Technological Forecasting & Social Change xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Technological Forecasting & Social Change

journal homepage: www.elsevier.com/locate/techfore

Managing uncertainty in emerging economies: The interaction effects between causation and effectuation on firm performance

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ARTICLE INFO

Keywords:
Causation
Effectuation
Environmental uncertainty
Organizational ambidexterity
Emerging economies
Technological entrepreneurship

ABSTRACT

Causation and effectuation are acknowledged as two fundamental strategic decision-making logics that firms use to form strategies to cope with uncertainty. Using data collected from 312 software firms in an emerging economy, we explore the effects of causation and effectuation on firm performance. In addition, we investigate the contingent interaction effects between causation and effectuation on firm performance from the perspective of organizational ambidexterity. We find that (1) causation and effectuation have a positive interaction effect on firm performance when environmental uncertainty is (relatively) high, but have a negative interaction effect on firm performance when environmental uncertainty is (relatively) low; (2) causation has a positive effect on firm performance in emerging economies; and (3) effectuation has a positive effect on firm performance in emerging economies when environmental uncertainty is (relatively) high. Our findings suggest entrepreneurial firms in emerging economies use a combination of causation and effectuation in a more uncertain environment, and adopt causation as a priority in a less uncertain environment.

1. Introduction

Emerging economies (Lei et al., 2016; Li, 2012; Li, 2013; Li, 2017; Li and Zhou, 2013; Lima, 2016) involve tremendous uncertainty. Causation and effectuation are widely acknowledged as two fundamental strategic decision-making logics that firms use to form strategies to cope with uncertainty (Nummela et al., 2014; Wiltbank et al., 2006). Causation is concerned with predicting the future and setting firms' goals and plans, but is threatened by undesirable contingencies (Sarasvathy, 2001). Effectuation emphasizes controlling the future by means at hand and leveraging contingencies (Sarasvathy, 2001), but may result in inferior efficiency and effectiveness without the guidance of concrete and consistent goals (Brettel et al., 2012). Causation and effectuation have pros and cons, and the effects of these two logics in emerging economies are not well-understood (Lingelbach et al., 2015). Thus, the first aim of this paper is to examine the effects of causation and effectuation on firm performance in emerging economies.

Organizational ambidexterity refers to the pursuit of two different things at the same time (Luo and Rui, 2009). As scholars observe that causation and effectuation are not in exclusion of each other but can coexist within a firm (Brettel et al., 2012; Reymen et al., 2015), these two strategic decision-making logics can be regarded as a certain type of organizational ambidexterity, just like exploitation and exploration (Cao et al., 2009; March, 1991), cost leadership and differentiation (Porter, 1980), competition and collaboration (Li et al., 2016). Studies argue that pursuing such organizational ambidexterity (i.e. combined use of causation and effectuation) could be either beneficial or detrimental to firms (Agogué et al., 2015; Fisher, 2012; Smolka et al., 2016). However, this issue is still in its infancy and underdeveloped by empirical research (Smolka et al., 2016; Read et al., 2016). Thus, the second aim of this paper is to examine the effects of combined use of causation and effectuation (always operationalized as the interaction effects of two logics) on firm performance.

Contingent factors in the strategic decision-making process play an important role to both causation and effectuation. Environmental uncertainty, which is a major characteristic of emerging economies, is suggested as such an important factor (Dew et al., 2009; Engel et al., 2014). Environmental uncertainty refers to the extent to which the future can be predicted (Mckelvie et al., 2011; Milliken, 1987). A more uncertain environment makes current planning and predictive techniques obsolete, and requires firms to focus on what they can do with means at hand or leverage contingencies. In other words, a more

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https://doi.org/10.1016/j.techfore.2017.11.017
Received 28 February 2017; Received in revised form 4 November 2017; Accepted 12 November 2017
0040-1625/

uncertain environment requires firms to use effectuation as a complement to causation to cope with such obsolescence. In contrast, given the different nature of causation and effectuation, the combined use of these two logics in a less uncertain environment may result in inferior firm performance. Based on the preceding reasoning, we propose another research question, that is, whether the interaction effects between causation and effectuation on firm performance vary under different levels of environmental uncertainty.

We contextualize our study in emerging economies for the following reasons. First, the environmental uncertainty is a major characteristic of emerging economies. Emerging economies are in the process of moving to a more market-oriented economy open to international trade and investment (Chaudhry et al., 2007), yet weak institutional arrangements in emerging economies result in institutional voids and dysfunctional competition (Bruton et al., 2013; Meyer et al., 2009). Thus, emerging economies face numerous opportunities as well as threats (Gubbi et al., 2010), combined with higher environmental uncertainty (Lin et al., 2009). Firms in emerging economies have to deal with such uncertainty using causation and effectuation. Second, firms in emerging economies face resource constraints (Lingelbach et al., 2015). On the one hand, firms need to make strategies by looking at means at hand (i.e. what they have, who they are and whom they know), which captures the essence of effectuation. On the other hand, firms also need to make ends meet by predicting the future, which is the basic idea of causation. Third, firms in emerging economies have a long history of pursuing organizational ambidexterity (Luo and Rui, 2009), and tend to adopt ambidextrous strategies (Lingelbach et al., 2015), such as the combined use of causation and effectuation in the decision-making process. Overall, emerging economies present an excellent setting for our research. In addition, we focus specifically on technological entrepreneurship because technological firms in pursuit of entrepreneurial opportunities face more environmental uncertainty than other firms and are more sensitive to such uncertainty. Also, technological firms contribute significantly to economic growth by undertaking an increasing amount of technological transfer. These points make our setting of great theoretical and practical importance.

To explore the direct and interaction effects of causation and effectuation on firm performance in a contingency model, we structure the rest of this paper as follows. First, we introduce theoretical background and develop hypotheses in Section 2. Then, we describe our methodology in Section 3 and present the empirical evidence in Section 4. Finally, we present the discussion and conclusions in Section 5.

2. Theoretical background and hypothesis development

2.1. Causation and effectuation

In this study, we conceptualize causation and effectuation at the firm level as strategic decision-making logics that carry out strategies of firms (Nummela et al., 2014). We define causation as the strategic decision-making logic of taking particular target effects as given and focusing on the selection of means to create those effects (Nummela et al., 2014; Sarasvathy, 2001). Causation aims to carry out a strategy (1) defining goals (target effects), (2) focusing on expected returns, (3) engaging in planning activities and (4) emphasizing competitive analysis (Chandler et al., 2011; Reymen et al., 2015; Sarasvathy, 2001). In contrast to causation, we define effectuation as the strategic decision-making logic of taking a set of means as given and focusing on the selection of possible effects that can be created with that set of means (Nummela et al., 2014; Sarasvathy, 2001). Effectuation aims to carry out a strategy (1) defining means, (2) focusing on affordable loss, (3) leveraging contingencies and (4) seeking pre-commitments and strategic partnerships (Chandler et al., 2011; Sarasvathy, 2001).

Most studies on the causation-performance and effectuation-performance relationships find that causation and effectuation are conducive to performance (Brettel et al., 2012; Cai et al., 2017; Guo et al., 2016; Read et al., 2009; Roach et al., 2016; Smolka et al., 2016). These studies base their arguments on various principles of causation and effectuation mentioned above, such as driven by given goals/means, focusing on expected returns/affordable losses, planning/leveraging contingencies, and competitive analysis/partnership. As for causation-performance relationship, for example, Brettel et al. (2012) find causation's emphases on goals, expected returns and overcoming unexpected can enhance the efficiency of projects with low innovativeness. Based on practice-based side of causation (use of business planning), Smolka et al. (2016) argue that business planning benefits venture performance for three reasons: first, business planning can guide actions by setting objectives; second, business planning can enhance venture legitimacy by demonstrating the viability and feasibility of business; third, business planning signals entrepreneurs' commitment to the venture and enhancing learning.

With regard to effectuation-performance relationship, Read et al. (2009) extract related variables from prior studies and find the positive effects of effectuation on venture performance in the meta-analysis. Specifically, Cai et al. (2017), for example, argue that effectuation can positively affect new venture performance in four ways: first, experimentation helps firms to formulate goals step by step and to seize opportunities in the changeable environment; second, affordable loss controls the risk for firms and helps firms to make good use of limited resources, which enables firms to capture the upsides of uncertainty at low costs; third, flexibility helps firms to leverage contingencies in the uncertain environment and to use existing resources in creative combinations; fourth, partnership enables firms to control the future with stakeholder, which can eliminate uncertainties.

2.2. Causation and effectuation as a type of organizational ambidexterity

In the literature, organizational ambidexterity was rather narrowly defined as "an organization's ability to be aligned and efficient in the management of today's business demands while simultaneously adaptive to changes in the environment" (Duncan, 1976; Raisch and Birkinshaw, 2008), but the definition has since been extended to "an organization's ability to simultaneously pursue two different (sometimes even opposite) things" (Luo and Rui, 2009). Firms often deal with different types of organizational ambidexterity, such as exploration and exploitation (Cao et al., 2009; March, 1991; Yu et al., 2014); competition and collaboration (Li et al., 2016); and efficiency and flexibility (Adler et al., 1999; Ebben and Johnson, 2005).

Understanding and managing organizational ambidexterity is critical, as scholars argue that pursuing organizational ambidexterity can be either conducive or detrimental to firm performance. On the one hand, some scholars hold the view that firms benefit from pursuing organizational ambidexterity because its elements complement each other (Cao et al., 2009; Wei et al., 2014). For instance, Cao et al. (2009) argue that a firm's efforts to achieve exploitation can often improve its effectiveness in exploration, and proficiency in exploration can enhance firm's ability of exploitation. Therefore, firms should pursue both and leverage their complementarities to enhance performance. On the other hand, some other scholars argue that elements of organizational ambidexterity can compete for scarce resources (March, 1991) and entail conflicting configuration of organizational aspects (Ebben and Johnson, 2005). Therefore, pursuing organizational ambidexterity can also decrease firm performance.

In this study, we consider causation and effectuation as a type of organizational ambidexterity and we operationalize such organizational ambidexterity (i.e. combined use of causation and effectuation) as the interaction effects between causation and effectuation (Smolka et al., 2016). We find that only limited studies (including qualitative and quantitative studies) have addressed the issue of combined use of causation and effectuation. Although qualitative studies observe the coexistence of causation and effectuation (Berends et al., 2014; Maine et al., 2015), they do not explain the mechanisms of interaction