kirzner, 1979; Baron, 2008; Cardon et al., 2012; Cardon and Kirk, 2015; Wiklund et al. 2017). The study of new venture creation is a typical example of this research stream (Davidsson and Honig, 2003; Samuelsson and Davidsson, 2009; Newbert, 2005; Lichtenstein et al., 2007; Parker and Belghitar, 2006; Rotefoss and Kolvereid, 2005). The second research stream focuses on the process of forming entrepreneurial action whereby an entrepreneur identifies/creates, evaluates or decides to pursue an opportunity (Venkataraman, 1997; Shane and Venkataraman, 1999; McMullen and Shepherd, 2006; Shepherd et al., 2007; Wood et al., 2012; Packard et al., 2017).

While these two streams of research have provided a greater understanding in a specific part of the entrepreneurial action process, we lack a complete theoretical framework to explain the entire formation process of entrepreneurial action. More specifically, while the event-based view articulates what elements can potentially lead an entrepreneur to achieve a particular form of entrepreneurial action (i.e., new venture creation, market entry, or exit), these studies focus on the antecedents of specific event outcomes without explaining what happens afterward. Specifically, the new venture creation literature thoroughly examines how human capital (Davidsson and Honig, 2003; Marvel et al., 2016), knowledge capital (Holcomb et al., 2009; Gregoire et al., 2010), and resources (Huang and Knight, 2017) lead to venture creation but sheds very little light on the post-venture formation stage, particularly how entrepreneurs use new ventures as vehicles (Wood and McKinley, 2017) to take action and introduce new products to the market. On the other hand, the process view provides insights into how entrepreneurs pursue opportunities (Gartner, 1989) through the process of formulating, evaluating, and exploiting business opportunities. However, the process-based view fails to explain the entrepreneurial action process with sufficient context. As Dimov (2018) argued,

If one asks the analogical question, “what do parents do?” One obvious answer is, “they raise children.” This answer similarly lacks substance since it provides no sense of the specific activities involved, from changing nappies to feeding, dressing, supporting, etc., all recurring and all in the name of an ultimate purpose, yet happening in different sequences, combinations, and intensity across parents.

Similarly, if we ask what entrepreneurs do, the existing explanation of “they discover, evaluate and exploit opportunities” (Shane and Venekamaran, 2002; Venekamaran, 1999) lacks substance in defining the specific enterprising activities involved in the entrepreneurial action process.

I articulate that the struggle in understanding entrepreneurial action lies within two key challenges. First, the interpretation of “entrepreneurial action” varies from article to article. The definitions of entrepreneurial action are ambiguous in differentiating between enterprising activities and entrepreneurial action as a process outcome. The second challenge exists in the various definition of a process in terms of the period of time and the repeatable nature of time. Complexity arises because researches focus on different elements in the process (types of activities) (Lichtenstein et al., 2007) and many elements are interdependent; without distinguishing the beginning point and the endpoint, the process frequently repeats itself, and the effect of variables can be confounding (Dimov, 2018). While one element can lead to further action, and the absence of an element can lead to further possible inaction (sequence of activities) (Wood et al., 2017), the process-based phenomenon can be extremely challenging for researchers to dissect, and analyze the underlying mechanism. Nevertheless, overcoming these challenges is important for the field of entrepreneurship because the risk of not resolving these challenges is that they hinder the field from fully answering the fundamental question - how can we determine what action is entrepreneurial? For example, the enterprising activity, shopping for food, is not entrepreneurial; however, when someone is shopping for food to open a restaurant, the particular enterprising activity, shopping for food, now has meaning, and it is entrepreneurial (Dimov, 2018). I identified two research gaps with the existing challenges: (1) the absence of a systematic literature review clarifying the definition of entrepreneurial action and (2) the absence of a framework to explain the relationship between enterprising activities and entrepreneurial action. In filling these research gaps I study entrepreneurial action as a process, and doing so this dissertation

contributes to the development of entrepreneurial action theory by providing a more detailed and nuanced explanation of specific activities entrepreneurs engage post new venture creation as they navigate the entrepreneurial journey (Figure 1.1).

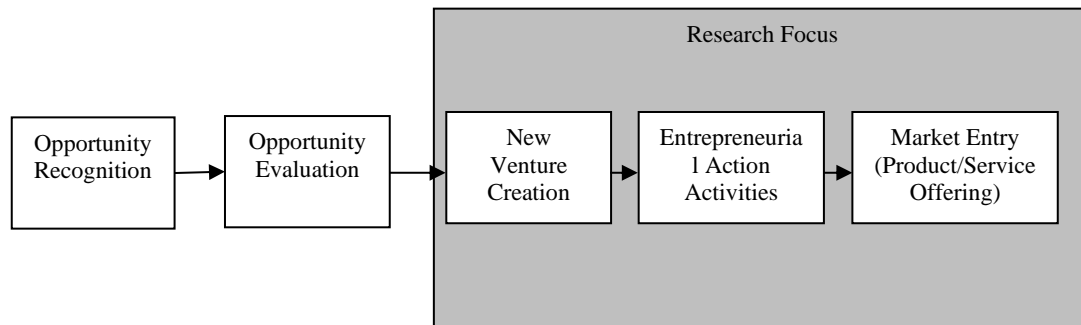


Figure 1.1 Dissertation Research Focus in the Broader Entrepreneurial Action

To address the first research gap, I clarify the definition of entrepreneurial action through a systematic literature review of entrepreneurial action research and propose a more appropriate new definition of entrepreneurial action that distinguishes the concept from enterprising activities. Enterprising activities refer to the activities taken by individuals (whether alone, in groups, or as part of organizations) to transform ideas toward the creation of products, services, or business models for market entry. Entrepreneurial action is defined as the outcome of the process in which individuals engage in activities (whether alone, in groups, or as part of organizations) to transform ideas toward the creation of products, services, or business models for market entry. Essentially, enterprising activities accumulate over time in a certain sequence and form an entrepreneurial action outcome (Dimov, 2018) Thus, entrepreneurial action is an umbrella construct that describes the process of forming an entrepreneurial action outcome. Enterprising activities are the underlying elements of the process.

Subsequently, I address the second research gap by asking the following research questions: what types of enterprising activities lead to a higher likelihood of an entrepreneurial action outcome, and how does the timing of these enterprising activities (i.e., firm age) moderate a new venture's entrepreneurial action outcome? In addressing these research questions, I theorize a process framework with four inter-related arguments. First, the process of entrepreneurial action formation consists of two main stages of enterprising activities: securing financial resources and securing knowledge resources. In the securing financial resources stage, entrepreneurs primarily use equity or debt financing as their main sources of finance. In securing knowledge resources, entrepreneurs primarily acquire knowledge by conducting research and development (R&D) in-house or outsourcing these functions.

Second, in these two stages, the types of enterprising activities an entrepreneur engages in influences how he or she estimates the future value of entrepreneurial action. The opportunity evaluation literature argues that an entrepreneur takes action based on a focal opportunity's perceived feasibility, which depends on what strategy the entrepreneur uses to evaluate this opportunity. If the entrepreneur uses a gain estimation strategy, he or she evaluates the opportunity based on the potential to gain monetary or non-monetary benefits if the business succeeds. If the entrepreneur uses a loss estimation strategy, he or she estimates the possible loss of the opportunity if the venture fails (Scheaf et al., 2019). Using the opportunity evaluation logic, in this dissertation, I argue that the types of activities entrepreneurs engage in trigger their use of a gain or loss estimation strategy, which influences their perceptions of how feasible an opportunity is and subsequently influences their likelihood of achieving the entrepreneurial action

outcome. For example, entrepreneurs who use equity financing, or do R&D in house are more likely to trigger the gain estimation strategy, which increases the perceived feasibility of their focal opportunity and thus increases their likelihood of achieving entrepreneurial action outcome.

Third, to understand how the timing of these enterprising activities influence the in the entrepreneurial action process, I extend the key argument from the knowledge management literature that ventures are more likely to take entrepreneurial action as they age (Eisenhardt and Martin, 2000; Winter, 2003; Teece, 2009). Thus, I propose that venture age moderates the relationship between enterprising activities and the likelihood of entrepreneurial action. More specifically, firm age is a negative moderator that the early stage enterprising activity contributes to a higher likelihood of entrepreneurial action than later stage enterprising activity. Lastly, using the regulatory focus theory, I explain the cognitive mechanism underlying how an entrepreneur's regulatory focus drives his/her choice in certain enterprising activities.

To test my proposed theoretical framework, I operationalize entrepreneurial action outcome as the likelihood of market entry according to the definition of entrepreneurial action in Chapter Two, and test the hypothesizes in two studies. First, in Study 1, I test the theoretical framework using the Kauffman Firm Survey; a dataset records the enterprising activities of nearly 5000 new ventures. The captured variables include the new venture's financial activities, R&D activities, commercial activities (e.g., source of funding, firm characteristics, market entry, human resources, patents, etc.). Additionally, the dataset also includes variables that report outcomes of the process (e.g., market entry, revenue) that reflect variation in these activities. These ventures were all

created in 2004 and were surveyed annually for eight years. I test the direct effect of different enterprising activities on the likelihood of market entry for three key stages. Hypothesis 1 tests the direct effect of equity and debt financing on the likelihood of market entry for the process stage of securing financial resources. Hypothesis 2 tests the direct effect of in-house R&D and R&D outsourcing on the likelihood of market entry for the process stage of securing knowledge resources. Next, in hypotheses 3 - 4, I test how these enterprising activities unfold over time. More specifically, hypotheses 3 - 4 test how venture age moderates the relationship between enterprising activities (i.e., equity and debt financing, and in-house R&D and outsourcing) and the likelihood of market entry in the two stages (securing financial resource and securing knowledge resources).

In Study 2, with a scenario experiment, I use the concept of regulatory focus in understanding what drives an entrepreneur to choose a specific type of enterprising activity and explore how the variation in these choices impacts the likelihood of market entry. More specifically, in hypothesis 5 and 6, I test how the regulatory focus of an entrepreneur influence his/her choice in resource acquisition (equity financing versus debt financing). In Hypothesis 7 and 8, I test how the regulatory focus of one entrepreneur influence his/her choice in knowledge acquisition (R&D in-house versus R&D outsourcing). Finally, In Hypothesis 9, I test how an entrepreneur's regulatory focus influence his/her choice in the likelihood of market entry.

Anticipated Contributions

This dissertation makes two primary contributions. First, several entrepreneurial action researchers have emphasized the importance of having a clear definition of entrepreneurial action. In the recent Entrepreneurship Theory and Practice special issue

titled "The Future of Entrepreneurship Research," Wiklund et al. (2011) stated that an area of improvement for entrepreneurship research is to develop a robust definition of entrepreneurial action to address the importance of "linking the conceptual definition of key phenomena and empirical observations". Through a systematic literature review, I synthesize the existing entrepreneurial action literature and provided process-based definitions for enterprising activities and entrepreneurial action. Second, I contribute to the action literature by extending the process view of entrepreneurial action from a focus on before new venture creation to the realm of after new venture creation. McMullen and Dimov (2013) emphasized three key criteria for studying entrepreneurial action as a process: a beginning point, an ending point, and the sequence of the elements. In the dissertation, I extend the understanding of the "sequence of elements" segment of the entrepreneurial action process with a theoretical framework that uses the beginning point of new venture creation and traverses to the milestone mark (i.e., ending point) of market entry. Additionally, I provide insights into how enterprising new venture age moderates the relationships between activities and the likelihood of market entry.

The theoretical and empirical developments in this dissertation provide important insights into what types of enterprising activities entrepreneurs engage in and how these activities influence the likelihood of market entry within new ventures. Thus, this dissertation has important implications for entrepreneurs, organizations, and policymakers who seek to increase the quantity and quality of entrepreneurial action. For entrepreneurs, this dissertation sheds light on what activities to engage in and when these activities are most beneficial in the entrepreneurial journey. For organizations and policymakers, this dissertation provides insights into the underlying activities and

mechanisms of the entrepreneurial action process. Concretely, the findings of this dissertation explain why certain entrepreneurs or corporations have a lower likelihood of translating entrepreneurial action activities into market entry realization and thus provides important knowledge for individuals and corporations seeking to design innovation or entrepreneurship systems that encourage movement from activities to producing desired entrepreneurial action outcomes

CHAPTER TWO

Review of Entrepreneurial Action Research

Introduction

In this section, I provide an overview of existing research in the entrepreneurial action literature. The purpose of this literature overview is twofold. First, I seek to synthesize the different definition of entrepreneurial action in the existing literature and formulate an appropriate definition of entrepreneurial action. Particularly, the definition of entrepreneurial action used in this paper reflects action as a process, distinct from event-based activities, and action that is entrepreneurial nature, distinct from repeated, routine-based action. To construct the most appropriate definition of entrepreneurial action, I synthesized the existing definitions of entrepreneurial action by presenting four main types of definitions, identifying to the roots of the definitions, and summarizing the typical streams of research that use the different types of definitions. I subsequently provide evidence that some of the existing definitions only describe action as an event-based outcome (versus as a process) and that some describe action that is not entrepreneurial in nature. I then argue that actions viewed as events are enterprising activities that entrepreneurs engage in at different stages in the process of forming those actions and that what makes this action process entrepreneurial is that the entrepreneurs' end goal is to introduce and deliver a *new* product, service, or business model to the market. Thus, for this dissertation, the working definition of entrepreneurial action is *the outcome of the process in which an individual engage in enterprising activities—whether*

alone, in a group, or as part of an organization—to transform ideas to create a product, service, or business for market entry (adapted from Wood et al., 2012). The second purpose of the literature review is to identify the key elements in the existing entrepreneurial action literature and synthesize the relationship between these elements and the outcome of the entrepreneurial action process. Overall, three elements emerged from the literature: knowledge, resources, and commercialization.

The remainder of the chapter is organized as follows. First, I describe the keywords that I used for my article search and discuss my selection and coding procedures. Second, I summarize the existing definitions of entrepreneurial action and subsequently propose the new appropriate definition of entrepreneurial action for process view of entrepreneurial action. Third, I synthesize the key elements that contribute to the formation of entrepreneurial action as a process.

Article Search and Selection Procedure

To study entrepreneurial action as a process, I first explore entrepreneurship researchers' understanding of entrepreneurial action as a construct. Prior to 2006, the entrepreneurship field primarily argued that entrepreneurs are born not made and thus focused on studying and understanding how individual entrepreneurs are different from non-entrepreneurs. McMullen and Shepherd (2006)'s seminal paper "Entrepreneurial Action and the Role of Uncertainty in the Theory of the Entrepreneur" introduced the concept of entrepreneurial action, arguing that entrepreneurship is not about an individual who possesses a specific entrepreneurial trait but is instead about an individual's willingness to take action. Over the last 12 years, this paper has been cited more than 1,900 times in Google Scholar. I reason that McMullen and Shepherd's seminal work has

revolutionized entrepreneurship scholars' research agenda by moving the field from studying individual entrepreneurs' traits to seeking to understand the antecedents, nature, and consequences of entrepreneurial action. To explore the ways in which this transition has unfolded and to what effect, I conducted an extensive review of research that meaningfully contributes to the discussion on entrepreneurial action.

I began the review with an extensive literature search. Because McMullen and Shepherd's (2006) paper serves as the main launching point for entrepreneurial action research, I bracketed my search with a start point of 2006 and an end point of 2018 (search stopped on November 19, 2018, including forthcoming publications in 2019). While I believe this is an appropriate timespan to understand existing entrepreneurial action studies, I conducted a brief survey of the literature prior to McMullen and Shepherd's (2006) seminal work to ensure 2006 is a justifiable start point. In this search, I uncovered some research related to entrepreneurial action from before 2006. With a few exceptional works centering on entrepreneurship as a process wherein entrepreneurs discover, evaluate, and exploit opportunities (Shane and Venekaraman, 2000; Brockner et al., 2004), I found that most of these studies explore the economic environment or the ways individual firms respond to this environment. Thus, most of this work focuses on the economic development of entrepreneurial action (Chiasson and Saunders, 2004; Kodithuwakku and Rosa, 2002; Jack and Anderso, 2002), firms' entrepreneurial action (Ahistorm and Bruton, 2002; Lacobucci and Rosa, 2005), or organizational learning (Crossan et al., 1999; Politis, 2005) in seeking competitive advantage and growth. While these studies clearly have an action focus, they do not study entrepreneurial action in the

way that McMullen and Shepherd (2006) conceptualized it. Therefore, the year 2006 is a defensible start point for my literature search and review for entrepreneurial action.

Table 2.1 Journals Used in Conducting Literature Review

Management	Entrepreneurship
Academy of Management Review (AMR), Academy of Management Journal (AMJ), Administrative Science Quarterly (ASQ), Journal of International Business Studies (JIBS), Journal of Management Studies (JMS), Management Science (MS), Organization Science (OS), and Strategic Management Journal (SMJ).	Entrepreneurship Theory and Practice (ETP), Journal of Business Venturing (JBV), Strategic Entrepreneurship Journal (SEJ), Small Business Economics (SBE), and Journal of Small Business Management (JSBM)

Since many literatures speak to human action (e.g., psychology, business, economics, sociology, etc.), I began my literature search using a filtering process similar to that in Townsend et al.'s (2018) "Uncertainty, Knowledge Problems and Entrepreneurial Action" paper published in Academy of Management Annals. The purpose of this process is to specifically ensure that the articles being reviewed have both an entrepreneurial-action and process focus. First, I searched through the Business Source Complete database from 2006 to 2019 for articles that contain the terms "entrepreneurial action" and "entrepreneurial process" in the title, abstract, or keywords following the search guidelines of Townsend et al. (2018) presented in Table 2.1. This search yielded 174 articles. Second, to further ensure each article's relevance to entrepreneurial action, I adapted Armstrong et al.'s (2012) multistage coding process. First, I coded all articles into one of two categories: (1) the paper is relevant to entrepreneurial action or (2) the paper is irrelevant to entrepreneurial action. I determined relevancy based on Wood et al.'s (2012, p. 208) definition of entrepreneurial action: "efforts by individuals (whether alone, in groups, or in organizations) to identify, develop, and/or pursue ideas for

introducing new products, services, and/or business models in particular market.” In this definition, entrepreneurial action refers to the process of entrepreneurs transforming ideas to actual product or services, and deliver it to the market for economic profits.

I further filtered out articles that primarily study action outcomes at the macro level (i.e. economic growth due to regional entrepreneurship). Although the entrepreneurial action process can be influenced by the external environment (i.e. social factors, economic freedom environment), or take places in a corporation context (i.e., corporate entrepreneurship) and the outcome of the process can possibly create macro level impact (economic and social changes), entrepreneurial action has to be carried out by an individual agent (Jack and Anderson, 2002; Shane, 2003; Foss and Klein, 2012).

A recent new stream of literature focuses on studying how entrepreneurs take actions in pursuit of social impact, instead of economic impact. Because the social entrepreneurship field has yet agreed on a clear definition, and assumptions of social entrepreneurship (Shepherd and Patzelt, 2011), I also excluded the articles that explore actions taken to achieve non-economic goals (i.e., social entrepreneurship). Additionally, since psychology research has yet to fully establish the relationship between intention and action (Shaver, 2012), I excluded research primarily focusing on entrepreneurial intentions. While I limited my search to articles published in the peer-reviewed journals listed in Table 2.1, I added in five chapters from the book *Entrepreneurial Action* to ensure the body of literature is fully covered. In sum, after completing these procedures, I deemed 84 studies suitable for inclusion in the review.

With these articles in hand, I wanted to fully understand how entrepreneurial action has been defined in the literature. Further, since there are several definitions of

entrepreneurial action in the literature, I needed to analyze which definition is the most appropriate for this dissertation. Thus, I coded each article into one of four categories: (1) general action taken to pursue economic goals; (2) action as new venture creation; (3) action as introducing new product, service, or process to market, and (4) other action, such as entrepreneurial exit, legitimacy acquisition, etc. In the next section, I explore these definitions of entrepreneurial action by further identifying each definition's original research stream, the type of research question that each definition seeks to address, and the history of each definition's research stream.

Definition of Entrepreneurial Action

The entrepreneurship field has several definitions of entrepreneurial action. For instance, entrepreneurial action has been conceptualized as (1) the creation of a new product, service, or process (Schumpeter, 1942; Venkataraman, 1997; Zahra et al., 2006); (2) new venture creation (Timmons and Spinelli, 2004; Baron, 2007; Gardner, 2014); (3) new market creation (Alvarez and Barney, 2007; Sarasvathy, 2009; Alvarez et al., 2015); (4) new market entry (Wood et al., 2012; Zahra et al, 2006; Shane, 2000; Venekamenan, 1997); (5) uncertainty reduction through knowledge acquisition and judgement (McMullen et al., 2008; McMullen and Shepherd, 2006; Foss and Klein, 2012; Bylund and McCaffrey, 2017; Chen et al, 2018); (6) new capability creation (Teece et al., 1997; Eisenhart and Martin, 2000; Winter, 2003); and (7) opportunity discovery, evaluation, and exploitation (Shane and Venekaraman, 2000). Table 2.2 presents examples of the various definitions for entrepreneurial action.

Table 2.2 Definition of Entrepreneurial Action

Author	Definition of Entrepreneurial Action
Wood et al., 2012	Efforts by individuals (whether alone, in groups, or in organizations) to identify, develop, and/or pursue ideas for introducing new products, services, and/or business models in particular market.
Shaver, 2012	Entrepreneurial action is the result of internal motivation, intention, effort, and external constraints and possibilities.
Gordon, 2012 Townsend, 2012 Teece, 1997	Entrepreneurial action as venture creation, market entry, and innovation and the mediation mechanism for firm performance, growth, and competitive advantages
Shane, 2000 Venekanan, 1997 Zahra et al, 2006	Entrepreneurial action as introducing a new product, service, or process to the market.
Townsend, 2012 Sarasvathy, 2009	Entrepreneurial action as building legitimacy among key stakeholders, creating/developing resources, and co-opting competitors to build a competitive advantage.
Mitchell, Mitchell, and Alveraz, 2012	Entrepreneurial action is the iterative process that brings an opportunity into existence to achieve economic exchange.
Sarasvathy, 2012 Alvarez et al, 2016	Entrepreneurial action as making a new economic world or market.
Wiklund et al, 2017	Entrepreneurial action as opportunity discovery, evaluation, and exploitation.
Alvarez and Barney, 2007; McMullen et al., 2008; McMullen and Shepherd, 2006 Chen et al, 2018	Entrepreneurial action as a process that entrepreneur make judgment to carry out further actions with extreme uncertainties about their environment and their future.
Lerner, 2016 Lerner et al., 2017 Verheul et al, 2016 Spivack, McKelvie and Haynie, 2014	Entrepreneurial action as an outcome of an affect-influenced or irrational process, such as addiction, emotions, impulsivity, illness (e.g., attention deficit and hyperactivity disorder), or behavioral disinhibition.

These definitions indicate that entrepreneurial action centers on the cognitions and decisions of entrepreneurs as they formulate visions of “what could be” (Shepherd et al., 2007; Shaver, 2012) and engage in activities targeted toward turning visions into reality (Alvarez and Barney, 2007; Townsend, 2012; Wood & McKinley, 2010; Wood and McKinley, 2017). In this vein, an underlying assumption of entrepreneurial action is that the decision to act is rational and purposeful. While some definitions assume that entrepreneurs thoughtfully consider action, but in some cases, entrepreneurial action is defined as an impulsive action with a little forethought (Wiklund et al., 2018; Lerner et al., 2018). The ambiguity in entrepreneurial action definition gives way to consideration of what action is entrepreneurial, and what action is not. In other words, what specific action activities do entrepreneurs engage in? How do we determine if the action is entrepreneurial? To understand this, I coded the selected articles into one of four themes that delineate the types of entrepreneurial action most frequently referenced in the literature: general action; action as new venture creation; action as introducing a new product, service, or process into the market; and other actions. Table 2.3 presents the definition of the four categories, the number of articles, examples of each category, and the origins of the schools of thought.

Table 2.3. Types of Entrepreneurial Action Definition

Categories	No. of Articles	Examples	Schools of Thought
General Action	39	McMullen and Shepherd, 2006; Packard et al., 2017; Autio et al., 2013; Foss and Klein, 2012	Shane (2002)—What's entrepreneurship? A process in which entrepreneurs take action to recognize, evaluate, and exploit opportunities.
New Venture Creation	19	Dimov, 2010; Davidsson and Gordon, 2012; Kaul, 2013;	Knight (1972)—A process in which entrepreneurs take action to pursue economic goals under uncertainty. Coarse (1937)—Why do firm exist? Because entrepreneurs use new venture creation as a tool to pursue entrepreneurial goals.
New Creation for the Market	10	Alvarez and Barney, 2009; Baum and Bird, 2010; Simon and Shrader, 2012; Wood et al., 2012; Bylund and McCafferey, 2017	Schumpeter (1927)—Why is there revolutionary growth in economics? Because entrepreneurs take action to innovate and create products, services, or processes for the market.
Other	11	Shepherd, Wiklund, and Haynie, 2009; Raffiee and Jie, 2015;	Entrepreneurial exit, obtaining legitimacy, etc.

The first category of articles views entrepreneurial action as an abstract concept encompassing nearly any action taken in the process of pursuing economic goals. In other words, this stream of research studies action without focusing on a specific type of action (i.e., developing new ideas and creating products for the market are regarded as the same

because both are in the pursuit of economic goals). The theoretical origins of this type of research come from entrepreneurship researchers seeking to further understand the nature of entrepreneurship as a process wherein entrepreneurs take action to pursue economic goals under uncertainty by recognizing, evaluating, and exploiting opportunities (Shane, 2000; Knight, 1972). Shane and Venekaraman (2000) proposed the original framework of opportunity identification, evaluation, and exploitation in clarifying what entrepreneurship is and why it should be an independent field in the social sciences. Using Shane and Venekaraman's concept of opportunity, researchers have sought to further develop an overarching framework to explain the process from opportunity formation to opportunity exploitation.

A dominant framework used in this stream of research is the first- and third-person opportunity framework initially proposed by McMullen and Shepherd (2006) in their seminal work highlighting that entrepreneurial action is contingent on two factors: the amount of uncertainty perceived and the willingness to bear uncertainty. In sum, entrepreneurial action is the outcome of an entrepreneur's willingness to bear the uncertainty he or she perceives. The authors proposed a two-stage conceptual process model to further explain this entrepreneurial action process. In the first stage, entrepreneurs dedicate attention to the realization of third person opportunity asking whether this is a good opportunity in general. At this stage, entrepreneurs use heuristics based on prior knowledge and experience to assess the quality of an opportunity without systematically evaluating it. In the second stage, entrepreneurs evaluate the opportunity in more detail, shifting it to a first-person opportunity by asking whether it could be an opportunity for them personally. Throughout this process, uncertainty becomes action

specific as entrepreneurs systematically assess an opportunity by taking action to study, research, and further understand it and decide whether to pursue the opportunity. Subsequently, using this first- and third-person opportunity framework, scholars have primarily studied the cognitions underlying how an opportunity is formed in one's mind and how a third-person opportunity is realized (Shepherd and McMullen, 2007; Wood et al., 2014). Once a third-person opportunity is formed, how an individual systematically evaluates this opportunity (Williams and Wood, 2015) with context-specific knowledge (Wood and Pearson, 2009; Gruber et al., 2015) prior to taking action and how each individual's decision for (not) taking entrepreneurial action is influenced by the way he or she perceives and deals with uncertainty (McKelvie, Haynie and Gustavsson, 2011; Autio et al., 2013; Cacciotti et al., 2016; Packard, Clark and Klein, 2017; Wood et al., 2017).

One of the key challenges in this stream of research is that there is no clear definition of entrepreneurial action such that entrepreneurial action can be forming an opportunity, evaluating an opportunity, or exploiting an opportunity. Dimov (2018) points out that the study of a process requires a defined starting point to a defined outcome within a certain period of time. With no clear definition for entrepreneurial action, the study of entrepreneurial action as a process has neither a defined starting point nor a defined outcome as the end of the process. Therefore, to move the study of entrepreneurial action as a process forward, a clear process view definition of entrepreneurial action is required.

The second category of articles views entrepreneurial action specifically as new venture creation. In general, this stream of research studies new venture creation as the

outcome of the entrepreneurial action process and seeks to understand the antecedents that trigger entrepreneurs to create new ventures as well as the underlying mechanisms of the new venture creation process. The theoretical origins of this research stream are primarily influenced by Penrose (2002) and Coase (1937) in seeking to explain why firms exist, what firms main functions are, and why entrepreneurs choose to establish new ventures (Kaul, 2012).

This stream of research primarily focuses on studying the phenomenon of new venture creation, which includes studying this phenomenon from a micro perspective to explore how individual entrepreneurs form new ventures in response to the environment and from a macro perspective to explore how the external environment influence individuals' decisions on new venture creation. Scholars have studied how an individual's upbringing influences new venture creation through variation in his or her social network (Habbershon, 2006; George et al., 2016); how an entrepreneur's perception of an opportunity can influence new venture creation (Dimov, 2010; Edelman and Yli-Renko, 2010; Mathia et al., 2015); how the amount of knowledge and resources an entrepreneur possesses influences new venture creation (Mathias et al, 2015; Garret et al., 2017; Mickiewics et al., 2017; Zapkau et al., 2017); and, finally, how the external environment, such as regulations or institutions, influence new venture creation (Kim and Li, 2014; Hunt and Kiefer, 2017). In sum, this stream of research focuses on explaining new venture creation as the central phenomenon and outcome of the entrepreneurial action process. New venture creation is the key milestone for an entrepreneur because establishing a new venture reflects the entrepreneur's commitment to his or her

opportunity (Davidsson, 2015). As such, new venture creation can be seen as a proxy for the action an entrepreneur takes to transform his or her idea into an actual business.

While studying new venture creation as the outcome of an entrepreneurial action fits into the idea of studying entrepreneurial action as a process with a finite end (i.e., a new venture has been established), the key issue here is that new venture creation is not the end of entrepreneurial action. To address the above issue, I add the conceptualization by Wood and McKinley (2017) that a venture is a mechanism by which new introduction of product/service are achieved, and the enterprising activities involved in creating venture may or may not lead to an entrepreneurial outcome (i.e. introducing and producing something new to the market). In other words, entrepreneurs do not start their entrepreneurial journey with the goal of establishing a venture; instead, entrepreneurs seek to introduce and deliver something new to the market in exchange for economic profit. Thus, while studying the new venture creation process is helpful to understand entrepreneurial action, this research stream does not explain entrepreneurs' behavior in the post-venture creation stage.

The third category of articles views entrepreneurial action specifically as the introduction of new products, services, or processes for market entry or even the creation of a new market. Here, firms are seen as a mechanism by which to introduce new offerings (Wood and McKinley, 2017) rather than the focus of action as in the second category. The original school of thought for this definition comes from Schumpeter (1927), who sought to understand the role of entrepreneurship in the revolutionary growth of the economy—one outcome of entrepreneurs taking action to innovate and create products, services, or processes for market entry.

This stream of research seeks to understand what leads to the new introduction of products/services as a function of entrepreneurial action. A distinctive research stream following this definition focuses on new market creation that sees business opportunity as it is created endogenously by actions (Baker and Nelson, 2005; Sarasvathy, 2001; Weick, 1993). Therefore, an opportunity exists dependently with an entrepreneur's perception of the external environment (Aldrich and Kenworthy, 1999; Berger and Luckmann, 1991). Whether entrepreneurs take action upon an opportunity consciously or unconsciously, it is unlikely for them to fully see “the end from the beginning” of how a business opportunity unfolds over time. The end emerges endogenously through a process of interactive human action (based on heterogeneous preferences and expectations) to imagine and create a better world (Buchanan and Vanberg, 1991). In this research stream, entrepreneurs are constantly engaging in an iterative and repetitive action process. That is, opportunities can only be understood until they exist, and they only exist after they are enacted in a repeated creation process of action and reaction (Berger and Luckmann, 1967; Weick, 1993). Thus, this stream of literature focuses on entrepreneurial action as a circular process whereby entrepreneurs seek to create and introduce those new products, services, or processes to the market as the outcome of the process. This definition of entrepreneurial action is by far the closest fit with studying entrepreneurial action as a process with a finite and appropriate outcome.

The last category of articles has miscellaneous definitions of entrepreneurial action, including viewing entrepreneurial action as exit (Shepherd et al., 2009; DeTienne, 2010; DeTienne and Cardon, 2012; Rouse, 2016), legitimacy building (Garud et al., 2014), and resource acquisition (Scarbrough et al., 2013; Zhang, Tan and Tan, 2016;

Baron et al., 2018). Particularly, two streams of research have emerged. The first stream focus on entrepreneurial action as the activities that the entrepreneurs engage in to acquire financially (Scarborough et al., 2013) and social resources (Garud et al., 2014) in achieving survivorship against environmental uncertainties (Zhang and Tan, 2016; Bylund and McCafferey, 2017; Baron et al., 2018). The second stream of research focuses on entrepreneurial exit as entrepreneurial action. Scholars have studied how prior experience (DeTienne and Cardon, 2012) and an entrepreneur's identity (Rouse, 2016) influence exit. Furthermore, scholars have found that exit timing matters (DeTiene, 2010) and an entrepreneur's decision in delaying a business exit may influence his/her further entrepreneurial action (Shepherd, Wiklund and Haynie, 2009).

In light of the various definitional foci of entrepreneurial action research, it is important to clarify the definition used in this dissertation. The research question under examination focuses on the action as a process, including the events that trigger venture founding and subsequent events that unfold in the early days of a venture after founding. Based on the review above, the definition that best aligns with this portion of the entrepreneurial process is work that falls into the second and third categories just discussed. Hence, this dissertation adopts a slightly modified version of Wood et al.'s (2012) definition and further emphasis on the importance of delivering new product/service to the market in exchange of economic profit. Thus, I conceptualize entrepreneurial action as *the outcome of the process in which individuals (whether alone, in groups, or as part of the organization) identify, develop, and/or pursue ideas to introduce and deliver new products, services, and/or business models in particular markets in exchange for economic profit*. An example of entrepreneurial action that fits

this definition would be the process of opening a restaurant. To prepare a restaurant from grand opening to successful operations, the entrepreneur has to establish the restaurant's entity, securing financial resources (i.e. obtain fundings,), securing knowledge (i.e. hire cooking and serving staff, design a menu) and commercializing (i.e. purchase raw materials from suppliers to make food, design promotions according to the seasons, monitor daily operations in the restaurants, etc). Thus, opening a restaurant cannot happen overnight but is rather an outcome of a series of cumulative activities in a certain sequence. Therefore, the individual endeavors that contribute to the outcome of this process are enterprising activities, defined as *the endeavor-based activities individuals take (whether alone, in groups, or as part of organizations) to transform ideas to create products, services, or business models to achieve market entry.*

The distinction between enterprising activities and entrepreneurial action is important because the former are the elements in the process that contribute to the latter as a measurable outcome of the process. This unique relationship between enterprising activities and entrepreneurial action indicates that different types of enterprising activities serve as elements in formulating entrepreneurial action. Thus, the key to understanding how entrepreneurial action forms over time lies in recognizing the types of elements and the patterns of elements underlying this action. In other words, the key to understanding entrepreneurial action as a process lies in recognizing the types of activities involved, understanding how the elements vary and understanding how and when the enterprising activities contribute to entrepreneurial action formation. In the next section, I systematically review research on the elements contributing to the formation of entrepreneurial action.

Contributing Elements to the Formation of Entrepreneurial Action

To identify the contributing elements in the entrepreneurial action process, I adopt a three-step iterative coding process that is similar to a qualitative study. First, I read the articles one by one and summarized them into short statements (i.e. two – five sentences) as initial codes to concepts (i.e., open coding) (Charmaz, 1983). Second, I further comparatively analyzed the short statements and further linked the concept to more abstract level constructs such as learning, fundings, explorative, and exploitative behavior (i.e., selective coding). Lastly, I identify links between these constructs in a process-view order (i.e., theoretical coding) (Urquhart, 2012). My systematic coding revealed that the key contributing elements in the entrepreneurial action literature fall into three distinctive areas: knowledge, resources, and commercialization. In this section, I outline how each of the elements influences the formation of entrepreneurial action.

Knowledge and Likelihood to Take Action

Knowledge is the extensive analytical and tacit information an entrepreneur has about a market, industry, or customer acquired through either formal education, past work experience, or entrepreneurial experience. In other words, an entrepreneur's prior knowledge and knowledge-acquisition strategies (i.e., when the entrepreneur needs to gain new knowledge) influence the likelihood of entrepreneurial action.

Prior Knowledge

Prior knowledge serves as an action guideline for entrepreneurs when they are exploring and exploiting an opportunity in a specific context and thus increases the likelihood that they will take the series of entrepreneurial actions needed to pursue that

opportunity. As Kirzner (2009) argued, an entrepreneur is able to exploit price discrepancies in a market only because of the expertise knowledge barrier. Thus, the heterogeneity of an individual's knowledge can help him or her form a unique opportunity belief when the individual is armed with a special combination of prior knowledge (Shane, 2000). Because some opportunities can only be recognized when entrepreneurs are equipped with the right combination of knowledge (Smith et al., 2009). In other words, prior knowledge is highly useful when it is context specific and allows entrepreneurs to successfully identify and exploit opportunities for profit (Ucbasaran, Westhead, and Wright 2009; Kim, Aldrich, and Keister 2006).

The research has identified two types of prior knowledge that help entrepreneurs in the entrepreneurial process: technical knowledge (i.e., education and technical work experience) and entrepreneurial knowledge (i.e., project management, marketing, financial forecasting, or previous founding experience). In terms of technical knowledge, studies have found that prior work experience plays a key role in founding startups (Monsen, Mahagaonkar, and Dienes 2012; Sørensen, 2007). Entrepreneurs who are heavily influenced by technical knowledge gained from their hobbies or user communities are more likely to take action and create ventures within their technical or hobby domain and continue to grow in the same domain over time (Mathias, et al., 2015; Garret et al., 2017; Autio et al., 2013). In terms of entrepreneurial knowledge, research has found that prior founding experience has a positive effect on an individual's likelihood to take further entrepreneurial action as long as the individual has not previously aborted a startup attempt (Rotefoss and Kolvered, 2005; Davidsson and Honig, 2003). Because prior knowledge helps individuals develop a better understanding

of existing markets, thus enabling them to recognize opportunities and understand what action to take to pursue those opportunities. For example, individuals with knowledge about a specific market can identify opportunities better than individuals without prior knowledge (Shane, 2000; Venekamaraman, 1997). Possessing specific knowledge does not necessarily lead to opportunity recognition; rather, entrepreneurs who make connections between specific types of knowledge will be better at opportunity recognition (Dimov, 2004; Corbett, 2007). In fact, entrepreneurs are able to identify new opportunities because of their ability to go beyond the superficial attributes of events to identify the higher-order attributes of and patterns among events (Grégoire, Barr, & Shepherd, 2010).

Knowledge also determines how an entrepreneur will take action to exploit an opportunity he or she identified. Shane's (2000) seminal work showed that market-specific knowledge facilitates opportunity exploitation because entrepreneurs with such knowledge know not only what the market needs but also how to take action to fulfill those market needs. Concretely, entrepreneurs are more likely to take action when they have superior knowledge about the potential customer of the new product/service because the entrepreneur will have knowledge on "more fully developed necessary technologies, greater managerial capability, and greater stakeholder support" (Choi and Shepherd, 2004). Tacit knowledge about starting a business is also positively associated with more action related to opportunity exploitation (Fuentes et al., 2010). Because the type of knowledge an entrepreneur possesses influences his or her perception of an opportunity's feasibility (Krueger, 1993), the more his or her knowledge relates to an opportunity, the more likely the entrepreneur is to see the opportunity as feasible and thus enact the

opportunity (Wood and Pearson, 2009). Prior knowledge in startups is also associated with higher success in opportunity exploitation (Davidsson and Honig, 2003). Similarly, entrepreneurs with prior knowledge in startups will also likely exploit more innovative opportunities than entrepreneurs who do not have prior knowledge in startups. Farmers et al. (2011) also found that entrepreneurs with prior knowledge will likely have higher involvement when exploiting an opportunity.

Absence of Knowledge (Ignorance)

When entrepreneurs lack knowledge but continue to make cognitive decisions, they are unlikely to act. If they take action in the absence of relevant knowledge, they often make poor judgments on how and when to act when facing market uncertainties. In other words, relevant knowledge of the market is essential for entrepreneurs to take action such that without sufficient relevant knowledge, entrepreneurs will either not take action or will be unable to determine the type of uncertainty and will thus make the wrong judgment and take the wrong action. In terms of inaction, because uncertainty takes the form of doubts and ignorance, which in turn prevent entrepreneurial action, the absence of knowledge prevents entrepreneurs from escaping the ignorance and paralysis produced by uncertainty (Shepherd et al., 2007). Thus, without knowledge, entrepreneurs may fall victim to doubt or may be blind to the need to form an entrepreneurial belief at all (McMullen and Shepherd, 2006). When entrepreneurs decide to take action when facing uncertainty, they need to understand the specific types of uncertainty they are facing.

There are typically three types of uncertainty involved in the entrepreneurial action process: state uncertainty, effect uncertainty, and response uncertainty (Milliken,

1987:136). However, the literature is clear that response uncertainty is often the key consideration in relation to action. Response uncertainty is “a lack of knowledge of response options and/or an inability to predict the likely consequences of a response” (Milliken, 1987: pg137 citing (Conrath,1967; Duncan, 1972; Taylor, 1984)).

Entrepreneurial action studies have generally agreed that response uncertainty influences entrepreneurial action, arguing that it nurtures entrepreneurs’ opportunity beliefs prior to taking action (McMullen and Shepherd, 2006; Shepherd et al., 2007; McKelvie, Haynie, & Gustavsson, 2011; Townsend, Hunt, McMullen, & Sarasvathy, 2018). Since overcoming response uncertainty requires specific knowledge, when relevant knowledge is absent, incomplete, or incorrect, entrepreneurs will likely hesitate to make business decisions or will seek alternative ways to acquire knowledge from experts. Possible alternatives to remedy the lack of knowledge includes relying on other industry experts or prior knowledge to understand what the present market looks like and what the future market will look like (Knight, 1972; Foss and Klein 2012, Mises, 1957).

Knowledge Acquisition

Entrepreneurs acquire knowledge, which in turn allows them to take action in the absence of knowledge. Thus, knowledge acquisition, or the process through which entrepreneurs acquire, assimilate, and organize newly formed knowledge with preexisting structures, plays an essential role in implementing and operationalizing entrepreneurial ideas. First, entrepreneurs’ past knowledge-acquisition style explains the asymmetry in their cumulative knowledge and the way they apply knowledge to the environment when identifying and evaluating an opportunity (Corbett, 2007). Holcomb (2012) proposed that knowledge acquired through self-experience (versus observations of others) increases

positive opportunity evaluation in similar situations. Additionally, entrepreneurs with extensive knowledge use less of their initial assessment to evaluate an opportunity and are more open to making adjustments in their evaluation criteria. Similarly, Autio et al. (2013) found that lead market end users with extensive knowledge about a specific service, product, or activity through user experience are more likely to realize an opportunity in that market and engage in opportunity evaluation than general users. Second, knowledge acquisition also influences entrepreneurs' evaluations of opportunities, particularly the feasibility (i.e., can this opportunity be delivered) and desirability (i.e., does the potential value of the opportunity exceed the potential cost) of opportunities from third-person to first-person opportunities. (McMullen and Shepherd, 2006). To assess the feasibility and desirability of an opportunity, entrepreneurs form a rule-based framework that includes environmental, opportunity and individual cues. For environmental cues (i.e., window of opportunity, number of opportunities, industry rates, technological change), entrepreneurs acquire knowledge to evaluate and compare the opportunity environment to the existing environment. For opportunity cues, entrepreneurs acquire knowledge to evaluate an opportunity using cues like the magnitude, novelty, reality, and risk of the opportunity in comparison to their own expectations. Most importantly, differences in entrepreneurs' evaluations of opportunities stemming from the knowledge they possess and the knowledge they acquire when formulating rules to understand what knowledge they have and what knowledge they need to exploit an opportunity.

Similarly, knowledge acquisition influences the outcomes of entrepreneurial action. Corbett (2007) found that four styles of learning—assimilator, converger,

diverger, and accommodator—influence the likelihood that an entrepreneur will engage in exploitative action. According to Corbett (2005),

The assimilator grasps experience by thinking and theorizing and transforms it by watching and reflecting. The converger grasps by thinking and theorizing and transforms via doing and applying. The diverger grasps by feeling and doing and transforms by watching and reflecting. The accommodator grasps experience by feeling and doing and then transforms via doing and applying.

More specifically, an entrepreneur who has an accommodative learning preference is more likely to successfully develop new product/services than entrepreneurs who prefer divergent, convergent, or assimilative learning.

How an entrepreneur acquires and uses new knowledge influence the likelihood of entrepreneurial action. The way the entrepreneurs make use of their existing and new knowledge is associated with their cognitive process of knowledge (i.e., how entrepreneurs make connections between their past knowledge and existing environment). The mainstream of cognitive process research originates from McMullen and Shepherd's (2006) seminal work on understanding entrepreneurial action through the framework of first- and third-person opportunities. Shepherd et al. (2007) further developed the first- and third-person opportunity model by conceptualizing a cognitive process model to explain how a third-person opportunity is realized. According to this model, entrepreneurs go through two types of cognitive processes—bottom-up and top-down processes—to evaluate whether they should take action. For the bottom-up process, an entrepreneur's mind first forms an information guidance of a gist, which is a reflex to environmental stimuli that does not require attention, that guides the entrepreneur's "attention to salient environmental stimuli to form the basis of a stabilized and simplified 'picture' of the environment that informs beliefs." (Oliva, 2005; Shepherd et al., 2007).

Subsequently, entrepreneurs use the information guidance to focus their attention on maintaining/holding new environmental stimuli while use prior knowledge in making sense of the environmental stimuli to fit the new information into their existing cognitive frame and beliefs (Read and Marcus-Newhall, 1993; Thagard, 1989). In the top-down process, “an entrepreneur engages the environment based on his or her deeper knowledge structure in establishing strong beliefs” (Shepherd et al., 2007 citing Thagard, 2004). As a result, “entrepreneurs selectively absorb the environmental stimuli to fit into their existing knowledge. In other words, entrepreneurs only focus their attention on aspects of the environment is congruent with their existing belief and give meaning to the new information which absorbed selectively.” (Shepherd et al., 2007)

The entrepreneurial action process is a complex and iterative process that involves both bottoms up and top down model. Wood et al. (2012) further developed the first- and third-person opportunity model, suggesting that entrepreneurial action is a multiphase process. Wood et al. (2012) formalized the process into four stages: entrepreneurial thinking, opportunity identification, opportunity evaluation, and entrepreneurial enactment. For entrepreneurial thinking, the primary cognitive mechanism lies in the attention process, which dedicates different levels of attention to the information signals entrepreneurs receive. Entrepreneurs can either receive signals from the environment as a bottom-up attention process or generate from the interaction between information they received, past knowledge, and goals from their long-term memories as a top-down process. For opportunity identification, entrepreneurs primarily use the association. More specifically, entrepreneurs use their existing knowledge to make associations with the information signals and thus form opportunity beliefs. This stage parallels third-person

opportunity beliefs. For opportunity evaluation, entrepreneurs either use their experience or learn from others' experiences to form rules and subsequently evaluate the identified opportunity using these rules. This stage parallels first-person opportunity beliefs. These three stages of processing lead to entrepreneurial action. Wood et al. (2012) then conceptualized the linkage between each stage and suggested that entrepreneurs are driven to bring an idea to action by attention and mindfulness, a precursor of entrepreneurial alertness.

Resources and Likelihood of Entrepreneurial Action

Resources have long been known to be beneficial for entrepreneurs to successfully pursue and enact ideas and opportunities (Stevenson and Gumpert, 1985; Gartner, 1989; Shane and Venekataraman, 2000). The resource is commonly defined as an observable asset that can be valued or traded, for example, cash, a brand, patent, parcel of land (Makadok and Barney, 2001). Entrepreneurs need to possess or have access to resources that allow them to transform an idea to a product/service for market entry. However, starting a new venture and taking a product or service to the market generally requires the accumulation of a variety of resources with very limited financial capabilities (Brush, Greene & Hart, 2001). When entrepreneurs do not have sufficient resources, they often have to acquire access to the resources required for their startups to survive (Zott and Huy, 2007). Financial and social resources are two of the most common resource types that influence entrepreneurial action. For example, entrepreneurs primarily bootstrap resources in the early stage of the entrepreneurial process. In later stages, they often seek equity finance from investors or industry experts for both financial and social

support (e.g., Ehrlich, De Noble, Moore, and Weaver, 1994; Freear, Sohl, and Wetzel, 2002; Paul, Whittam, and Johnston, 2003).

Financial Resources

In the early stage of the entrepreneurial process, financial capital primarily comes from self-funding (bootstrapping) (Freear, Sohl, and Wetzel 1995; Van Auken and Neeley 1996; Winborg and Landström 2001). Elston et al. (2016) reported that most startups utilize informal funding sources, such as personal savings or household income, as an important source of funds for pursuing their envisioned opportunity in an environment with high uncertainty. Entrepreneurs frequently bootstrap because of the challenges of associated with gaining access to external finance due to information asymmetries (i.e., banks or investors are unable to see same value in an opportunity as the entrepreneur) and high transaction costs issues (i.e., high interest rates from the bank) (Berger and Udell 1998; Cassar 2004; Cosh, Cumming, and Hughes 2009). Aside from the financial concerns, entrepreneurs prefer bootstrapping because it allows them to have a full control over their ventures (Sapienza, Korsgaard, and Forbes 2003; Vanacker, Manigart, Meuleman, and Sels, 2011). Bootstrapping motivates entrepreneurs to minimize the cost of starting a business and to seek personal sources of finance (Freear, Sohl, and Wetzel 1995; Auken and Neeley 1996; Winborg and Landström 2001; Harrison, Mason, and Girling 2004). Bootstrapped finance is often treated as an alternative source of finance when external finance is more difficult or simply impossible (Auken 2005; Ebben and Johnson 2006).

The new venture finance literature has shown mixed outcomes of bootstrapping. One group of scholars argues that bootstrapping hinders new venture growth and

decreases new ventures' survival. These scholars argue that these negative effects occur because not only does external equity financing provide new ventures with financial support but equity investors can also provide entrepreneurs with industry or general startup advice. Without external equity financing, bootstrapping constrains new ventures' ability to acquire knowledge and obtain financial resources for further venture development and entrepreneurial action (Cooper, Gimeno- Gascon, and Woo 1994; Holtz-Eakin, Joulfaian, and Rosen 1994; Kaplan and Zingales 1997; Carpenter and Petersen 2002; Cassar 2004). Entrepreneurs who depend on bootstrapping may spend more valuable time focusing on savings and efficiency while dedicating little time for critical tasks, such as identifying, reshaping, and exploiting new opportunities (Baker and Nelson, 2005).

On the other hand, resource slack theories (e.g., bricolage) suggest that resource constraints can motivate entrepreneurs to reconfigure their existing resources and create new products, services, or business models (Bradley, Wiklund and Shepherd, 2011). Some entrepreneurs prefer to “engage in a process of ‘making do by applying combinations of the resources at hand to new problems and opportunities’” (Baker and Nelson 2005: 333). That is, these entrepreneurs see resource constraints as a problem but also as an entrepreneurial opportunity. Instead of engaging in activities to obtain more resources, they prefer to use existing resources on hand and explore new ways to use these resources more efficiently (Baker, 2007). In addition, bootstrapping pushes ventures to have lean operations, solve problems, and be proactive in foreseeing issues that may cause catastrophic business failure (Bhide 1992; Weick, 1992). Entrepreneurs who succeed in raising external equity finance may have to adhere to short-term investor

criteria (Bhide 1992), while entrepreneurs who raise debt finance may be confronted with strict debt covenants (Berger and Udell 1998). Thus, it becomes more difficult to change ventures' strategic direction as outside investors need to be convinced that this shift is necessary (Bhide 1992). Regardless of whether bootstrapping is beneficial for new ventures, it is commonly considered an alternative to equity finance when entrepreneurs face difficulties in obtaining financial resources from venture capitalists or angel investors.

Social Resources

Social resources, such as family ties or professional networks, have been found to be a key contributor in enabling entrepreneurial action (Aldrich and Cliff, 2003). More specifically, on the one hand, with a more stable social structure, it is easier for the entrepreneurs to obtain financial resources (Evans and Jovanovic, 1989) or gain access to financial or additional social resources (Kotha and George, 2012). On the other hand, with the potential benefit that one's resources can bring (i.e., opportunities to meet more investors and industry experts), entrepreneurs will likely perceive their action to be more feasible and are more likely to take action to bring their idea to market. For example, Stuart et al. (1999) found that young firms with social ties to high-status strategic alliance partners perform better than other new firms because of their social ties signals of quality when their actual quality is uncertain. Weak ties are more valuable in contexts of discovery, whereas strong ties are more valuable in contexts of creation (Hmieleski, Carr, & Baron, 2015). In a more specific context, Shane and Cable (2002) found that investors are more likely to invest in a new venture when they have a previously established tie

with the entrepreneur of that venture than when they do not, especially when the entrepreneur lacks a reputation in establishing a successful business.

One of the key reasons that entrepreneurs are unable to obtain the funding they seek is because they lack social capital that grants more access to funds. This social resource issue manifests as a lack of new venture legitimacy or as the entrepreneur's inability to establish trust with his or her investors to raise funds (Aldrich and Fiol 1994, Lounsbury and Glynn 2001, Zimmerman and Zeitz 2002). In the early stage of fundraising, entrepreneurs struggle to build trust with investors due to limited information and weak ties with investors (Aldrich & Fiol, 1994; McKnight, Cummings, and Chervany, 1998; Zahra et al., 2006). While some research has suggested that building trust under time constraints is similar to the idea of "swift trust" (Harrison et al., 1997), others have proposed that trust is initially earned by expressing vulnerability—that is, when one party intentionally makes him- or herself seem vulnerable and the other party can thus engage in opportunistic behavior (Shepherd and Zacharakis 2001; Maxwell and Lévesque, 2011). Moreover, Scarbrough et al. (2013) found that in the early phase of deal making, institutional signals (i.e., legitimacy), such as the educational system, professional bodies, and regulation and legal institutions, enable trust to be built quickly in weak ties relative to others. In the later phase of deal making, reciprocal information sharing builds trust through strong dynamic ties, but information sharing has neutral or negative effect during earlier stages.

Since legitimacy signaling is an important factor in building trust among weak ties, research has found that storytelling plays an important role in addressing legitimacy issues for entrepreneurs and new startups. More specifically, entrepreneurs

can effectively gain resource support from their stakeholders by setting, sharing, and convincing their stakeholders about future expectations for their new product or service ideas (Lounsbury and Glynn 2001, Martens et al. 2007; Aldrich and Fiol 1994).

Storytelling about future expectations addresses information asymmetry issues in opportunity recognition. Stakeholders are often unable to comprehend an entrepreneur's vision of the future because it is "based on artifacts and evaluation routines that have yet to materialize" (Garud and Rappa 1994), "industry and product categories that depart from the old offerings" (Rosa et al. 1999), and "customer preferences that have yet to emerge" (Ansari and Garud 2009). The cognitive legitimacy of a new venture in stakeholders' minds is thus discounted because stakeholders cannot comprehend the future state of the entrepreneur's product or service idea (Aldrich and Fiol 1994).

Moreover, an entrepreneur interacts with stakeholders (i.e., investors, customers, and employees) to validate the entrepreneur's subjective perception of his or her business opportunity prior to objectifying the opportunity (Wood and McKinley, 2017). Once all stakeholders collectively agree on the quality of the opportunity, the opportunity transforms from being a subjective perception to objective reality. Thus, after intensive interaction between stakeholders and an entrepreneur, a shared mental mode of the opportunity is ready to be enacted together with the stakeholders' resource support. In sum, having sufficient financial resources increase the likelihood of entrepreneurial action; however, a lack of financial resource does not necessarily prevent entrepreneurs from taking action. When entrepreneurs face resource constraints, they often lean toward using social resources that provide access to additional resources or funding, which in turn allows entrepreneurs to take continuous action in pursuing their opportunities.

While social resources have been shown to enable entrepreneurial action in developed countries, studies have found that social resource constraints are a strong predictor of entrepreneurial action in developing countries. For instance, in the context of poverty, social integration can motivate households to take entrepreneurial action to gain higher economic incomes. Under extreme circumstances, inaction can result in starvation or potential death. Thus, individuals can be extremely motivated to search for new opportunities to increase their families' income. Thus, depending on the environmental context, social resources can have a strong influence on the likelihood of entrepreneurial action in stable, well-established economies, while social resource constraints can be a strong motivator for entrepreneurial action in unstable, poverty-stricken environments (George et al., 2016).

Market Entry as the Outcome of Taking Action

An additional theme that has emerged from the entrepreneurial action literature is the topic of market entry which also frequently referred to as opportunity exploration, delegation, enterprising activities, entrepreneurial activities or entrepreneurial behaviors (Wiklund et al, 2018; Cardon and Kirk, 2015; Autio et al., 2013 Plambeck., 2012; Desa, 2012; Brettel et al., 2012; Shepherd and Patzelt, 2011; Schindehutte et al., 2008). Particularly, market entry refers to the notion of an entrepreneur taking his or her product to the market. Generally, in the theme of entering the market, scholars have studied how entrepreneurs take action in interacting with the market. For example, scholars have found that market-based information (cultural information and customer information) helps entrepreneurs, particularly in the market entry stage, to reduce environmental uncertainty and navigate the venture in a hostile institutional environment (Ahistorm and

Bruton, 2002; Schindehutte et al., 2008). Entrepreneurs are more likely to take actions when they play a social role in the consumer committee and receive user-specific information about the potential customer (Autio et al., 2013).

Scholars have also addressed the temporal perspective of market entry. Chen et al (2018)'s study of new venture creation found that entrepreneur is more concerned about the desirability of the new venture (i.e. if the new venture has enough novelty for the market) and is more likely to take explorative action when the entrepreneur perceives the new venture creation to be in the more distant future (i.e. greater temporal distance). On the other hand, the entrepreneur focuses more on the feasibility of the new venture (if the new venture has enough resource, human and social capital to operate) and is more likely to enter commercialization phase when s/he perceives the new venture creation in the nearer future (i.e. smaller temporal distance). Furthermore, entrepreneurs determine their timing to introduce their product/service to market through the tradeoff between exploiting an opportunity faster to fulfill the need to increase feasibility (low level of novelty), and delay exploitation, thus maintain high novelty and increase durability (Choi et al., 2008). One stream of research particularly emphasizes on the logic of effectuation – that is, the argument that entrepreneurs should not overly focus in the exploration stage, but rather, they should experiment early with market entry(Welter et al., 2016; Sarasvathy, 2009;Sarasvathy et la., 2018). Additionally, scholars also have found that affect-based factors such as passion or impulsivity tend to influence the entrepreneur take action in entering the market more than the explorative stage (Cardon and Kirk, 2015; Wiklund et al., 2018).

Identified Research Gaps

Scholars have thoroughly studied how entrepreneurs use knowledge to identify opportunities, acquire knowledge to evaluate opportunities and acquire resources to create new product/service. 35 of the articles have studied how knowledge influence entrepreneurial action, and 31 articles have studied how resources influence entrepreneurial action. However, commercialization, the actual process of introducing new product and service to market, has been understudied. Most of the articles either view market entry as a distal goal that researchers assume will eventually occur in the wake of entrepreneurial action or discuss the topic of market entry at an abstract level. Out of all 84 articles, nearly half of the articles (40 out of 84) mentioned market entry as an outcome or as part of the entrepreneurial action process, but only nine articles studied the topic of market entry as main focus, particularly on how entrepreneurs interact with the market to introduce and deliver new product/service after developing the product/service prototype. While we know that market entry is important for the entrepreneurial action process, we still lack insight on what entrepreneurs do as they strive to deliver product/service to the market, and how does the variation in entrepreneurs activities influence the culmination toward market entry as an entrepreneurial action outcome.

In the next chapter, I theorize a process-based framework to explain the relationship between enterprising activities and entrepreneurial action (i.e. market entry).

CHAPTER THREE

Theory Development

Introduction

In this section, I develop a conceptual framework to further explain the relationship between enterprising activities and market entry. Because entrepreneurial action (i.e., market entry) unveils over time with the accumulation of different types of enterprising activities. I theorize how different types of activities, over time, lead to different entrepreneurial action outcomes. The first argument of this framework is that engaging in different types of enterprising activities at different stages of the entrepreneurial process will likely impact the final outcome of the process. The second argument of this framework is that undertaking various enterprising activities at different times alters the entrepreneurial action-outcome as well. More specifically, I argue that the different types of enterprising activities in two key stages—namely, securing financial resources, securing knowledge resources—have a direct effect on the outcome of the entrepreneurial action process (see Figure 3.1). I use market entry as a key proxy for this outcome based on the clarified definition of entrepreneurial action in Chapter Two. Additionally, using the gain and loss estimation logic from the opportunity evaluation literature, I argue that when entrepreneurs and their new ventures use a gain estimation strategy (i.e., equity financing to secure financial resources, in-house research and development [R&D] to secure knowledge resources), they are more likely to make

market entry than when they use a loss estimation strategy (i.e., debt financing to secure financial resources, R&D outsourcing to secure knowledge resources).

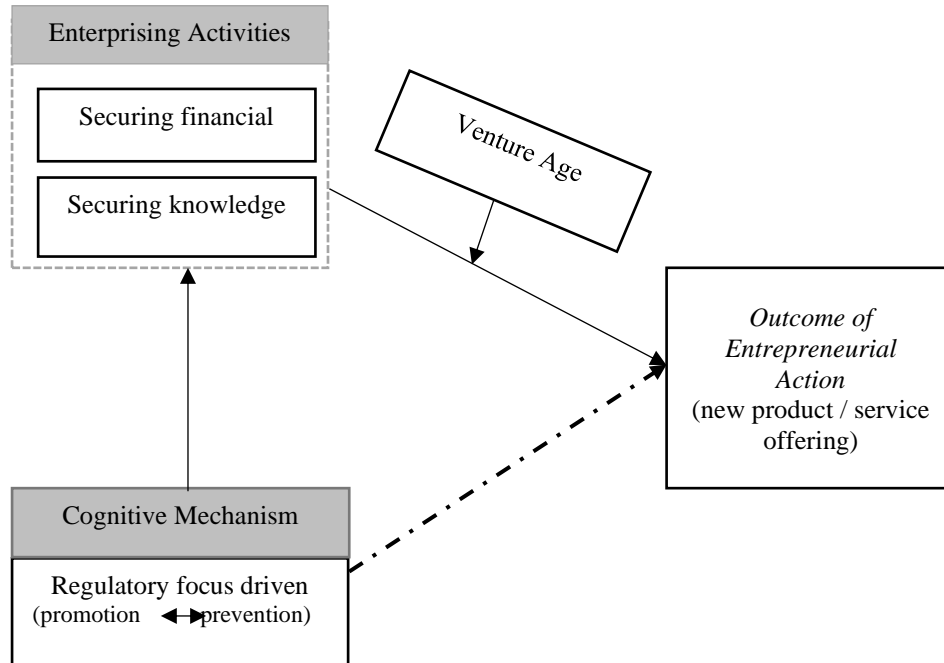


Figure 3.1 Conceptual Model of Entrepreneurial

To elaborate on the theoretical framework, I further developed the empirical strategy for hypothesis testing (see Figure 3.2) that includes two studies. In Study 1, I develop hypotheses for the direct effect of enterprising activities (i.e equity, debt financing and R&D in-house, R&D outsource) on market entry. Subsequently, I develop hypotheses for the direct effect of new venture age on market entry and for the moderation effect of enterprising activities on the relationship between new venture age and market entry. In Study 2, I develop another hypothesis using regulatory focus theory and argue that the underlying cognitive mechanism is a chronical and drives an entrepreneur's decision to engage in the type of enterprising activities.

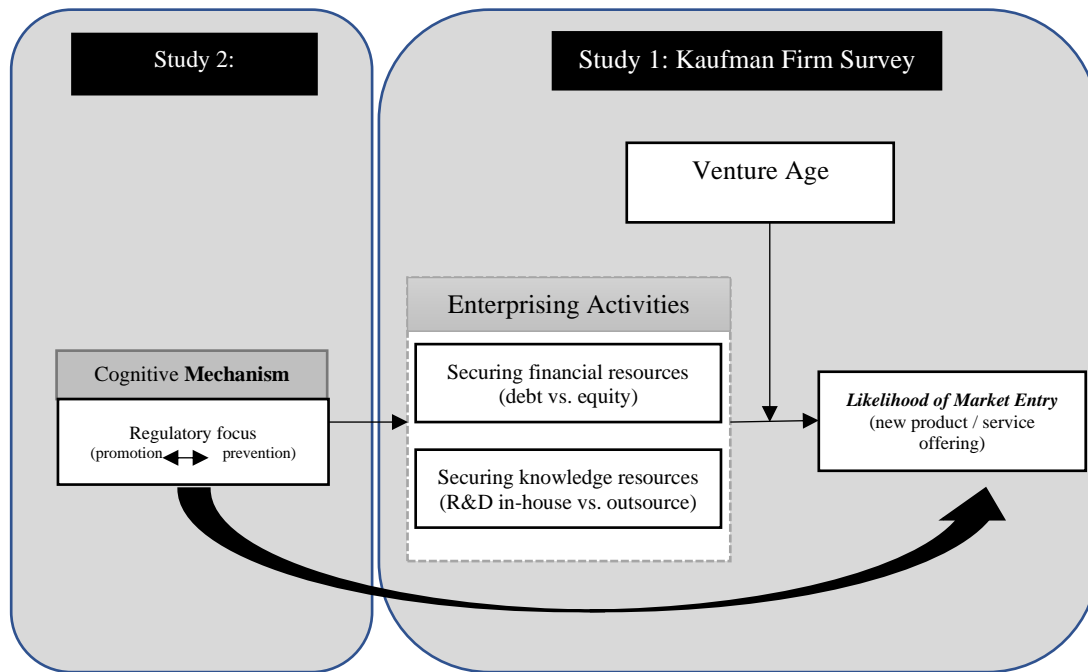


Figure 3.2 Research Design for Empirical Study of Entrepreneurial Action

Study 1: Enterprising activities and Entrepreneurial Action

The entrepreneurial process includes three main stages—opportunity recognition, opportunity evaluation, and action formation (McMullen and Shepherd, 2006; Shepherd, McMullen, and Jennings, 2007). In this process, opportunity evaluation plays an important role in determining whether an entrepreneurial action can be successfully formed (Wood, Williams and Gregoire, 2012; Autio et al., 2013; Wood and Williams, 2014). Opportunity evaluation refers to "the phase that culminates in a judgment about the personal attractiveness of taking action toward introducing something new to the market" (Williams and Wood, 2015). During the opportunity evaluation phase, entrepreneurs determine the types of action outcomes they hope to achieve in the entrepreneurial action formation process (Haynie, Shepherd and McMullen, 2009). Entrepreneurs' assessments of whether the outcome of an opportunity evaluation is

favorable depend on what strategy they use to estimate the future value of the opportunity and the way the estimated value influences the perceived feasibility of achieving the desired action-outcome (Scheaf et al., Forthcoming JBV). For example, entrepreneurs can either evaluate the opportunity based on the future gain or loss estimation strategy. The gain estimation is defined as "an individual's judgments of the potential for gain, whether monetary and non-monetary benefits, for themselves in pursuing the opportunity.". Loss estimation refers to "an individual's judgments of the potential for loss, related to monetary and non-monetary costs of venturing, for themselves in pursuing specific opportunities.". (Scheaf et al., 2019). The opportunity evaluation literature suggests that the formation of entrepreneurial action depends on entrepreneurs' assessments of how feasible it is to pursue a focal opportunity based on mental calculations of the potential gains and losses that could result (Autio, et al., 2013; Shepherd et al.; 2007; McMullen and Shepherd, 2006). This assessment of feasibility is also known as "perceived feasibility, which is defined as individuals' consideration of their ability and capacity to execute the tasks or activities associated with opportunity pursuit" (Scheaf et al.,2019). In sum, when entrepreneurs evaluate an opportunity, they first adopt either a gain or loss estimation strategy to evaluate the future value of the opportunity; different evaluation strategies may affect perceived feasibility in different ways and thus influence the likelihood of entrepreneurial action formation.

Adding to the existing understanding of action formation, in this dissertation, as entrepreneurs continuously evaluate, and re-evaluate their opportunities (Davidsson, 2006), the different types of enterprising activities influence the entrepreneur to adapt different estimation strategies (gain vs. loss), which in turn results in variation in the

likelihood of achieving the desired entrepreneurial action-outcome (e.g., market entry). In other words, entrepreneurs will likely adjust the type of estimation strategy, which is best fit in the context of the activity and the perceived business opportunity. Since entrepreneurial action is defined as the outcome of the process wherein individuals take actions (whether alone, in groups, or as part of organizations) to transform ideas toward the creation of products, services, or business models for market entry, in this dissertation, I use market entry as a proxy for entrepreneurial action. Further, as stated in Chapter Two, enterprising activities refer to the activities taken by individuals (whether alone, in groups, or as part of organizations) to transform ideas toward the creation of products, services, or business models for market entry. Because I observed resources and knowledge to be the most contributing elements to entrepreneurial action, I focus on enterprising activities that are relevant to resource acquisition and knowledge acquisition in this study.

Resource Acquisition and Market Entry

Entrepreneurs typically have two main funding options: equity or debt financing (Cassar, 2004; Robb and Robinson, 2012; Coleman et al., 2016; Cole and Sokolyk, 2018). Equity financing refers to when an entrepreneur receives money from a person or a corporation in exchange for part ownership of a new start-up. Typical sources of equity financing include friends, family, angel investors, venture capital groups, and corporations (Robb and Robinson, 2012). Debt financing refers to when an entrepreneur borrows money from a person or a financial institution. Such funding is received as a loan and needs to be paid back with interest. Typical sources of debt financing include friends, family, and banks or credit unions (Robb and Robinson, 2012).

A key difference between equity and debt financing is the judgment criteria investors or lenders use to determine whether an entrepreneur should receive funding (Hall, 2005). For equity financing, investors decide whether a new start-up is worth the investment based on the future estimated value of the start-up and whether the entrepreneur is capable of executing and delivering the future estimated value (Gompers and Lerner, 2001; Mollick, 2014). Thus, entrepreneurs who acquire resources through equity financing are more likely to comply with investors' judgment logic, emphasize developing plans to maximize the future estimated value of their businesses, and focus on gain estimations. On the other hand, for debt financing, entrepreneurs are judged based on their ability to repay the debt under the worst business scenario (i.e., business failure), or simply how much collateral they have (Stiglitz and Weiss 1981; Besanko and Thakor 1987a and 1987b). Thus, entrepreneurs who acquire resources through debt financing are more concerned about minimizing losses, so they are able to repay their debt under the worst-case business scenario and thus emphasize loss estimations. Concretely, equity financing is more likely to drive an entrepreneur to use the gain estimation strategy to achieve market entry, whereas debt financing is more likely to drive an entrepreneur to use a loss estimation strategy. In sum, an entrepreneur's choice of estimation strategy is highly dependent on the type of financing activities he or she engages in.

Entrepreneurs who use gain estimation through equity financing will likely have higher perceived feasibility than entrepreneurs who use loss estimation through debt financing. While perceived feasibility increases when an entrepreneur successfully acquires financial resources, regardless of whether it is from equity or debt, I argue that equity financing leads to higher perceived feasibility compared to debt financing for two

reasons. First, entrepreneurs receive more validation of their opportunities in the equity financing context than in the debt financing context. In the equity financing context, entrepreneurs are encouraged to focus on their gain estimates and maximize their likelihood of achieving goals, and entrepreneurs' need for achievement is reassured through their interactions with investors (Huang and Knight, 2017). More specifically, through the journey of raising funds, an entrepreneur engages in multiple social interactions with different investors. Through multiple acceptance and rejection rounds, the entrepreneur and his or her investors essentially form a shared and objectified cognitive evaluation of the existing business (Wood and McKinley, 2010). The objectified evaluation of the business provides validation for the entrepreneur and helps the entrepreneur eliminate doubts in his or her cognitive process and form stronger beliefs in his or her capabilities, which in turn increase the entrepreneur's self-efficacy in pursuing the opportunity and thus increases the likelihood of action formation (McMullen and Shepherd, 2006).

On the other hand, entrepreneurs who choose debt financing will likely be more focused on fulfilling payment obligations, such as focusing on sales to make monthly loan or interest payments and writing reports to justify their businesses' risk level and ability to pay back the loan (Hall, 2005; Blass and Yosha, 2001). While fulfilling financial obligation provides some validation for the entrepreneur, the fundamental difference between the equity and debt financing context is that entrepreneurs receive funds from equity financing because investors believe in them as entrepreneurs and their business ideas and share similar envisioned futures for those business ideas (Wood and McKinley, 2015; 2017). Bankers for debt financing, on the other hand, assume

entrepreneurs will struggle and consistently seek proof of their ability to repay the loan (Hall and Lerner, 2010; Hall, 2005; Brown, Fazzari, and Petersen, 2009). In other words, the validation an entrepreneur receives from the equity financing context is far superior to the validation an entrepreneur receives from debt financing.

The second reason equity financing leads to higher perceived feasibility stems from the fact that entrepreneurs can acquire more financial resources from equity financing than from debt financing (Robb, 2010; Robb and Robinson, 2014; Cole and Sokolyk, 2018). Because the amount entrepreneurs can acquire from debt financing depends on the value of their personal liquid assets (e.g., houses, cars, savings, etc.) and leverages (Hall, 2005; Hall and Lerner, 2010), the amount of funds entrepreneurs receive can be constrained and often may not be enough to cover the expenses associated with taking a business idea to market (e.g., R&D expenses, marketing, administration, legal fees, etc.). On the other hand, in the equity financing context, entrepreneurs determine how much money the business needs to raise and justifies why they need it. Thus, entrepreneurs can raise the amount of the funds required for their future plans and not be constrained by the value of their personal assets (Bettignies and Brander, 2007).

In sum, entrepreneurs who seek equity financing have higher perceived feasibility for their opportunities than entrepreneurs who seek debt financing because equity financing provides stronger validation of business ideas and a more appropriate amount of funding to pursue such business ideas. Because entrepreneurs with higher perceived feasibility are more likely to take entrepreneurial action than entrepreneurs with lower perceived feasibility (Autio, et al., 2013; Shepherd et al.; 2007; McMullen and Shepherd, 2006), I propose the following:

H1: Entrepreneurs who choose to acquire financial resources through equity financing are more likely to enter the market than entrepreneurs who choose to acquire financial resources through debt financing.

Knowledge Acquisition and Market Entry

Market entry can be influenced by how entrepreneurs secure their knowledge resources as well. Particularly, I argue that entrepreneurs who secure knowledge resources through engaging in research and development activities are more likely to make market entry than entrepreneurs who outsource research and development and purchase innovation outcomes externally. Securing knowledge resources through internal R&D triggers entrepreneurs to use a gain estimation strategy, and outsourcing R&D triggers entrepreneurs to use a loss estimation strategy. The primary reason start-ups conduct R&D is to create new products or services or to reconfigure ways of doing things (i.e., processes) so they can gain a strong competitive advantage and have the market power to exploit economic profit (Mazzucato, 2003; Scherer and Harhoff, 2000; Mata and Woerter, 2013). Entrepreneurs can acquire knowledge from different sources: they can either conduct R&D for new products or services in house (Stam and Wennberg, 2009), or they can outsource R&D, meaning they can purchase innovative product/service licenses from someone else (i.e., spinoffs) (Sapienzaa, Parhankangasb, and Autio, 2004).

These two knowledge acquisition activities essentially represent the two spectrums of uncertainty and returns. When entrepreneurs engage in in-house R&D, they can potentially receive larger economic returns from developing new products or services on their own. However, doing R&D in-house has high uncertainty as there may not be a

marketable product or service at the end of the development process. For example, Scherer and Harhoff (2000) empirically found that the top 10% of innovation takes most of the value from the market (nearly top 50%). While some new products/services receive tremendous economic returns, most new inventions have negative returns (Astebro, 2003). Therefore, doing in-house R&D requires entrepreneurs to primarily focus on the future returns of their research outcomes while embracing or partially ignoring the financial losses of not having a research outcome (Chung et al., 1998). In other words, when entrepreneurs develop products or services in house, they are more likely to activate the gain estimation strategy. On the other hand, entrepreneurs who purchase R&D outcomes from someone else have to ensure the new product or service has a potential market value (Luzzini et al., 2015). Therefore, compared to those who conduct in-house R&D, entrepreneurs who outsource these functions are more likely to be vigilant and more accurate and thorough in estimating whether a new product or service will be marketable. They are also more likely to consider the potential loss if the new product or service has a lower market value than the purchased price. As a result, securing knowledge through in-house R&D is more likely to trigger a gain estimation strategy to achieve market entry, whereas outsourcing R&D is more likely to activate a loss estimation strategy.

Entrepreneurs who use gain estimation to secure knowledge through internal R&D will likely have higher perceived feasibility than entrepreneurs who use loss estimation to secure knowledge through outsourcing R&D. This is because when entrepreneurs decide to do R&D in house, the nature of their inventions is likely to generate multiple new possibilities and alternatives (Wu et al., 2008), and thus the R&D

is more likely to achieve a higher likelihood of market entry. In other words, entrepreneurs who use gain estimation are more likely to be open to changes and more willing to try new possibilities than those who use loss estimation. According to Thaler and colleagues' (Thaler, 1985; Kahneman et al., 1991) "endowment effect," individuals prefer keeping their existing possessions over getting something new, and this effect was found to influence individuals who use loss estimation but not those who use gain estimation. This means that entrepreneurs who use a gain estimation strategy are more likely to abandon products and services that do not work and move on to other new products/services.

On the other hand, since acquiring knowledge through external R&D outsourcing triggers entrepreneurs to use a loss estimation strategy when pursuing their opportunities, entrepreneurs are likely to care more about their annual license fees than about the amount of future profit the R&D outcome may bring in. In other words, their primary goal is to generate immediate cashflow using a license, trademark, and/or patent so they can pay for their monthly or annual loyalty fees. A loss estimation strategy focuses on how to avoid losing money and how to break even quickly when the business has to pay a fee for the new product/service invention. A loss estimation strategy in this context requires juggling between (1) allocating resources to further understand the purchased R&D and thus making a proper plan for market entry and (2) devoting existing resources to bringing the purchased R&D outcome to market without iterative learning (Cantwell and Mudambi, 2005; Benner and Tushman, 2003). Such struggle decreases the perceived feasibility of action formation because of the high uncertainty stemming from the entrepreneur's lack of knowledge about the R&D outcome and about how the market will

respond to the outcome. Thus, entrepreneurs who secure knowledge through in-house R&D have higher perceived feasibility for their opportunities than entrepreneurs who outsource R&D. Because entrepreneurs with higher perceived feasibility are more likely to take entrepreneurial action than entrepreneurs with lower perceived feasibility (Autio, et al., 2013; Shepherd et al.; 2007; McMullen and Shepherd, 2006), I propose the following:

H2: Entrepreneurs who choose to acquire knowledge through in-house R&D are more likely to enter the market than entrepreneurs who choose to acquire knowledge by outsourcing R&D.

Venture Age and market entry

The relationship between new venture age and market entry has been extensively discussed, and the resulting studies can be separated into two dichotomous streams of literature. One stream of literature argues that new ventures are more likely to enter the market because they are motivated to establish a competitive advantage and thus that new ventures tend to be more active, flexible, and aggressive than older firms (Higon, 2012; Aziz and Samad, 2016). As new ventures age, their likelihood of market entry declines due to organizational inertia (Hannah and Freeman, 1984; Barnett and Freeman, 2001; Hannah, Polos and Carroll, 2003; Sorensen and Stuart, 2000), a byproduct of new ventures building an internal structure and developing routines to be more reliable and accountable for the market (Cyert and March, 1963; Nelson and Winter, 1982; March, 1991). Empirically, scholars have found that newer ventures are more likely to innovate and enter new markets, while older ventures have a lower probability of innovation and market entry (Huergo and Jaumandreu, 2004). New ventures are also more agile in

adapting to new technology and digitalization than older ventures (BarNir, Gallagher, and Auger, 2003). Additionally, new ventures are more sensitive to market direction and are more willing to pivot their business model to fulfill market needs (Garcia-Quevedo, Pellegrino, and Vivarelli, 2014).

Another stream of literature argues that mature ventures are more likely to enter the market as they have accumulated knowledge, experience, and capabilities (Miyazaki, 1994; Eisenhardt and Martin, 2000; Winter, 2003; Teece, 2009). More specifically, the tacit knowledge entrepreneurs accumulate after venture creation enables them to make more superior connections between knowledge (Gregoire and Shepherd, 2012), thus improving their ability to recognize and exploit new business opportunities (Cohen and Levinthal 1990; Zahra and George, 2002). Scholars have found that as ventures mature, they are more likely to have higher entrepreneurial action outcomes as compared to the new start-ups (Withers and Drnevich, 2011). In this dissertation, in support of the second stream of literature, I adopt the view that market entry is more likely for older ventures.

Venture Age as a Moderator

While the existing literature explains the reason why more mature ventures will be more likely to take entrepreneurial action, the literature assumes that resources, knowledge, and capabilities accumulate naturally as the venture ages. I argue that these resources, knowledge, and capabilities do not accumulate naturally as the venture ages. Instead, they are gained because entrepreneurs engage in enterprising activities to acquire resources and knowledge and nurture capabilities in the entrepreneurial action process. Thus, it is important to understand how venture age influences the impact of enterprising activities on the entrepreneurial action process. In the next section, because entrepreneurs

build their resources, knowledge, and commercialization capabilities throughout the entrepreneurial action process to eventually introduce and deliver new products/services to market, I further study how venture age moderates the relationship between enterprising activities and market entry.

In the resource acquisition activities, I argue that venture age likely positively moderates the relationship between equity financing and the likelihood of market entry such that venture age strengthens the positive relationship between equity financing and the likelihood of market entry. My argument is based on two reasons. First, older ventures are able to raise more funds than younger ventures to achieve market entry because of the variation in the investor profiles. Older ventures tend to attract equity capital providers who seek late-stage deals with a larger investment amount (Drover, 2017). On the other hand, younger ventures attract investors who seek to invest an early to mid-stage deal through various motivations such as investing to extend their corporations (corporate investors), offering mentorship in the area of expertise (angel investors), cultivating start-up environment in a region or an industry (accelerators or incubators), and in supporting of a start-up as a customer or user (crowdfunding). Investors who are interested in earlier stage deals are more likely to focus on offering entrepreneurs with knowledge and information coupled with a much smaller financial investment. For example, an individual angel typically invests \$10,000 to \$77,000 (Shane, 2008). Accelerator and incubator programs generally offer early-stage ventures equity financing from \$25,000 to \$150,000 for a period of 3-6 months to allow new ventures to have the resource to show proof of concept (Hathaway, 2016; Droveet al.al, 2017). For crowdfunding, because platforms generally have a contribution limit (i.e,

\$10,000 for Kickstarter) (Mollick, 2014), the majority of projects that are funded raised between \$1000 to \$9,999 (Kickstarter, 2019).

Second, older ventures tend to be more efficient in allocating resources in achieving market entry. An entrepreneur has a different focus when the venture is young versus when the venture is older. For example, for younger ventures, the enterprising activities mainly involve getting resources, acquiring knowledge to create something new, and seeking market validation on his/her new idea while developing or looking for a product/service to purchase (Autio et al., 2013; Fisher et al., 2016; Branscomb & Auerswald, 2002; Elston & Audretsch, 2011). Entrepreneurs face high uncertainties about the type of product/service the venture will offer and also the perceived value of the product/service from stakeholders (Kazanjian, 1988). What this means is that the entrepreneur may not exactly know where to allocate his or her resources the best and has to experiment with his or her choices in allocating resources. As the venture ages, entrepreneurs will likely have developed new product/service and focus on delivering the newly invented product or service to market to remedy the market uncertainties which is defined as "uncertainties attributable to competitors and consumer responses and by all the other factors that together determine venture outcomes" (Fisher, Kotha, and Lahiri, 2016). Thus, entrepreneurs primarily emphasize expanding customer base and revenue channels, while economizing production cost to exploit profit. With the defined product/service and targeted customers, entrepreneurs now have a more context-specific, and narrowed the focused problem to solve, and thus will be more efficient at allocating resources in introducing and delivering new product/service to the market in exchange of economic profit. Thus, I propose the following:

H3a: Venture age positively moderates the relationship between equity financing and the likelihood of market entry.

H3b: Venture age negatively moderates the relationship between debt financing and the likelihood of market entry

In the knowledge acquisition activities, I argue that venture age likely negatively moderates the relationship between R&D in-house and the likelihood of market entry such that venture age weakens the positive relationship between R&D in-house and the likelihood of market entry. A key explanation for why an increase in venture age acts as a restrain in the positive relationship between in-house R&D and the likelihood of market entry is that older ventures are less likely able to develop radical products/services to either create a new market or enter the market with high novelty (Abernathy and Clark, 1985; Tushman and Anderson, 1986). Part of the challenge for older ventures to depart from its own domain, and introduce radical product/service is that developing new product/service can be counterproductive when the older venture is also trying to further develop its existing product/service (Yayavaram and Ahuja, 2008; Kotha, Zheng, and George, 2011). Past research has found that intensive experimentation disrupts the operational routine, reduces the reliability of the production cycle, and thus hurt a venture's performance (March 1991; Winter and Nelson, 2002; Benner and Tushman, 2002). Prior research in venture innovation literature has shown that change of research and development routines hurts a venture's innovation performance because research and development in the early stage is a lot more costly than the research and development in later stage project (Clark and Fujimoto, 1991; Dyer, 1996; Harryson et al., 2008; Mudambi and Swift, 2014). DiMasi et al. (2003) found that early-stage cost to develop a

new product in the Pharmaceutical industry is significantly higher than the cost in the later stage of the research and development. Gagnon and Lexchin (2008) confirmed with a similar finding that developing new product/service increases a venture's R&D cost drastically as compared to a similar venture which continues developing on the existing product/service. Additionally, a venture can be stretched thin in their capability of absorbing new knowledge and generate R&D outcomes when they are trying to research and develop in multiple domains (Cohen and Levinthal, 1990; Zahra and George, 2003). Hence, acquiring knowledge can be both time and resource consuming and thus can hinder a venture's capability in developing the new product/service while seeking to take the existing updated product/service to market (Kotha, Zheng, and George, 2011).

At the same time, and echoing the literature that addresses organizational inertia, older ventures are bound to face resistance from creating or changing to something new (Hannan and Freeman, 1977; Hannan et al., 2003). Empirical studies have found that part of the reason for the older venture to further acquire knowledge is because of the fixed mental model from the senior management (Kaplan, Murray and Henderson, 2003). As ventures age, more knowledge accumulates and thus creates mental barriers for developing new products/services (Hannan, 1998; Barnett, 1990; West and Hannan, 1994; Hannan et al., 2003). For example, Barron, West, and Hannan (1994) suggest that venture becomes less efficient in innovating over time due to the often taken for granted understanding and political coalition. Cohen and Levinthal (1990) suggested that aged ventures tend to be overly reliant on the existing communication and knowledge distribution channel and thus increase the rigidity in innovating. On the other hand, new

ventures are more able to keep an open mind and be more flexible in response to the rapidly changing market. Thus, I propose the following:

H4a: Venture age negatively moderates the relationship between R&D in-house and the likelihood of market entry.

H4b: Venture age positively moderates the relationship between R&D outsource and the likelihood of market entry

Study 2: Cognitive Mechanism and Entrepreneurial action

In Study 1, I conceptualized the relationship between the types of enterprising activities, the timing of these activities, and market entry to answer *what* activities increase the likelihood of entrepreneurial action. However, I have yet to address the cognitive mechanism underpinning these relationships. In this section, I conceptualize a theoretical framework using regulatory focus theory to further explain *why* there is heterogeneity in an entrepreneur choosing the types of activities, which such difference in choices leads to different the outcome of entrepreneurial action.

Regulatory Focus as a Cognitive Mechanism

Regulatory focus theory explains how people use different regulatory approaches to guide their own behavior in the process of achieving their desired goals (Higgins, 1998), and the likelihood of achieving their goals is based on the nature of these goals. There are two types of approaches in regulatory focus theory: promotion focus and prevention focus. Individuals who take a promotion focus approach tend to cater to their need to achieve and thus aim to maximize the likelihood of achieving their goals in return for the pleasure of self-fulfillment. Individuals who take a prevention focus approach

tend to cater to their fear of failure and thus aim to minimize the likelihood of failure in return for avoiding the potential loss from a negative outcome. Three key factors can influence an individual's regulatory focus: (1) the individual's motivation (i.e., whether the individual is seeking security or growth), (2) the type of end goals (i.e., whether an individual is pursuing a realistic or an idealistic goal), (3) the individual's psychological context (i.e., whether the context is between loss or non-loss vs. gain or non-gain) (Brockner, 2004; Brockner and Higgins, 2001; Brockner, Paruchuri, Idson, and Higgins, 2002; Higgins, 1997, 1998).

In the entrepreneurship field, scholars have primarily studied how regulatory focus influences the early-stage entrepreneurial action process, particularly aspects like creativity, opportunity identification, and opportunity evaluation. For opportunity identification, Brockner (2004) argued that a promotion focus has an advantage over a prevention focus for exploring alternative market solutions, making superior connections, and identifying new opportunities. This argument was supported empirically by Tang (2012), who found that entrepreneurs with a higher need for achievement and a higher locus of control tend to have a higher level of entrepreneurial alertness and are thus better at recognizing market opportunities. Additionally, Wu et al. (2008) found that leaders with promotion focus behavior are more likely to increase their subordinates' creativity and ability to identify opportunities.

For opportunity evaluation, Brockner (2004) argued that a prevention focus approach is superior in the opportunity evaluation stage because in order to evaluate the feasibility of an opportunity, entrepreneurs are required to engage in systematic thinking, which requires the capability to be detailed oriented and the ability to envision venture

failure. This argument was supported by McMullen and Shepherd (2012), who found that entrepreneurs tend to evaluate opportunities more optimistically when they have prior involvement with the opportunities. However, entrepreneurs with a promotion focus tend to be significantly more optimistic about opportunities than entrepreneurs with a prevention focus. On the other hand, entrepreneurs with a prevention focus are more likely to perceive opportunities as less feasible and desirable than entrepreneurs with a promotion focus (Fitzsimmons and Douglas, 2010).

Aside from studying early-stage entrepreneurial action, very little research has explored the underlying mechanism between an entrepreneur's intention to start a business and the stage at which his or her start-up is a viable business. One exception is a study by Hmieleski and Baron (2008) that explored the relationship between regulatory focus and new venture performance under different external environmental conditions. In another study, Hmieleski and Baron (2011) found that a promotion focus has a positive influence on new venture performance when the industry environment is more dynamic. However, a promotion focus has no influence on new venture performance when the environment is stable. Similarly, a prevention focus has a negative influence on new venture performance when the industry environment is dynamic but has no influence on new venture performance when the environment is stable.

In the previous study, I explained how entrepreneurs use different types of estimation strategies based on the activity they are engaging in. However, I did not explain what factors drive an entrepreneur to engage in a specific activity knowing the general expectations of such activity. In this study, I theorize that entrepreneurs who have

promotion focus will choose differently from entrepreneurs who have a prevention focus, and these choices in activities will lead to a higher probability of market entry.

Specifically, I theorize that entrepreneurs with high promotion focus will likely choose equity financing, and entrepreneurs with high prevention focus are more likely to choose debt financing. For equity financing, funds are raised through social interactions online (e.g., crowdfunding), formal business meetings (e.g., venture capital, corporations, or government investments), or through informal exchanges within entrepreneurs' close networks (e.g., family, friends, or angels). This task requires entrepreneurs to propose and execute business ideas with inspiration. Because entrepreneurs with high promotion focus tend to prioritize advancing their future inspirations and prefer to envision the desired end state (Tumasjan and Braun, 2012), high promotion focus entrepreneurs have a more superior capability in conveying their future goals, inspirations to pursue the investors in funding the new venture (Brockner et al., 2004). Because people are inclined to choose the type of task that fits in their own chronic regulatory focus (Cesario and Higgins, 2001; Higgins, 2000; Van Dijk and Kluger, 2011), it is more likely for entrepreneurs with high promotion focus to choose equity financing as a resource acquisition choice.

On the other hand, for debt financing, funds are raised primarily through bank loans, credit cards, or formal financial institutions. The stakeholders behind this financing appreciate entrepreneurs' ability to be compliant, fulfill their obligations, and demonstrate strong organizing skills. Since entrepreneurs with high prevention focus prefer to minimizing errors or violations through fulfilling obligations and responsibilities, entrepreneurs with high prevention focus will be more likely to pay attention to details and be mindful of stakeholders' financial expectations to signal that "they have their act

together and can be trusted to do things competently and with good intentions" (Brokner et al., 2004). Thus, since debt financing has a better regulatory fit with entrepreneurs who have strong prevention focus (Cesario and Higgins, 2001; Higgins, 2000; Van Dijk and Kluger, 2011), debt financing will be a preferable choice of source acquisition for entrepreneurs with this focus. With the above argument, I propose the following:

H5a: Entrepreneurs who exhibit high promotion focus are more likely to choose equity financing than entrepreneurs who exhibit low promotion focus.

H5b: Entrepreneurs who exhibit high prevention focus are more likely to choose debt financing than entrepreneurs who exhibit low prevention focus.

In the knowledge acquisition activities, I theorize that entrepreneurs with high promotion focus are more likely to conduct R&D in-house, whereas entrepreneurs with high prevention focus are more likely to outsource R&D activities. This is because the primary task of R&D is to create a new product or service or to reconfigure a new process. Thus, the nature of R&D activities necessitates creativity. Creativity is concerned with generating novel and useful ideas (Amabile, 1988; Farmer et al., 2003; Mumford and Gustafson, 1988) and is enhanced by a flexible cognitive mechanism that encourages the risk-taking necessary for individuals to violate agreed-upon ways of doing things as they seek to develop novel solutions to problems (Kirton, 1992; Tierney et al., 1999; Baer et al., 2003). Prior research indicates that high promotion-focused individuals are more likely to be creative and flexible in exploring a new area of product/service development. Liberman et al. (1999), for example, found that promotion-primed participants showed an exploratory tendency and a willingness to try a different task after their original task was interrupted, whereas prevention-primed participants demonstrated

a more conservative tendency to return to the status quo and stick to the interrupted task. Similarly, in a series of studies, Friedman and Förster (2001) found that participants in the promotion-focused condition had more creative insights on a visual insight task and higher creative generation on an idea generation task compared to their prevention-focused counterparts. They concluded that promotion manipulations "may indeed facilitate creativity by virtue of the more 'adventurous' processing style they elicited" (Wu et al., 2008). Because the R&D process requires cognitive exploration and flexibility (Amabile, 1996), which is a regulatory fit with high promotion focus individuals, entrepreneurs with high promotion focus will be keen on choosing an activity that's more exploratory and offers the entrepreneur the flexibility in trial and error with new directions of the product/service.

On the other hand, entrepreneurs with prevention focus will be more willing to pursue R&D outsource activities because purchasing licenses from external R&D parties requires entrepreneurs to be vigilant and accurate in estimating the potential value of their new products or services. Because individuals with high prevention focus are more concerned with safety and security, rendering them less explorative and flexible, they delegate attention toward more predictable pathways (Higgins and Pinelli, 2020). Thus, high prevention-focused entrepreneurs will prefer R&D outsource activity due to the better regulatory fit.

With the above rationale, I propose the following:

H6a: Entrepreneurs who exhibit high promotion focus are more likely to choose to do research and development in-house than entrepreneurs who have low promotion focus.

H6b: Entrepreneurs who exhibit high prevention focus are more likely to choose to outsource research and development than entrepreneurs who have a low prevention focus.

Finally, I conceptualize that entrepreneurs who exhibit high levels of promotion focus are more likely to enter the market where entrepreneurs who have a high level of prevention focus are less likely to enter the market (abandon the project before delivering the product/service to customers). Specifically, the formation of entrepreneurial action is a complex process with the goal of introducing and delivering a new product or service to the market. Without a doubt, the enterprising activities in the entrepreneurial action process feature both characteristics of promotion and prevention focus. However, the overall entrepreneurial action process is primarily innovation-oriented. Thus, entrepreneurs who harness the creativity and eagerness inherent in a promotion focus are more likely to achieve the desired goal—in this case, market-entry—than entrepreneurs, who are prevention-focused since they tend to hone in on security and not losing resources on hand. Therefore, because of the "fit" between the nature of the entrepreneurial action process and the entrepreneur's chronic regulatory focus (i.e., the entrepreneurial process has an adventurous, and promotion focus in nature). I propose the following:

H7a: Entrepreneurs who exhibit high promotion focus are more likely to achieve market entry than entrepreneurs who exhibit low promotion focus.

H7a: Entrepreneurs who exhibit high prevention focus are more less likely to achieve market entry than entrepreneurs who exhibit low prevention focus.

CHAPTER FOUR

Research Design

Research Design and Rationale

Because the proposed theoretical framework consists of testing observable enterprising activities and the unobservable cognitive mechanism that contributes to these enterprising activities, I take a mixed-method approach combining panel data analysis and an experiment through two studies. Study 1 tests Hypotheses 1–4, which reflect the theoretical arguments underlying the relationship between enterprising activities and entrepreneurial action. To test these hypotheses, I use the Kauffman Firm Survey, a longitudinal dataset on nearly 5,000 entrepreneurs who created new ventures in 2004. The dataset records firm performance, founders, and firm-level characteristics annually over eight years. Using a large panel dataset captures the entrepreneurial action phenomenon in terms of both cross-sectional and time dimensions, which provides a more accurate inference parameter with a higher degree of freedom and sample variability (Hsiao et al., 1995). Additionally, the panel dataset enables me to test more complicated human decision processes like entrepreneurial action because it allows me to control omitted variables and to advance to a more dynamic relationship involving time (Hsiao, 2014). I fully illustrate my method for hypothesis testing in Chapter Five. While using panel data enables me to understand the complexity of the entrepreneurial action process by studying observable enterprising activities and their impact on entrepreneurial action, I recognize that there are two pitfalls in using panel data to understand the

entrepreneurial action process. The first limitation of using the panel dataset is that I do not have data on the cognitive mechanism. In other words, I know that entrepreneurs engage in enterprising activities with the intention of achieving entrepreneurial success, but I cannot explain the variation in entrepreneurs' choices to engage in different enterprising activities. For example, the data does not capture what cognitively drives an entrepreneur to acquire resources through equity financing over debt financing. The second limitation lies in validating causal inference using the panel dataset. While a panel dataset is better at causal inference than a cross-sectional dataset, the nature of using secondary data threatens the validity of inferring causal relationships (Williams, Wood, Mitchell and Urbig, 2019).

To address these limitations, I use an experiment to investigate the cognitive mechanism, which explains why entrepreneurs choose certain types of enterprising activities. The advantages of using the experiment method are twofold in the context of studying enterprising activities. First, I use regulatory focus as a theoretical foundation to explain why entrepreneurs make different choices when engaging in different enterprising activities, but I lack data on entrepreneurs' regulatory focus from the panel dataset to test my framework. By using the experimental method and actual entrepreneurs as subjects, I am able to capture entrepreneurs' regulatory focus with a consistent opportunity and observe their choices for resource- and knowledge-acquisition activities and, subsequently, their choice for market entry. Second, the experiment overcomes the causal ambiguity issue in Study I. Specifically, to understand the relationship between enterprising activities and entrepreneurial action (i.e., does equity financing lead to market entry or does market-entry lead to equity financing), we specifically manipulate

the single-direction relationship flowing from the cognitive mechanism, the choices for enterprising activities, and the choice for market entry. Using a free-choice experiment, I test Hypotheses 5–7, which reflect the cognitive perspective underpinning the antecedents of enterprising activities and their entrepreneurial action outcomes. I fully illustrate my hypothesis testing for Hypothesis 5–7 in Chapter Six.

CHAPTER FIVE

Enterprising Activities and Entrepreneurial Action

Overview

In seeking to understand how enterprising activities influence the likelihood of market entry, I use the Kauffman Firm Survey dataset. This dataset is a suitable secondary dataset for understanding the behavior perspective of enterprising activities for two reasons. First, one of the variables—new to the market—is an appropriate proxy for entrepreneurial action as commercialization (according to my definition of entrepreneurial action in Chapter Two) as a dependent variable. Second, the study design requires a longitudinal dataset to understand both the spatial (i.e., key activities including equity and debt financing, research and development [R&D] expenses, licensing expenses, types of hiring, etc.) and temporal dynamics of enterprising activities (e.g., how do activities influence entrepreneurial action over time).

Sample

The Kauffman Firm Survey collected data annually on 4,928 new ventures, all created in 2004, following the same new ventures over an eight-year period from 2004 to 2011. The sampling frame was originally drawn from the Dun and Bradstreet (D&B) database, and only businesses started in 2004 were surveyed. In particular, businesses were excluded if they had an employer ID number (EIN), schedule C income, or a legal

form or paid either state unemployment insurance or federal social security taxes prior to 2014 (Robb and Watson, 2012). The Kauffman Firm Survey data contains information on both new ventures and owners. Firm information includes the firm's ownership structure, legal form, number and types of employees, revenue, assets, and industry. Information on owners (i.e., entrepreneurs) includes gender, education, years of work experience, hours worked in a week, etc. (Robb and Watson, 2012). Furthermore, the Kauffman Firm Survey data also contain information about firms' products and services, such as the number of patents, financing sources, introduction to the market, development of new ventures' competitive advantage, and partnership alliances (Rob and Robinson, 2014). Because the dataset exhibits incidents of missing data and I removed these cases, the final sample that I am using in this study is 2,239 firms with 85,726 observations.

Variables

Dependent Variable

The dependent variable is the first market entry. This is a single binary variable that serves as a proxy outcome variable for the entrepreneurial action process. The measure was derived from the first year that the new venture receives revenue, which is an indicator of successful introduction, via production and delivery of the new product/service to a customer. Particularly, the dummy variable 1 indicates the year that the new venture starts to receive revenue, and therefore has made the first market entry; 0 indicates that there is no first market entry in the respective years.

Independent variables: There are two independent variables that reflect the key type of activities entrepreneurs do to acquire resources and knowledge. Additionally, venture age

is a variable that acts as a moderator. For resource acquisition activities, the measurement that reflects if an entrepreneur uses equity financing or/and debt financing is the total dollar amount a new venture received from equity or debt channel. Note that the unit of analysis in this study is activity-based (not firm based). Thus, I do not see equity and debt financing as a dichotomy. But rather, a venture can use both equity and debt financing, either debt or financing, or none of it. In the KFS dataset (refer to table 5.1), 18% of the venture used no equity and debt financing, 30% used both equity and debt, 10% used only equity, and 42% used only debt throughout the eight years of the survey. The analysis model includes both variables.

Table 5.1 Total Number of Firms with Equity and/or Debt

Type of Financing	2004	2005	2006	2007	2008	2009	2010	2011	Total	%
None	1303	2755	2826	2762	2423	2617	2565	2616	19867	18%
Equity and Debt	11473	6013	4451	3205	2666	1944	1647	1374	32773	30%
Equity Only	3580	6010	1315	1139	888	732	633	651	10948	10%
Debt Only	2484	6244	6732	6874	6575	6275	5805	5139	46128	42%
Total	18840	17022	15324	13980	12552	11568	10650	9780	109716	100%

To calculate the equity financing amount, I follow the taxonomy of financing decisions for start-ups (Farhat et al., 2018) and use the amount of equity funding from the following sources as proxies for equity financing: the amount of funding from the

founder's parents or spouse, angel financing, venture capital, and the government or other businesses (Cole and Sokolyk, 2018). To calculate the debt financing amount, Following Rob and Robinson (2014), I use the amount of debt financing from the following sources as proxies for debt financing: the amount of funding from credit debt, personal loan from the owner, personal family loan, personal employee loan, personal bank loan, business bank loan, business credit cards, and business lines of credit.

To measure if an entrepreneur primarily does R&D in-house or/and outsource (the second independent variable), I use the total number of patents, copyrights, and trademark that has a venture has earned from the previous year as a proxy for R&D in-house, and the total number of patents, copyrights, and trademark a venture has licensed in as a proxy for R&D outsourcing.

Innovation researchers have used the number of licenses a new venture earned or purchased from universities or research institutions as a proxy to understand how companies survive and perform (Powers and McDougalls, 2003; Chesbrough, Vanhaverbeke and West, 2006; Rothaermel and Thursby, 2005; 2007). In the previous studies using the Kauffman Firm Survey, the number of licenses a new venture purchased/licensed was used as a measure of the unique knowledge firms secured as a competitive advantage (Pergelova and Angulo-Ruiz, 2014). For moderation variable, I use New venture age, which was measured in years, with the founding year of 2004 being Year 1 and 2011 being Year 8.

Control Variables

I control for each entrepreneur's education because research has shown that more highly educated individuals who choose to start a business are more likely to have higher

perceived opportunity feasibility and thus a higher likelihood of entrepreneurial action (Arabsheibani et al., 2000; Forbes, 2005). Entrepreneurs' age is highly associated with how they assess a business opportunity and subsequently influence their likelihood of taking entrepreneurial action (Arabsheibani et al., 2000; Forbes, 2005). Entrepreneurs' past experience increases their forecasting performance and is thus correlated with their opportunity evaluations, which in turn influence their likelihood of entrepreneurial action (Cassar, 2014). Additionally, I control for the number of owners for the entrepreneur team effect (Ucbasaran et al., 2009; Vanaelst et al., 2006). Serial entrepreneurs undertake entrepreneurial action drastically differently than nascent entrepreneurs (Saravathy, 2009). Thus, I include a dummy variable controlling for whether the entrepreneur had started a business in the past and was successful in the prior business. Because males are more likely to use gain estimation than females when evaluating an opportunity (Puri and Robinson, 2007; Ucbasaran et al., 2009), I also control for gender. Furthermore, region (Vedula and Kim, 2017; Shu and Simmons, 2018) and industry are highly correlated with entrepreneurial activities, so I control for the metropolitan area and North American Industry Classification System (NAICS) code as well. Additionally, because the time period of the dataset captures the year of the recession (2008), I used a recession dummy variable in controlling the countrywide crisis effect. Lastly, because the sample consists about 13% high tech venture observations (14,304 observations out of 109,716 observations), I controlled for technology generators which are defined as "the industries that exceed the US average for both research and development expenditures for employee (\$11,972) and the proportion of full-time equivalent R&D scientist and engineers in the industry workforce (5.9%)" (Chapple et al., 2004; Farhat and Robb, 2014). Table 5.2

provides the descriptive statistics for all the variables in my analysis, and Table 6 provides the correlation matrix for all the variables.

Table 5.2 Study I Variable Descriptions & Summary Statistics

Variable	Description	Mean	SD	Min	Max
First Market Entry	Dummy variable=1 if the venture has sales for the first time, 0 = no sales	0.18	0.38	0	1.00
Equity Financing	The amount of dollars obtained through equity financing	3.44E+0 4	9.11E+0 5	0.0 0	1.01E+0 8
Debt Financing	The amount of dollars obtained through loans	1.26E+0 5	2.38E+0 6	0.0 0	2.00E+0 8
R&D in-house	The number of intellectual properties earned this year	1.25	10.75	0	356.00
R&D outsource	The number of licenses purchased this year	0.06	0.31	0	3.00
Firm Age	Age of the venture	4.07	2.25	0	8.00
Gender	Dummary variable = 1 if male, 0 = female	0.72	0.45	0	1.00
Entrepreneur's Age	Age of the founder	47.05	12.91	0	103.00
Education	The education level of the founder	6.37	2.26	0	10.00
Work Experience	The number of years the entrepreneur has worked previously	13.34	10.88	0	60.00
Number of owners	The number of owners in the venture	1.38	0.79	0	15.00
Serial Entrepreneur	The number of venture the entrepreneur has started	0.82	1.24	0	5.00
Revenue	Inflation adjusted sales in dollars by the venture	6.53E+0 5	9.56E+0 6	0.0 0	7.00E+0 8
Technology Center	Dummy variable = 1 if the venture is a research-based firm, 0 = non research - based	0.11	0.31	0	1.00

Table 5.3 Study I Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1 First Market Entry													
2 Equity	0.03												
3 Debt	0.01	0.02											
4 R&D in-house	0	0	0										
5 R&D outsource	0.06	0.01	0	0.06									
6 Firm Age	-0.52	-0.03	0	-0.01	-0.07								
7 Entrepreneur's Gender	0	0.01	0.01	0	0.05	-0.01							
8 Entrepreneur's Age	-0.02	0	0.01	-0.02	0	0	0.14						
9 Education	0	0.02	0	0.01	0.03	-0.02	0.11	0.33					
10 Work Experience	-0.01	0.02	0.02	0	-0.01	0.01	0.22	0.41	0.12				
11 Number of owners	-0.02	0.04	0.09	0.03	0.04	0	0.04	0.04	0.06	0.04			
12 Serial Entrepreneur	0.01	0.02	0.03	0	0.03	-0.01	0.14	0.19	0.1	0.11	0.11		
13 Revenue	-0.03	0.02	0.45	0	0	0.04	0.03	0.01	0.01	0.02	0.03	0.02	
14 Tech Center	-0.01	0.01	-0.01	0.02	0.04	0.01	0.13	-0.02	0.14	0.08	0.06	0.01	-0.01

Data Analysis

I estimate the direct effects of enterprising activities on the likelihood of market entry using Stata 16 longitudinal conditional fixed-effects logit model (xtlogit) while controlling for a large number of firm-level and founder-level characteristics. The rationale of using a longitudinal model (versus cross-sectional model) is that KFS is a panel data, with repeated observations over a period of 8 years. A longitudinal model is thus more appropriate because it allows us to take into account changes over time. Because this dissertation seeks to understand how the variability in the certain type of enterprising activities over time impacts entrepreneurial action outcome, and a fixed-effect model estimates such variability with the consideration of omitted variable bias. After performing the Hausman Test for fixed effect ($p = 0.0000$), I fail to reject the null hypothesis and decided a fixed-effects model is a more appropriate model than a random-effects model.

Similarly, in testing the moderation effects of venture age on the relationship between enterprising activities and the likelihood of market entry, I use a fixed-effects panel logistic regression model (Miranda and Rabe-Hesketh, 2006), and subsequently, add an interaction term between venture age (as a continuous variable) and the two types of enterprising activities. A limitation of using the Kauffman Firm Survey as a secondary dataset is the threat to validity due to the heterogeneous treatment effect, particularly because the secondary dataset comprises observational data (Cunningham, 2019). Therefore, to further enhance the validity of the framework between enterprising activities and entrepreneurial action, I further test the effect of the underlying cognitive

mechanism, and the enterprising activities on entrepreneurial action using primary data in an experimental setting in Chapter Six.

Results

Next, I conduct the data analysis using a logit panel regression fixed-effects model (command xtlogit in Stata) with control of one-year lag for first market entry and a recession dummy variable since my panel covered the recession period in 2008. The results are reported in Table 5.4. Model 1 is the base model with only control variables. Model 2 shows the direct effect model from equity, debt, R&D in-house, and R&D outsource. Model 3 shows the moderation effect of firm age on the relationship of direct effects.

Table 5.4 Study I Effect of Enterprising activities on Market Entry

<i>Conditional Fixed Effect Panel Logit Model</i>	Model 1			Model 2			Model 3		
	Coefficient	Error	P- value	Coefficient	Error	P- value	Coefficient	Error	P- value
<i>Control Effects</i>									
Market Entry Lag 1 year	-1.967	0.033	0.000	-2.529	0.039	0.000	-2.532	0.039	0.000
Owner Gender	15.940	0.694	0.000	1.185	0.319	0.000	1.139	0.321	0.000
Owner Age	-0.555	0.010	0.000	-0.058	0.007	0.000	-0.057	0.007	0.000
Owner Education	0.455	0.036	0.000	-0.067	0.041	0.100	-0.069	0.040	0.265
Owner Experience	1.252	0.044	0.000	0.123	0.019	0.000	0.121	0.019	0.000
Number of Owners	-0.112	0.037	0.003	0.005	0.048	0.913	0.047	0.052	0.370
Serial Entrepreneur	14.188	0.562	0.000	0.625	0.165	0.000	0.602	0.163	0.000
Geography	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industry	0.000	0.000	0.568	0.000	0.000	0.210	0.000	0.000	0.146
Revenue	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tech Center	0.179	0.116	0.122	-0.138	0.145	0.341	-0.118	0.146	0.443
Recession	0.122	0.034	0.762	0.481	0.036	0.000	0.483	0.036	0.000

Table 5.4 Study I Effect of Enterprising activities on Market Entry (Cont.)

<i>Conditional Fixed Effect Panel Logit Model</i>	Mode 1 1	Mode 1 2		Model 3		
R&D in-house		- 0.00 0.007 2	0	-0.011	0.00 3	0.00 1
R&D outsource		0.201	0.05 0	0.403	0.10 3	0
Firm Age		- 0.01 1.676 7	0	-1.594	0.01 8	0
Moderation Effects						
Equity*Firm Age				1.79E -07	0	0.00 1
Debt**Firm Age				- 1.58E -06	0	0
R&D inhouse* Firm Age				0.002	0.00 1	0.1
R&D outsource* Firm Age				-0.092	0.04 4	0.03 7
Marginal effects						
Equity				2.01E -07		
Debt				9.10E -07		
R&D in-house				-0.009		
R&D outsource				0.31		
Joint Test of Significance						
Equity and Debt		0				
R&D inhouse and R&D outsource		0				
Equity*Firm Age				0		
Debt**Firm Age				0		
R&D inhouse* Firm Age				0		
R&D outsource* Firm Age				0		
AIC	45351	27400		27128		
BIC	45463	27559		27325		
Psuedo R^2	0.330 5	0.595 8		0.599 9		
Observations	85726	85726		85726		
Number of Firms	2239	2239		2239		
Hausman Test						
Chi^2	2231. 1					
p-value	0					

In the base model (model 1) with control variables, I find that first market entry has a positive association with the owner's gender ($\beta = 15.940$, $p=0.000$), owner's education ($\beta = 0.599$, $p=0.000$), work experience ($\beta = 1.452$., $p = 0.000$) and prior entrepreneurial experience ($\beta = 10.939$, $p = 0.000$). The result from the base model is consistent with the existing entrepreneurial action literature (Cassar, 2014; Arabsheibani et al., 2000; Forbes, 2005). In model 2, I test the impact of equity financing and debt financing on the likelihood of first market entry and the impact of R&D in-house and R&D outsource on the likelihood of first market entry. I observed both equity and debt financing have positive and significant relationships with the likelihood of first entry, while debt financing is insignificant. Equity financing ($\beta = 5.75e-07$., $p =0.000$) contributes to a higher likelihood of market entry than debt financing ($\beta = 1.75e-08$., $p = 0.228$). Hence, Hypothesis 1 is supported. Additionally, I find that R&D in-house has a significant negative relationship ($\beta = -0.007$, $p =0.000$) with first market entry, and R&D outsourcing has a significant positive relationship ($\beta = 0.201$., $p =0.000$) with first market entry. This means that R&D outsourcing contributes to a higher likelihood of first market entry as compared to R&D in house. As a result, Hypothesis 2 is not supported.

In model 3, I test the moderation effect of firm age on the main effects. The joint tests of significance for all moderation effect indicates that the marginal effect of firm age is acceptable (see Table 5.4). More specifically, firm age has a positive significant moderating effect ($\beta = 1.79e-07$, $p =0.001$) on the relationship between equity financing and first market entry such that as the firm ages, equity financing increase the likelihood of first market entry more than when a firm is younger. As such, Hypothesis 3a is supported. On the other hand, firm age has a negative significant moderating effect ($\beta = -$

1.58e-06, $p = 0.000$) on the relationship between debt financing and first market entry.

Hence, I observe that Hypothesis 3b, which proposes debt financing, will increase the likelihood of first market entry less as the firm ages, to be supported.

Additionally, I find that firm age has a positive moderating effect ($\beta = 0.002$, $p = 0.100$) on the relationship between R&D inhouse and first market entry such that the older the firm is, the less negative influence R&D in-house will have on the likelihood of first market entry. This finding hence does not supports Hypothesis 4a. Firm age has a negative moderating effect ($\beta = -0.092$, $p = .037$) on R&D outsource and the likelihood of first market entry. This means that the older the firm is, the more positive relationship the R&D outsource and the likelihood of first market entry will have. As such, Hypothesis 4b is not supported.

In sum, the result supports the direct effect in Hypothesis 1, which proposes that entrepreneurs who choose equity financing are more likely to enter the market than entrepreneurs who choose debt financing. The result for the direct effect on Hypothesis 2 is significant, but supports the opposite proposition – entrepreneurs who choose to do in-house R&D are less likely to enter the market than entrepreneurs who choose to outsource R&D. For the moderation effect, the hypothesis I advanced as venture age positively moderates the positive effect between equity financing and the likelihood of market entry (Hypothesis 3a) is significant and therefore supported. Additionally, Hypothesis 3b, which proposed that venture age negatively moderates the relationship between debt financing and the likelihood of market entry, is also supported. Hypothesis 4a which argues that venture age negatively moderates the positive relationship between R&D in-house and the likelihood of market entry is not supported. Similarly, the

proposed venture age positively moderates the relationship between R&D outsource, and the likelihood of market entry is not supported as well.

CHAPTER SIX

Cognitive Mechanism and Entrepreneurial Action

Overview

In this study, I designed an experiment to test the underlying cognitive mechanism driving entrepreneurs' choice of enterprising activities and its impact on entrepreneurial action outcomes. In particular, I seek to test three relationships. First, I test the relationship between differences in entrepreneurs' chronic regulatory focus and their resource-acquisition choices (i.e., equity vs. debt). Second, I test the relationship between regulatory focus and entrepreneurs' knowledge-acquisition choices (i.e., in-house R&D vs. outsourcing R&D). Lastly, I test the relationship between regulatory focus and entrepreneurs' market-entry choices (i.e., to enter the market vs. to exit before entering the market). In this chapter, I outline the experiment design and procedure, describe the sample collection channel and background, explain the rationale for using the variables, reflect on the lessons I learned from conducting the pilot test, and report the findings from the experiment.

Instrument Design and Procedure

I seek to test how entrepreneurs' chronic regulatory focus influences their choices of engaging in the types of enterprising activities using a single-blind 2 x 2 free choice experiment design. The experiment started by measuring participants' chronic regulatory focus using Higgins et al.'s (2001) regulatory focus questionnaire (see Appendix B). This scale has been widely adopted in published research studies. (Hmielecki and Baron, 2009;

Kammerlander et al., 2015). Subsequently, participants were presented with an actual business opportunity from Startup Weekend, a competition in which entrepreneurs have to come up with an idea, recruit a team, and build a prototype within 54 hours over one weekend (thus, the name “Startup Weekend”) (see business opportunity sample in Appendix C). The participants were asked to make their funding and knowledge choices. To reduce the odds of capturing order effects, half of the participants entered their funding choices first, and the other half entered their knowledge choices first. After making their choices, participants were asked to indicate their likelihood of market entry. At the end of the experiment, basic demographic information was collected in an anonymous manner (i.e., without identifying the participants). The design flow of the experiment is illustrated in Figure 6.1.

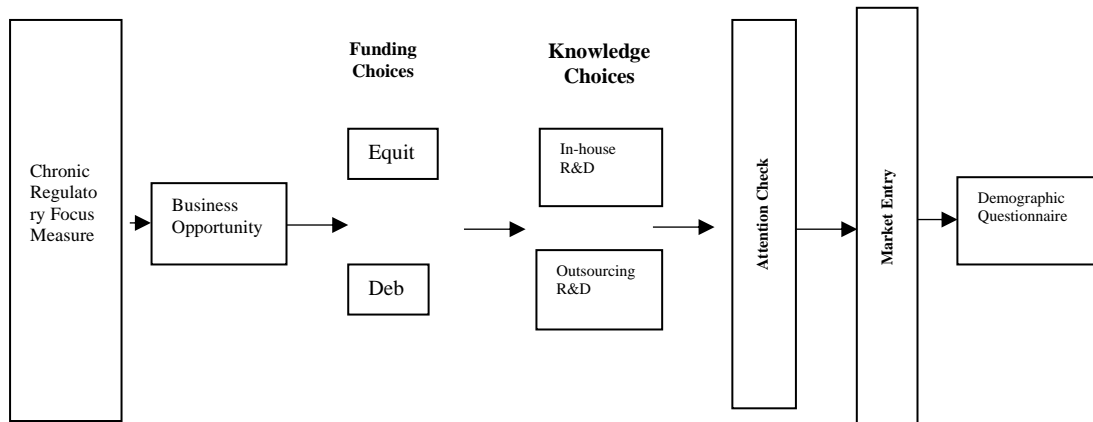


Figure 6.1: Experiment flow for Study II

The instrument was administrated online. At the start of the experiment, the entrepreneurs were told that based on the accuracy of their choices, they would receive an Amazon gift card worth between \$10 and \$20. However, all participants were awarded a \$20 gift card. After the business opportunity was presented, participants were presented with two channels from which they could acquire \$250,000 in funding. Each channel included the form of funding (equity versus debt), the type of payment (monthly payment or no payment), and the different activities associated with the respective funding source (see Appendix E). Then, the entrepreneurs were asked to rate their likelihood of pursuing equity funding and their likelihood of pursuing debt funding on seven-point Likert scales (1 = Extremely unlikely, 7 = Extremely likely). Subsequently, the entrepreneurs were asked to choose only one option based on the assumption that they only have the time and resources to pursue one channel.

In the next scenario, participants were presented with two channels from which they could acquire knowledge for product development (see Appendix C). Each channel included the form of development (in-house R&D vs. outsourcing R&D), the type of payment (hiring salary or development fees), and the different activities required to obtain the respective knowledge. The entrepreneurs were then asked to rate their likelihood of conducting product development in-house and their likelihood of outsourcing product development on seven-point Likert scales (1 = Extremely unlikely, 7 = Extremely likely). Subsequently, the entrepreneurs were asked to choose one channel based on the assumption that they only have the time and resources to pursue one option.

Finally, after an attention check (i.e., checking to see whether the entrepreneurs recall the choices they made for funding and knowledge acquisition), the entrepreneurs

were asked to imagine that six months have gone by, they have spent a significant portion of the \$250,000 and have developed 75% of the product, and it is uncertain whether they can develop 100% of the product before running out of capital. The entrepreneurs were asked to choose between finishing product development and delivering the product to market with their own capital or cutting their losses and returning the remaining funding to the investor or bank (see Appendix C). The entrepreneurs were asked to rate their likelihood of entering the market and their likelihood of cutting their losses.

Subsequently, the entrepreneurs were asked to fill out their demographic information, including their age, gender, and experience, and the degree to which they were seeking opportunities at the time of the experiment. To address the concern of sequential bias, I used two versions of the instrument. The first version asked the entrepreneurs to make their resource-acquisition choice first followed by their knowledge-acquisition choice, and the second version reversed the order of these choices. The online experiment platform (Qualtrics) that hosted the experiment evenly assigned participants to Versions 1 and 2.

Sample

To ensure this study has appropriate sampling representativeness and to eliminate threats to ecological validity, which refers to “the relation between real-world phenomena and the investigation of these phenomena in experimental contexts” (Williams et al., 2019 citing Schmuckler, 2001), we recruited full-time entrepreneurs who started a business in the United States and had at least one employee. Because the definition of entrepreneurs varies in the literature (Gartner, 1989), I define an entrepreneur as an individual who has established a new venture entity to pursue a business idea, has

transformed the business idea into a new product/service and has subsequently delivered this product/service to market in exchange for economic rent. Based on this definition, I recruited individuals who met the following criterion: (1) an individual who has started at least one business in the United States, and (2) has hired at least one fulltime employee in the venture that he or she has created. I recruited the entrepreneurs via my personal network (16 via email, 11 via the LinkedIn network, and 20 via Facebook friends) and through solicitation on Facebook USA small business owner groups (sent 141 Facebook messages based on responses from interested parties).¹ In total, I received responses (complete and incomplete) from 167 entrepreneurs (response rate of 80.29%). From this, 41 incomplete responses and eight suspicious cases were eliminated, bringing the sample to 126 entrepreneurs. I then eliminated 15 responses that did not meet the criterion of being a US-based full-time entrepreneur with at least one employee. In addition, because prior psychology studies have emphasized the importance of paying attention to data quality (Krosnick, 1999; Vannette and Krosnick 2014) and similar entrepreneurship studies have eliminated responses from individuals who failed the attention check (Wood et al., 2017), I further eliminated 16 responses from entrepreneurs who failed the attention check. Additionally, to further ensure reliable responses, I eliminated responses from the entrepreneurs who took the shortest time (18 seconds) and the longest time (35 hours) to complete the experiment under the premise that extraordinarily short or long responses were unlikely to be valid. The net effect of this process yielded a final sample of 85 responses ($n = 85$), which were used in the data analysis.

¹ I adapted this recruiting strategy to minimize the likelihood of survey botting – a computer program that completes surveys on its own without any user interaction.

The entrepreneurs in the sample had an average age of 37.7 years (s.d. = 8.86), and 64.7% of the sample was male. For education, 5.88% of the participants had an advanced degree (Ph.D., MD, or JD), 21.1% had a master's degree, 56.5% had a bachelor's degree, and 16.5% had an associate's degree or some college education. The average work experience for the participant pool was 13.5 years (s.d. = 8.83), and participants' opportunity-specific experience (application-development experience) was 4.07 years on average (s.d. = 2.15 years). Additionally, participants rated their likelihood of actively seeking an opportunity as 5.32 on average (on a seven-point Likert scale). Compared to prior studies (Wood et al., 2017; Hmieleski and Baron, 2008), the demographic characteristics of my sample mirror those in published research.

Variables

Dependent Variable

Because of the sequential nature of the research design (see Figure 6.1), the data required a stepwise approach with a total of five dependent variables. The first two dependent variables—the likelihood of pursuing equity financing and the likelihood of pursuing debt financing—measured the entrepreneurs' resource-acquisition choices. The next two dependent variables—the likelihood of conducting R&D in-house and the likelihood of outsourcing R&D—measured the entrepreneurs' knowledge-acquisition choices. Lastly, like in study 1, I used the likelihood of market entry as a proxy for the outcome of entrepreneurial action. All of these items were measured on seven-point Likert scales, with 1 representing “Not at all likely” and 7 representing “Very likely.”

Independent Variables The two independent variables are the entrepreneurs' promotion focus and the entrepreneurs' prevention focus. I measured the entrepreneurs' promotion focus and prevention focus using the Regulatory Focus Questionnaire (RFQ) developed by Higgins et al. (2001). The "RFQ yields independent scores for Promotion and Prevention ranging from 1–5," with 1 representing "Never or seldom" and 5 representing "Very often." I calculated the scores for promotion and prevention using the formula recommended by Higgins et al. (2001) (see the RFQ scoring key in Appendix D). As Higgins and colleagues (2004; 2020) indicated that regulatory focus could be further dissected into high and low conditions for both promotion focus and prevention focus, I subsequently mean-split promotion focus and prevention focus. I coded the average promotion (prevention) score below the mean score as low, and the average promotion (prevention) score above the mean score as high.

Control Variables

With a similar rationale to that used in Study I, I controlled for each entrepreneurs' education, age, past experience (work and opportunity experience), and gender. Additionally, I controlled for the degree to which each entrepreneur was seeking an opportunity (i.e., degree of opportunity seeking) because McMullen and Kier (2016) found that when entrepreneurs are actively seeking opportunities, their regulatory orientation can impact their evaluations of opportunities. To measure the entrepreneurs' degree of opportunity seeking, I asked, "To what degree are you currently searching for an opportunity to introduce a new product or service to the market via starting a new venture?" Participants responded on a seven-point Likert Scale (1 = "Not searching at

all” to 7 = “Extensively searching”). I present the variable description in Table 6.1 and the correlation matrix in Table 6.2.

Table 6.1. Study II Variable Descriptions & Summary Statistics

Variable	Description	Mean	SD	Min	Max
Market Entry	Dummy variable=1 if the venture has sales for the first time, 0 = no sales	5.706	1.632	1	7
Equity Financing	The amount of dollars obtained through equity financing	4.612	2.088	1	7
Debt Financing	The amount of dollars obtained through loans	4.341	1.842	1	7
R&D in-house	The number of intellectual properties earned this year	4.682	1.959	1	7
R&D outsource	The number of licenses purchased this year	4.365	2.029	1	7
Promotion Focus	Age of the venture	1.824	0.383	1	2
Prevention Focus	Age of the founder	1.541	0.501	1	2
App Development Experience	The education level of the founder	4.071	2.148	1	7
Gender	The number of years the entrepreneur has worked previously	1.353	0.481	1	2
Age	The number of owners in the venture	37.694	8.863	24	67
Education	The number of venture the entrepreneur has started	4.082	0.929	2	6
Opportunity Seeking	Inflation adjusted sales in dollars by the venture	5.318	1.713	1	7

Table 6.2. Study II Correlation Matrix

Variable Name	1	2	3	4	5	6	7	8	9	10	11
1 Market Entry											
2 Equity Financing	0.2										
3 Debt Financing	-0.02	-0.75									
4 R&D in-house	0.19	-0.03	0.24								
5 R&D outsource	-0.1	0.27	-0.14	-0.8							
6 Promotion Focus	0.11	0.13	-0.14	-0.15	0.2						
7 Prevention Focus	-0.03	0.17	-0.32	-0.15	0.01	0.13					
8 App Development Experience	-0.05	-0.01	0.26	0.37	-0.13	0.09	-0.17				
9 Gender	0.04	-0.19	0.12	0.21	-0.26	0.19	-0.05	-0.16			
10 Age	0.09	-0.12	0	-0.04	-0.08	0.19	-0.13	0.04	-0.02		
11 Education	-0.09	-0.11	0.17	0.11	-0.06	0.01	-0.29	0.4	-0.15	0.09	
12 Opportunity Seeking	0.12	0.13	0.14	0.04	0.06	0.16	0	0.44	-0.3	0.01	0.14

Pretest of Research Materials

I conducted a pre-test to validate the experiment instrument by administrating a pilot test in a minor entrepreneurship class (ENT 3315) to 100 students from Baylor's Entrepreneurship Department. The results of the pilot test confirmed the efficacy of the instrument but revealed areas of concern. First, because the experiment was designed as a free choice 2 x 2 experiment, both decisions for resource acquisition (equity or debt financing) and knowledge acquisition (R&D in-house or R&D outsource) collected only binary outcomes, which created a strong obstacle in analyzing the data since both the independent and dependent variables are binary. Thus, I added scales to measure entrepreneurs' likelihood of choosing the activities (see Appendix C for example). The second issue from the pilot test was that only three participants out of 100 chose not to go to market, while 97 participants chose market entry as the outcome. These results suggest that the dependent variable was strongly skewed to the right, which was likely caused by the fact that participants chose market entry because there were no perceived consequences from choosing the wrong path (Wood et al. [2017] find the same in their pilot study on action decisions). Thus, I modified the design of the experiment and added language to indicate the consequences. Below is the language added:

You will be asked to choose whether you will enter the market or not based on the choice that you made regarding acquiring funding and producing development. You have the opportunity to earn between \$5 and \$20 based on the accuracy of your decisions. You will begin with a base of \$10. You will later learn the outcome of your choice. The match between your decision and the outcome will determine if you lose or gain money (e.g., if you decide not to act, and the venture is unsuccessful, you will gain money).

The third issue I observed from the pilot test was over whether students have a general understanding of entrepreneurial activities since they lack real entrepreneurship

experience. In a recent special issue of the *Journal of Business Venturing* on experiments, Williams, Wood, Mitchell, and Urbig (2019) raised this concern regarding sampling and ecological validity when it comes to student samples. Thus, as outlined in the sample section above, I decided to use actual entrepreneurs as participants in the experiment.

Data Analysis

Because the experiment involved repeated measures of entrepreneurs' activity choices in activities, I used multilevel modeling (MLM) (Raudenbush and Bryk, 2002; Buxton, 2008) to account for violation of the independence assumption in regression and the nested nature of the data. I ran a total of 10 models to reflect the three key aspects: the impact of regulatory focus on entrepreneurs' resource-acquisition choices (i.e., equity and debt), the influence of regulatory focus on entrepreneurs' knowledge-acquisition choices (R&D in-house and R&D outsource), and the influence of regulatory focus on entrepreneurs' likelihood of market entry". In particular, Models 1 and 2 examine how the two conditions (high and low) of the two modes of regulatory focus (promotion and prevention) influence entrepreneurs' likelihood of pursuing equity financing. Models 3 and 4 examine the influence of high and low conditions of regulatory focus (both promotion and prevention) on entrepreneurs' likelihood of pursuing debt financing. Similarly, Models 5 and 6 seek to understand the influence of the two conditions of regulatory focus on entrepreneurs' likelihood of conducting R&D in-house, whereas Models 7 and 8 explore the influence of the two conditions of regulatory focus on entrepreneurs' likelihood of outsourcing R&D. Finally, Models 9 and 10 examine the impact of high and low conditions of both modes of regulatory focus on entrepreneurs' likelihood of market entry. The results for each model are presented in Table 6.3.

Additionally, I report the marginal means of the high and low conditions to facilitate interpretation of the results (see Table 6.3).

Table 6.3. Study II Hierarchical Linear Modeling Results

	Model 1		Model 2		Model 3		Model 4			
Dependent Variable	Likelihood to choose Equity		Likelihood to choose Equity		Likelihood to choose Debt		Likelihood to choose Debt			
<i>Model Estimation of Fixed Effects (robust standard errors)</i>	Coefficient	Error	Coefficient	Error	Coefficient	Error	Coefficient	Error		
<i>Control Effects</i>										
App Development Experience	0.036513	0.13405	0.017916	0.132603	0.152912	0.113366	0.17946	0.114848		
Work Experience	0.060331	0.051205	0.055783	0.050559	-0.006418	0.043304	-0.008948	0.043789		
Gender	-0.754588	0.495907	-1.00144	**	0.505496	0.652448	0.419387	0.969468	**	0.437811
Age	-0.072643	0.049686	-0.079669	*	0.048411	-0.004022	0.042019	0.01321	0.041929	
Education	-0.125787	0.287292	-0.184658		0.278153	0.049357	0.242962	0.180611	0.240908	
Opportunity Seeking	0.115682	0.151743	0.071906		0.15283	0.116197	0.128329	0.156083	0.132367	
<i>Main Effects</i>										
Promotion Focus	0.53082	0.628356			-1.312306	**	0.531399			
Prevention Focus			0.7741	*	0.477049			-0.845368	**	0.413173
Intercept	7.402294	***	1.850642	8.872653	***	1.921722	2.023039	1.565083	-0.033657	1.664406

*p < .05 ** p < .01 ***p < .001

Individual level N=85.
Coefficients are unstandardized

(Continued)

Table 6.3. Study II Hierarchical Linear Modeling Results (Cont.)

Dependent Variable <i>Model Estimation of Fixed Effects (robust standard errors)</i>	Model 5			Model 6			Model 7			Model 8		
	Likelihood for in-house			Likelihood for in-house			Likelihood for outsource			Likelihood for outsource		
	Coefficient		Error	Coefficient		Error	Coefficient		Error	Coefficient		Error
<i>Control Effects</i>												
App Development Experience	0.461649	***	0.115417	0.485066	***	0.111587	0.222653	**	0.129121	0.244702	**	0.122347
Work Experience	0.062593		0.044087	0.070446	*	0.042546	0.044641		0.049322	0.064541		0.046649
Gender	1.034246		0.426976	1.353409	**	0.425379	1.191997	**	0.477671	1.541523	**	0.466399
Age	-0.065252		0.04278	0.058101		0.040738	0.017536		0.047859	0.020787		0.044667
Education	0.011084		0.247359	0.074085		0.234068	0.162059		0.276728	0.155929		0.256639
Opportunity Seeking	-0.08845		0.130651	0.028001		0.128608	0.078888		0.146163	0.009359		0.14101
<i>Main Effects</i>												
Promotion Focus	-0.537696		0.541014				0.262431		0.60525			
Prevention Focus				1.035917	**	0.40144				1.335299	**	0.440152
Intercept	3.351265	**	1.593401	1.48988		1.617143	7.019298	**	1.782589	8.830448	***	1.773087

*p < .05 ** p < .01 ***p < .001

Individual level N = 85.

Coefficients are unstandardized

(Continued)

Table 6.3. Study II Hierarchical Linear Modeling Results (Cont.)

Dependent Variable <i>Model Estimation of Fixed Effects</i> <i>(robust standard errors)</i>	Model 9		Model 10	
	Likelihood for Market Entry		Likelihood for Market Entry	
	Coefficient	Error	Coefficient	Error
<i>Control Effects</i>				
App Development Experience	-0.046749	0.107162	-0.047202	0.107424
Work Experience	0.037771	0.040934	0.032614	0.040959
Gender	0.254588	0.396437	0.228793	0.409512
Age	-0.014357	0.03972	-0.010499	0.039219
Education	-0.107042	0.229666	-0.082065	0.225337
Opportunity Seeking	0.190329	0.121306	0.176619	0.123811
<i>Main Effects</i>				
Promotion Focus	-0.297269	0.502319		
Prevention Focus			0.164106	0.386467
Intercept	4.956958 **	1.479434	5.016412 **	1.556824

Individual level N = 85.

Coefficients are unstandardized

Results

For preliminary analysis, I examined the correlation table (see Table 6.4) and checked to see whether there is a multicollinearity issue between the dependent and independent variables. From the correlation table, I observed a relatively normal correlation ($r = 0.13$) between the promotion focus and prevention focus scores, as

Table 6.4: Study II Estimated Marginal Means (full model estimates)

DV Likelihood to Equity			DV Market Entry		
Variable(s)	Level	Mean	Variable(s)	Level	Mean
Promotion	Low	4.175	Promotion	Low	5.951
	High	4.705		High	5.653
Prevention	Low	4.193	Prevention	Low	5.617
	High	4.967		High	5.781
DV Likelihood to Debt					
Promotion	Low	5.422			
	High	4.11			
Prevention	Low	4.799			
	High	3.953			
DV Likelihood to in-house					
Promotion	Low	5.125			
	High	4.587			
Prevention	Low	5.243			
	High	4.207			
DV Likelihood to outsource					
Promotion	Low	4.581			
	High	4.318			
Prevention	Low	3.642			
	High	4.977			

Higgins et al. (2004) recommended a correlation of 0.11 ($r = 0.11$) as the benchmark for a large sample size. There is no evidence of a multicollinearity issue as the variance inflation factor between the dependent, and independent variables is 1.018.

Models 1 and 2 test the effect of variation in prevention and promotion regulatory focus on entrepreneurs' likelihood of pursuing equity financing. For promotion regulatory focus, Model 1 indicates that moving from low to high promotion focus has a positive but non-significant effect on entrepreneurs' choice to pursue equity financing ($\beta = -0.531$, $p > .05$). The estimated marginal means for likelihood of pursuing equity financing (seven-point Likert scale: 1 = "Not at all likely" to 7 = "Very likely") are 4.705 for entrepreneurs with high promotion focus and 4.175 for entrepreneurs with low promotion focus. Hence, Hypothesis 5a is not supported. For prevention focus, Model 2 indicates that moving from low to high prevention focus has a positive and significant effect on entrepreneurs' likelihood of choosing equity financing ($\beta = -0.774$, $p < .05$). The estimated marginal means for likelihood of pursuing equity financing (seven-point Likert scale: 1 = "Not at all likely" to 7 = "Very likely") are 4.967 for entrepreneurs with high prevention focus and 4.193 for entrepreneurs with low prevention focus. These results indicate that entrepreneurs with high prevention focus are significantly more likely to choose equity financing than those with low prevention focus, which is in the opposite direction of the hypothesized relationship. Hence not Hypothesis 5b is not supported.

Models 3 and 4 test the effect of variation in prevention and promotion regulatory focus on entrepreneurs' likelihood of pursuing debt financing. For promotion focus, Model 3 reveals that promotion focus has a negative and significant effect on

entrepreneurs' choice to obtain debt financing ($\beta = -1.31, p < .05$). The estimated marginal means for likelihood of pursuing debt financing (seven-point Likert scale: 1 = "Not at all likely" to 7 = "Very likely") are 4.11 for entrepreneurs with high promotion focus and 5.42 for entrepreneurs with low promotion focus. These results support Hypothesis 6a. Moving to Model 4, we observe that moving from low to high prevention focus has a negative and significant effect on entrepreneurs' choice of debt financing ($\beta = -0.54, p < .05$). The estimated marginal means for likelihood of pursuing debt financing (on a seven-point Likert scale) are 3.95 for entrepreneurs with high prevention focus and 4.80 for entrepreneurs with low prevention focus. These results indicate that entrepreneurs with high prevention focus are significantly less likely to choose debt financing than those with low prevention focus. These results are inconsistent with Hypothesis 6b.

Models 5 and 6 test the effect of variation in prevention and promotion regulatory focus on entrepreneurs' likelihood of conducting R&D in-house. For promotion focus, Model 5 reveals that promotion focus has a negative but non-significant effect on entrepreneurs' choice to conduct R&D in-house ($\beta = -0.54, p > .05$). The estimated marginal means for likelihood of conducting R&D in-house (seven-point Likert scale: 1 = "Not at all likely" to 7 = "Very likely") are 4.59 for entrepreneurs with high promotion focus and 5.125 for entrepreneurs with low promotion focus. Hence, Hypothesis 7a is not supported. Moving to Model 6, we observe that moving from low to high prevention focus has a negative and significant effect on entrepreneurs' choice of conducting R&D in-house ($\beta = -1.04, p < .05$). The estimated marginal means for likelihood of conducting R&D in-house are 5.24 for entrepreneurs with high prevention focus and 4.21

for entrepreneurs with low prevention focus. These results indicate that entrepreneurs with high prevention focus are significantly less likely to conduct R&D in-house than those with low prevention focus, supporting Hypothesis 7b.

Models 7 and 8 test the effect of variation in prevention and promotion regulatory focus on entrepreneurs' likelihood of outsourcing R&D. For promotion focus, Model 7 reveals that promotion focus has a positive but non-significant effect on entrepreneurs' choice to outsource R&D ($\beta = 0.26, p > .05$). The estimated marginal means for likelihood of outsourcing R&D are 4.32 for entrepreneurs with high promotion focus and 4.58 for entrepreneurs with low promotion focus. Hence, Hypothesis 8a is not supported. In Model 8, we observe that moving from low to high prevention focus has a negative and significant effect on entrepreneurs' choice of outsourcing R&D ($\beta = -1.34, p < .05$). The estimated marginal means for likelihood of outsourcing R&D are 4.98 for entrepreneurs with high prevention focus and 3.64 for entrepreneurs with low prevention focus. These results indicate that entrepreneurs with high prevention focus are significantly more likely to outsource R&D than those with low prevention focus, supporting Hypothesis 8b.

Models 9 and 10 test the effect of variation in prevention and promotion regulatory focus on entrepreneurs' likelihood of market entry. For promotion focus, Model 9 reveals that promotion focus has a negative but non-significant effect on entrepreneurs' likelihood of market entry ($\beta = -0.30, p > .05$). The estimated marginal means for likelihood of market entry are 5.65 for entrepreneurs with high promotion focus and 5.95 for entrepreneurs with low promotion focus. Hence, Hypothesis 9a is not supported. In Model 10, we observe that moving from low to high prevention focus has a

positive but non-significant effect on entrepreneurs' likelihood of market entry ($\beta = 0.16$, $p > .05$). The estimated marginal means for likelihood of market entry are 5.781 for entrepreneurs with high prevention focus and 5.62 for entrepreneurs with low prevention focus. Hence, Hypothesis 9b is not supported.

CHAPTER SEVEN

Discussion and Conclusion

Overview

Taking entrepreneurial action is a key milestone in the entrepreneurial journey and involves entrepreneurs engaging in enterprising activities that allow them to produce and deliver their newly invented products/services to the market (Schumpeter, 1927; McMullen and Shepherd, 2006; Wood et al., 2012). Taking market action, such as introducing new products or services to the market, enables new ventures to better survive and have superior performance (Hemielesk et al., 2013). This increased survival and performance arises because entering the market provides entrepreneurs further insight via interacting with the market and associated stakeholders (Wood and McKinley, 2012), validating their new products/services and business models (Brockner et al., 2004), receiving market feedback to improve their products/services, and pivoting their business models to fit market needs (Wood, Palich, and Browder, 2019). From my results, I observed large variation in market entry by entrepreneurs and their new ventures. About 66% of the new ventures entered the market during the first year; subsequently, about 10% of the remaining ventures entered the market in the second year, and 5% entered in the third year. Another 4% of the new ventures made their first market entry four or more years after they were created. Lastly, about 15% of the new ventures did not enter the market at all. My research aimed to theorize and explain the dynamics of these observations as a function of specific activities. I proposed that variation in the

enterprising activities that entrepreneurs/new ventures engage in results in different likelihoods of market entry. In Study I, I specifically looked into variation in resource-acquisition activities (equity versus debt financing) and knowledge-acquisition activities (research and development [R&D] in-house versus R&D outsourcing). I found that entrepreneurs who acquire funding through equity financing are more likely to enter the market than entrepreneurs who acquire funding through debt financing. Furthermore, I found that entrepreneurs who acquire knowledge through R&D outsourcing are more likely to enter the market than entrepreneurs who acquire knowledge by conducting R&D in-house. Additionally, I found that the timing of enterprising activities matters for market entry as well. Acquiring resource through equity financing has strong positive impact on the likelihood of market entry when the firm is older (versus when the firm is younger). On the other hand, acquiring resource through debt financing has a strong positive impact on the likelihood of the market entry when the firm is younger (versus when the firm is older). Interestingly, acquiring knowledge through R&D in-house has a lower likelihood of market entry when the firm is older, and acquiring knowledge via R&D outsourcing has a stronger positive influence on the likelihood of market entry when the firm is younger.

In Study II, I addressed the underlying cognitive mechanism driving entrepreneurs to choose specific types of enterprising activities. I proposed that entrepreneurs with higher promotion focus likely have a stronger preference for activities characterized by gain estimation and a lesser preference for activities characterized by loss estimation. In contrast, entrepreneurs with higher prevention focus are more likely to engage in activities characterized by loss estimation and less likely to engage in activities

characterized by gain estimation. Mostly consistent with my hypotheses, results show that entrepreneurs with higher promotion focus are less likely to choose debt financing as a channel to acquire resource, and entrepreneurs with higher prevention focus are less likely to choose to conduct R&D in-house and are instead more likely to choose R&D outsourcing as a key channel to acquire knowledge.

Theoretical Contributions

My theory, framework and findings provide important insights for the entrepreneurial action literature. First, through a systematic literature review on entrepreneurial action, I clarified the definition of entrepreneurial action. In my review, I observed that a key challenge hindering progress in understanding entrepreneurial action is the scattered definition of this term. Furthermore, entrepreneurial action has been recognized as an event-based response (Cardon et al., 2009; Wiklund et al., 2018) or as a partial stage of the entrepreneurial process (i.e., new venture creation). As such, most entrepreneurial action studies have only captured a snapshot or partial stage of the entrepreneurial action process. In this study, I offer a nuanced view of entrepreneurial action by theorizing specific enterprising activities and link them to market entry in a process framework. In particular, I answer the question “What are specific entrepreneurial actions?” by developing a theoretical framework that views entrepreneurial action as a process that consists of several different types of enterprising activities. These enterprising activities drive action outcome—namely, the successful development and delivery of a new product/service to customers.

Second, I developed a theoretical framework that provides insights into how different types of enterprising activities play in the entrepreneurial journey. The existing

literature has shed light on how acquiring more resources (Freear et al., 1995; Auken and Neeley, 1996; Winborg and Landstro, 2001) or knowledge (Shane, 2000; Kim, Aldrich, and Keister, 2006; Kirzner, 2009; Smith et al., 2009) increases the likelihood of entrepreneurial action and how a lack of resources (Cooper, Gimeno-Gascon, and Woo 1994; Holtz-Eakin, Joulfaian, and Rosen, 1994; Kaplan and Zingales, 1997; Carpenter and Petersen, 2002; Cassar, 2004) and knowledge (Shepherd et al., 2007; McMullen and Shepherd, 2006; Milliken, 1987) hinders entrepreneurial action. However, research has provided limited understanding of how the different types of resource-acquisition activities and knowledge-acquisition activities relate to concrete outcomes as manifestations of entrepreneurial action. That is, before this dissertation we lacked understanding of how to take “better” entrepreneurial action. In other words, which type of enterprising activities should an entrepreneur engage in to maximize his or her likelihood of market entry? My study addressed this research gap using the existing opportunity evaluation literature to explain that activities are characterized by either gain or loss estimation and that entrepreneurs likely engage in the activities that best fit their business opportunities (e.g., entrepreneurs have to comply with gain estimation in the context of equity financing and loss estimation in the context of debt financing). As such, engaging in different activities influences entrepreneurs’ likelihood of market entry, a proxy for the outcome of the entrepreneurial action process.

Third, using regulatory focus theory, I also contribute to the cognitive perspective of entrepreneurial action by exploring the cognitive mechanism underlying entrepreneurs’ preferences for engaging in certain enterprising activities. The existing literature has studied the cognitive perspective on how entrepreneurs take action to

identify and exploit opportunities based on their passion, intuition, rational judgment, and impulsivity (Wiklund et al., 2018; Lerner, 2016; Foss and Klein, 2012; Cardon et al., 2009). However, we have limited insight into how these cognitive antecedents drive entrepreneurs to engage in different types of enterprising activities and subsequently form entrepreneurial action. I fill this gap by using the regulatory focus framework as an explanation for why entrepreneurs choose particular enterprising activities to engage in and how this variation influences the outcome of the entrepreneurial action.

Practical Implications

In their recent call for research on practical insights, Gartner et al. (2016) emphasized the importance of further understanding how entrepreneurs should carry out various activities and how the configuration (or reconfiguration) of activities influences the entrepreneurial outcome. In answering this call, my study provides practical insights for entrepreneurs looking to take entrepreneurial action to achieve a higher likelihood of market entry. More specifically, acquiring funding through equity financing (e.g., venture capital, angel investment, crowdfunding) and acquiring knowledge by outsourcing R&D (e.g., purchasing license, trademark, or patents) contribute to successfully delivering products/services to the market. Additionally, in the entrepreneurial journey, entrepreneurs are not only puzzled in terms of what to do to acquire resources and knowledge but also have difficulties deciding when to engage in such activities. My findings imply that an entrepreneur is more likely to enter the market if he or she seeks resources and knowledge in the earlier stages of venture history (i.e., venture age) than in the later stages. For corporate entrepreneurs, this dissertation provides conceptual explanations and empirical evidence supporting that engaging in enterprising activities

contributes towards less likelihood of market entry as the venture ages. Thus, I provide important knowledge to inform corporate entrepreneurs that may transition to a corporate model where the early-stage development model used in new ventures may not be suitable for more mature corporate venturing.

Unpacking Unsupported Hypothesis

There are several unsupported hypotheses across the two studies in the dissertation and it is important to unpack these in terms of why this might be the case. In this regard, I examine hypotheses that were unsupported not because there was not a relationship, but because there was significant relationship in the opposite direction of my theorizing. In this vein, I observed three key findings.

First, opposite of Hypothesis two, I found that entrepreneurs who choose to acquire knowledge through R&D outsourcing are more likely to enter the market than entrepreneurs who choose to acquire knowledge through in-house R&D. I speculate that this finding differs from the initial hypothesis because the R&D in-house process might be vulnerable in new ventures to constraints that arise from the entrepreneur's limited experience with handling the coordination of R&D processes. Indeed, the organization theory literature has clearly shown R&D processes require superior coordination effort (Hoegl, Weinkauff and Gemuenden, 2004). Additionally, because the Kauffman Firm Survey has a higher sample weight (High tech = 14.3%, medium tech = 27%, non tech = 58.7%) in high tech and medium tech ventures as compared to the population distribution (high tech = 1.54%, medium tech = 11.80%, non tech = 86.66%), the R&D activities for tech-based new ventures may be more demanding and intensive than R&D activities in

the non-tech sector. Future research can explore the role of technological intensity and compare results between tech and non-tech industries.

Second, despite the originally proposed hypothesis 4a and 4b, I also find that venture age positively moderates R&D in-house and market entry, and negatively moderates R&D outsourcing and market entry. This might be because older firms are more capable in terms of doing research and development in-house (Tripsas and Gavetti, 2000), while less capable of screening and purchasing R&D licenses for “patent stacking” purposes (Lemley and Shapiro, 2006). Additionally, younger firms have more motivation to use their purchased R&D licenses and enter the market because the firm seeks to generate revenue as a sign of customer validation and is under pressure to maintain a healthy cashflow. The third finding counter to my hypothesized relationships is that entrepreneurs who have higher (rather than lower as hypothesized) prevention focus will be more likely to choose equity financing than entrepreneurs who have lower prevention focus. Although I argued that equity financing environment encourages the entrepreneur to focus on future aspirations (Brockner et al., 2004), some entrepreneurs may perceive equity financing as a more conservative option for raising funds because an entrepreneur must pay back debt financing even if the venture fails.

Next, there are a few hypotheses that were not significant. For example, for hypotheses 9a and 9b, I did not find significant effects of regulatory focus on the market entry/exit. The relationship between regulatory focus and market entry/exit can be more complexed than I hypothesized. To further explore the nature of the relationship, future research can interview entrepreneurs and investors, and ask regulatory focus related questions such as, “recall your experience in pursuing equity financing, what drove your

decision? Would you say you were more focused on seizing the potential up-side or more concerned with preventing the worst-case scenario?” Subsequently, the answer from the entrepreneurs and investors can be coded into different regulatory focus nature using the Linguistic Inquiry and Word Count [LWIC] dictionary (Kanze et al., 2019). Additionally, the relationship between regulatory focus and market entry can be mediated by the different types of enterprising activities. Future research can further test this mediation relationship using an experimental design to further explore the underlying mechanism between regulatory focus and market entry.

Limitations and Future Research

My study has limitations, which open up new opportunities for future research. First, there is the potential for reverse causality and this cannot be fully ruled out in the secondary data I used to test the relationship between enterprising activities and market entry. Because market entry can potentially happen before enterprising activities, I deployed an experiment in Study II to validate the direction of the relationship between enterprising activities and market entry. However, because the hypotheses that test the causal direction between enterprising activities and market entry (Hypothesis 9a and b) were not significant, the causality issue was not fully resolved. However, in the dataset, 15% of the new ventures never entered the market throughout the 8 year time period while engaging in enterprising activities. This implies that market entry is more likely than not come after venture formation and subsequent enterprising activities. Future research can further validate this causal relationship by applying causal techniques such as Regression Discontinuity Design [RDD] (Thistlethwaite and Campbell, 1960) or Synthetic Control Method (Abadie et al., 2010).

The second limitation lies in the nature of the sample in the Kauffman Firm Survey Data. As previously mentioned, the Kauffman Firm Survey has a higher sample weight for high and medium tech ventures; the result of this study may not be less generalizable to non tech industries. Additionally, while the Kauffman Firm Survey includes new ventures from a wide range of industries and all states in the United States, my findings may not be generalizable to countries that have drastically different cultural, regulatory, and political climates from the United States. This limitation opens up future research opportunities for scholars to explore how institutional and cultural contexts influence the relationship between enterprising activities and market entry.

Lastly, because this dissertation seeks to understand the relationship between enterprising activities, and first market entry, the findings cannot be generalized towards the understanding of serial product introduction and market entry. It is possible that a new venture introduced multiple new products or services either simultaneously or sequentially and this is not captured in the data. Future research can further advance the understanding by exploring the effects of serial market entries.

Conclusion

At the beginning of this dissertation, I aimed to better understand entrepreneurial action in three ways. First, I hoped to more clearly define entrepreneurial action and distinguish between enterprising activities and entrepreneurial action as an outcome. Second, based on my assumption that entrepreneurial action is the composite of several enterprising activities accumulated over time, I developed a theoretical framework to explain how variation in enterprising activities impacts the outcome of entrepreneurial

action using market entry as a proxy. I found empirical evidence that variation in resource-acquisition enterprising activities and that in knowledge-acquisition enterprising activities have different impacts on market entry. Moreover, which enterprising activities one engages matters for market entry as well. Since I was able to confirm the findings related to variation in the type activities, I demonstrate how the heterogeneity in the way entrepreneurs choice resource and knowledge paths impacts the degree to which the venture realizes key milestones, such as market entry. In this vein, I discovered that entrepreneurs with different regulatory focuses make different choices about enterprising activity paths. Taken together, my findings related to the relationship between enterprising activities and entrepreneurial action outcomes contribute to a more complete and nuanced picture of the entrepreneurial action landscape and its underlying mechanisms.

APPENDICES

APPENDIX A

Table A.1 Definition of Key Constructs

Key Construct	Definition
Entrepreneurial Action	The outcome of the process in which individuals (whether alone, in groups, or as part of the organization) identify, develop, and/or pursue ideas to introduce and deliver new products, services, and/or business models in particular markets in exchange for economic profit.
Enterprising Activities	The endeavor-based activities individuals take (whether alone, in groups, or as part of organizations) to transform ideas to create products, services, or business models to achieve market entry.
Gain estimation	Evaluate the opportunity based on the potential to gain monetary or non-monetary benefits if the business succeeds.
Loss Estimation	Evaluate the possible loss of the opportunity if the venture fails.
Regulatory Focus Theory	Regulatory focus theory explains how people use different regulatory approaches to guide their own behavior in the process of achieving their desired goals (Higgins, 1998), and the likelihood of achieving their goals is based on the nature of these goals.
Promotion regulatory focus	Individuals who take a promotion focus approach tend to cater to their needs to achieve and thus aim to maximize the likelihood of achieving their goals in return for the pleasure of self-fulfillment.
Prevention regulatory focus	Individuals who take a prevention focus approach tend to cater to their fear of failure and thus aim to minimize the likelihood of failure in return for avoiding the potential loss from a negative outcome.

APPENDIX B

Regulatory Focus Questionnaire (Higgins Et Al., 2001)

- | | | | | | | | | | | | | | |
|----|---|-------------------------|------------------|---|---|--------------------|-----|--|-------------------------|---|------------------------|---|------------------------|
| 1. | Compared to most people, are you typically unable to get what you want out of life? | 1
never
or seldom | 2
sometimes | 3 | 4 | 5
very
often | 7. | Do you often do well at different things that you try? | 1
never
or seldom | 2 | 3
sometimes | 4 | 5
very
often |
| 2. | Growing up, would you ever "cross the line" by doing things that your parents would not tolerate? | 1
never
or seldom | 2
sometimes | 3 | 4 | 5
very
often | 8. | Not being careful enough has gotten me into trouble at times. | 1
never
or seldom | 2 | 3
sometimes | 4 | 5
very
often |
| 3. | How often have you accomplished things that got you "psyched" to work even harder? | 1
never
or seldom | 2
a few times | 3 | 4 | 5
many
times | 9. | When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do. | 1
never
true | 2 | 3
sometimes
true | 4 | 5
very
often |
| 4. | Did you get on your parents' nerves often when you were growing up? | 1
never
or seldom | 2
sometimes | 3 | 4 | 5
very
often | 10. | I feel like I have made progress toward being successful in my life. | 1
certainly
false | 2 | 3 | 4 | 5
certainly
true |
| 5. | How often did you obey rules and regulations that were established by your parents? | 1
never
seldom | 2
sometimes | 3 | 4 | 5
always or | 11. | I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them. | 1
certainly
false | 2 | 3 | 4 | 5
certainly
true |
| 6. | Growing up, did you ever act in ways that your parents thought were objectionable? | 1
never
or seldom | 2
sometimes | 3 | 4 | 5
very
often | | | | | | | |

This set of questions asks you **HOW FREQUENTLY** specific events actually occur or have occurred in your life.

Please indicate your answer to each question by circling the appropriate number below it.

RFQ Scoring Key:

The RFQ yields independent scores for Promotion and Prevention, both ranging from 1-5. There are 3 reverse-scored questions for the promotion subscale and 4 reverse-scored questions for the prevention subscale.

Six questions quantify Promotion and five questions quantify Prevention. Therefore, the promotion sums must be divided by 6, and the prevention sums must be divided by 5 in order to place scores for both orientations on the same 1-5 scale:

$$Promotion = [(6 - Q1) + Q3 + Q7 + (6 - Q9) + Q10 + (6 - Q11)] / 6$$

$$Prevention = [(6 - Q2) + (6 - Q4) + Q5 + (6 - Q6) + (6 - Q8)] / 5$$

Given a large enough sample, expect a correlation between Promotion and Prevention scores of $r = .11$

APPENDIX C

Instruction Sheet, and Business Opportunity Sample

INSTRUCTIONS: You will be evaluating the personal attractiveness of a hypothetical investment opportunity that is based on a real world patented technology. The investment will be presented to you via a pitch deck.

After viewing the pitch deck you will be asked a series of questions about your evaluation of the investment opportunity. You will later learn of the outcome of the investment opportunity and be asked questions about your reaction to the outcome. You will also be asked a series of demographic questions. Please remember that we are not collecting personally identifying information and thus your responses remain anonymous.

Please click “next” to continue.

BUSINESS OPPORTUNITY: TriSpoke, LLC

Scenario:

Imagine that you have started a business called TriSpoke, LLC. The business is working toward bringing an incident management system for competitive fitness events to the market. At this stage market entry is an objective, but entry remains uncertain because you face several important decisions.

Details of the TriSpoke concept are as follows:

Problem:

In large Triathlon events, most of the communication tools for organizations are through phone or radio channels. When an emergency happens, it is often hard for emergency response staff to locate the incident.

Solution:

Build an incident management system through two key elements of the business:

(1) Developing a smartphone tracking app that allows users to register into the specific Triathlon event, pre-download routes and report the type of emergency (i.e. medical or mechanical, etc) with GPS tracking features which allow the central system to assign nearest emergency vehicles.

(2) Providing preventive analysis and solution for the upcoming events through tracking and analyzing the route traffic, the number of incidents happened and accident turn-over time in the past events.

Current Trend:

The Triathlon industry is growing 10% year over year; however, the incidentally related injuries raises together with the increasing frequency of these events. TriSpoke provides live incidental management tracking service that allows the emergency unit to locate the emergency, categorize the type of incidents and assign the closest emergency vehicle.

Market Size:

The Triathlon market is expected to reach \$200 billion by 2025 – driven in part by the increasing enthusiasm in fitness.

Decision 1: Resource acquisition

As an entrepreneur, you need \$250,000 to develop the TriSpoke concept into a viable market offering. You currently have two options to obtain funding. Note that there are a series of activities unique to each type of funding that has to be engaged based on your selection of the funding option. **You should make your choices based on your desire to engage in those activities:**

Option A: Equity Funding

Form of Funding: You can ask for \$250,000 in **equity funding** (in exchange for a fair and equitable portion of ownership in the company) from a local Angel Network Investor Group.

Payments: You do not make payments to the investor because the investor return happens if and when the business is sold or goes public. By having Business Angels invest in your business, you will be partnered up with an expert angel as your mentor who has extensive knowledge in the app development industry and you will have an obligation to consider their advice in your business decisions.

Activities: To successfully convince the Business Angels to invest in your idea, you have to engage in the funding process which includes activities such as submitting an application for screening consideration, provide justification for need and use of funds, give a funding pitch presentation and negotiate deal terms.

Option B: Debt Funding

Form of Funding: You can ask for \$250,000 in **debt funding** (you do not give up part ownership) in the form of a loan from a local bank with an annual interest rate (a fair rate that's in-line with average bank commercial loan rates).

Payments: You must make monthly payments and the entire loan must be paid back in five years. Through working with bankers, you will be partnered up with a loan officer who has general business knowledge but does not have knowledge in the app development industry to serve as a mentor. You have no obligation to consider the loan officer's advice in your business decisions.

Activities: To successfully qualify for a bank loan, you have to engage in the loan funding process which includes activities such as submitting a loan application, report business, and personal finances and outline business or personal assets to be used as collateral.

Decision 2: Knowledge acquisition

As an entrepreneur, you need specialized knowledge to develop the TriSpoke concept into a viable market offering. You are faced with two options to obtain knowledge.

Note that there are a series of activities unique to each type of funding that has to be engaged based on your selection of the funding option. **You should make your choices based on your desire to engage in those activities:**

Option A: In-source development

Form of development: You can **in-source knowledge development** (i.e. your business will do it).

Payment(s): To do this you will hire a full-time programmer a monthly salary.

Activities: Hire programmers to develop a smartphone app for interactive incidental management - designing an application, build a communication interface, and writing emergency vehicle matching algorithm that will allow the application to assign the emergency vehicle based on the nearest distance.

Option B: Outsource development

Form of development: You can **outsource knowledge development** (have an outside company do it).

Payment(s): To do this you will to pay a one-time retainer fee and share part of your revenue with the IT company.

Activities: Hire an IT company to develop the smartphone app for interactive incidental management - designing an application, build a communication interface, and writing emergency vehicle matching algorithm that will allow the application to assign the emergency vehicle based on the nearest distance.

Decision 3: Market Entry

Imagine 6 months have gone by, you have spent a significant portion out of the \$250,000 you obtained from your prior equity versus debt decision and now your product prototype is 75% developed. You are uncertain if you can develop to 100% before running out of capital. You have two options:

Option A:

Use your own capital or engage in activities to further acquire funding to continue finishing developing the product and hopefully enter the market.

Option B:

You can cut your losses and return what's left to back to the investor or bank.

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