CHAPTER 5

EFFECTUATION SPECTRA IN CHINESE HIGH-TECH ENTREPRENEURSHIP: DOMAIN-SPECIFIC LOGIC ORIENTATIONS AND CROSS-BORDER M&A

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ABSTRACT

As the developing nations grow and experience rapid institutional transformation, research has begun to investigate the roles of culture, cognition and institutional context on entrepreneurship and innovation. This chapter aims to advance the entrepreneurial cognition literature by juxtaposing entrepreneurial effectuation, domain-specific expertise and ambiguity. By conducting a qualitative study of Chinese high-tech domestic and returnee entrepreneurs, the authors propose a spectrum between causation and effectuation and argue that the entrepreneur's perceived level of ambiguity may better explain differing logic orientations among

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Mergers and Acquisitions, Entrepreneurship and Innovation
Technology, Innovation, Entrepreneurship and Competitive Strategy, Volume 15, 111–148

ISSN: 1479-067X/doi:10.1108/S1479-067X20160000015006

entrepreneurs, contributing to our understanding of entrepreneurial cognition. The authors theorize that (1) individual actors and the level of institutional development jointly comprise the entrepreneur's logic orientation; (2) the level of perceived ambiguity mediates the strategy adopted by high-tech entrepreneurs; (3) the entrepreneur's logic orientation can be regarded as a continual spectrum from effectuation to causation. Finally, the logic orientation concept is applied to the context of cross-border mergers and acquisitions (M&A) from a process perspective and the implications and fit of logic orientation with the stages of cross-border M&A are discussed.

Keywords: Entrepreneurial cognition; effectuation; ambiguity; China; high-tech entrepreneurship; mergers and acquisitions

INTRODUCTION

Institutional transformations driven by the open door policy and more recently globalization have had an enormous impact on entrepreneurship in China (Ahlstrom & Bruton, 2010; Bruton, Ahlstrom, & Obloj, 2008). Recent developments in entrepreneurship theory range from the individual-opportunity nexus (Shane, 2003) to effectuation (Sarasvathy, 2001), transnational entrepreneurship (Drori, Honig, & Wright, 2009) and the entrepreneur–environment nexus (York & Venkataraman, 2010). Effectuators can be seen as a subset of entrepreneurs that exhibit a tendency to control the future, so they do not need to predict it (Sarasvathy, 2001; Sarasvathy & Dew, 2005a, 2005b, 2007; Sarasvathy, Dew, Velamuri, & Venkataraman, 2010; Sarasvathy, Kumar, York, & Bhagavatula, 2014). The theory of effectuation is still relatively new and this literature stream is just beginning to unfold: only a small number of empirical papers exist while the theory moves from the novice to an early intermediate stage (Grégoire, Corbett, & McMullen, 2011). A burgeoning body of research centers on developing or testing the theory of effectuation (Chetty, Ojala, & Leppäaho, 2015; Ciszewska-Mlinaric, Obloj, & Wasowska, 2016; Dew, Sarasathy, Read, & Wiltbank, 2009; Honig & Samuelsson, 2009; Read, Song, & Smit, 2009; Roach, Ryman, Makani, Kalantaridis, & Kalantaridis, 2016).

Currently, most such studies fail to differentiate research subjects by cultural background. One exception is Chetty et al. (2015), who find evidence

from software firms in Finland and New Zealand that entrepreneurs who have existing relationships in foreign markets tend to use effectuation to select and enter foreign markets. Henrich, Heine, and Norenzayan (2010) argue that behavioral science experiments must stop focusing almost exclusively on "WEIRD" research subjects (Western, Educated, Industrialized, Rich, and Democratic). Surprisingly, however, to our knowledge, there is almost no study of effectuation in the context of Chinese high-tech entrepreneurs and no such study derives the implications for the M&A process. Therefore, we suggest that Chinese high-tech entrepreneurs may offer an important empirical setting to generate some revealing insights to facilitate theory development from a behavioral science perspective. Madhok and Keyhani (2012) conceptualized acquisitions as an act of entrepreneurship, as a competitive catch-up mechanism and way to capture innovation through opportunity discovery and creation. Utilizing a multi-level approach, we aim to explore the interaction of insights gained from recent diverse research streams on entrepreneurial cognition (decision-making and effectuation), biculturalism (identity integration and cultural frame-switching), and the entrepreneur's institutional environment (mainly the level of institutional development) and their combined impact on high-tech entrepreneurship and its implications in the context of cross-border M&A.

These aims lead us to explore the following research questions:

1. Why and when do high-tech entrepreneurs adopt different logic orientations?
2. What are the potential determinants for the adopted strategies?
   a. How can different institutional contexts influence the entrepreneur's decision about which strategies to employ?
3. Which decision-making frames should potential entrepreneurs internalize or pursue strategically: causation, effectuation, or a (domain-specific) mix between both?
4. Finally, what implications can be derived from entrepreneurial effectuation for cross-border M&As?

In this chapter, we propose a conceptual framework underlining the entrepreneur's chosen strategy. Different theoretical backgrounds are juxtaposed leading to the concept of a continuous spectrum from effectuation to causation. As a metaphor, consider the frequency spectrum in mobile communications: quad-band cellphones are capable of operating nearly worldwide in different frequency ranges depending on the context in question – in this case the geographic region and supporting infrastructure. We argue that effectuation and causation tends not to be demarcated with clear

boundary. Entrepreneurs are generally capable of *both* causal and effectual strategies (and patterns of thinking) but the ability to switch between these varies: the choice or mix of logic orientations employed facing a given problem or decision seems to be driven by a combination of individual factors, context, and cultural heritage. As a result, we propose that entrepreneurs favor a particular strategic orientation composed of different proportions of effectuation and causation, pursuing one or the other (or a blend) depending on the decision-making domain in question.[1] It is argued that bicultural integration and cultural frame-switching and related cognitive differences play vital roles in the availability and selection or usage of different logics among entrepreneurs, leading to specific behavioral responses, such as approaches to the integration of acquired innovative high-tech firms.

THEORETICAL BACKGROUND

On the individual level, cognition and culture go hand in hand, and are together responsible for the usage of different decision-making heuristics under uncertainty, in this case effectuation. Drawing on theories and evidence from research on bicultural bilinguals, this study differentiates between monocultural Chinese entrepreneurs and those with strong exposure to Western logic (coined "*Chinese Argonauts*") that typically enjoy high standing or respect in Chinese firms for their international experience (Weidenbaum & Hughes, 1996). We review selected literature on institutional context and ambiguity, as well as on culture and cognition that, taken together with our empirical evidence, lead to the proposition of a framework that attempts to mirror the complexity and heterogeneity of how entrepreneurs act and think given different perceptions, cultural heritage, institutional environments, and ambiguity. As it is central to the arguments of this chapter, the next section delves more deeply into the theory of effectuation.

Effectuation

Effectuation represents the decision-making employed by expert entrepreneurs when goals, markets, or products do not exist (at all or fully) in an ambiguous and dynamic decision-making landscape (Sarasvathy, 2001). Beginning with available means and what they can afford to lose,

effectuators attempt to control outcomes to avoid or free themselves from having to predict them. Effectuation is actor-centric (Sarasvathy & Dew, 2005). Moreover, Sarasvathy and Dew (2005a) identify the opportunity creation process as "the result of a series of transformations on the original reality, caused by cognitively bounded and idiosyncratically motivated agendas trying to solve a variety of problems in a local and contingent fashion" (p. 539). In a study of 27 expert entrepreneurs employing protocol analysis, Sarasvathy (2001) found that over 63% of the subjects used an effectual logic more than 75% of the time (in contrast to utilizing rational and predictive "causal" logic).

The main principles of effectuation outlined by Sarasvathy are (1) "pilot in the plane" (the principle that people are behind the wheel together, borrowing from stakeholder theory), (2) "bird in hand" (when entrepreneurs focus on the resources they have at their immediate disposal), (3) "affordable loss" (when people invest only what they are prepared to lose), (4) "crazy quilt" (the notion of co-creation), and (5) "lemonade" (when entrepreneurs are continuously prepared for surprises and ambiguity). Sarasvathy specifies three groups of means that effectuating entrepreneurs start from: who I am (personality and preferences or experience), what I know (knowledge and memory), and whom I know (social networks and strong or weak links). In addition, effectuators view the future as coming from what people do for the time being, not from inevitable trends or predication. Effectuation research has now entered into the intermediate stage that awaits scholarly endeavors to explicate the preliminary testing of new propositions (Perry, Chandler, & Markova, 2012).

This chapter relates especially to the "lemonade" principle and emphasizes the means groups "who I am" and "whom I know." Based on both the sample studied and existing literature, it is argued that the entrepreneur's logic orientation in a given context is critical to his or her ability to embrace surprise (and thus ambiguity both from the perspective of the unknown nature of outcome alternatives as well as the unknown probabilities of a presumably known set of outcomes) and that this ability varies with who the entrepreneur is, which is at least in part culturally determined ("who I am," following Sarasvathy's categorization scheme). As will be discussed, different institutional environments influence the usefulness of the entrepreneur's social networks (the set of means Sarasvathy describes as "whom I know") and it is later argued that the cultural diversity of the entrepreneurial team influences the firm's approach toward ambiguity. First, a brief overview of expertise and how it relates to the entrepreneur's decision-making and strategic orientation is provided.

Domain-Specific Expertise

Experts are individuals who possess a high level of individual competence in a given domain, due largely to length and breadth of experience (Foley & Hart, 1992). Researchers have also found that domain expertise improves to the ability to construct complex cognitive representations of uncertain and dynamic decision tasks, which in turn results in improved decision performance (Charness, 1991; Macdonald, Hannah, & Ounis, 2008; Wiggins & O'Hare, 1995). Experts "know more" (Fiet, 2002) and employ different cognitive processes compared to novices (Adelson, 1984; Dew, Read, Sarasvathy, & Wiltbank, 2009; Gustafsson, 2006). Further, expertise seems to reduce behavioral bias in the face of decision-making uncertainty (Kaustia, Alho, & Puttonen, 2008). However, too much expertise with an extremely strong geographical or industry focus could lead to restricted vision regarding opportunities in other industries or areas; consider the phenomenon of *Fachidioten* which is German for "subject-matter idiots," a negatively connoted term used to denote extreme subject-matter experts, people whose views are so narrow, they can be restricted to a certain subject and do not want to look left or right but only straight ahead.[2] Thus there is room for debate and research in entrepreneurship and management science regarding the potential benefits and drawbacks as well as the direction of causality of subject-matter expertise and behavioral/decision-making biases. Another central aspect of strategy and decision-making is the concept of uncertainty and ambiguity; we attempt to articulate the various notions of ambiguity and uncertainty from the points of view of management and cognitive neuro-science leading us to take a rather broad view of the construct, with the goal of understanding how entrepreneurs in rapid environments (such as Silicon Valley) interact with ambiguity and uncertainty given their logic orientations at a given point in time.

Perceived Level of Ambiguity

Knightian uncertainty in economics (Knight, 1921) is a relatively narrow concept that essentially describes unknown risks or more precisely unknown probabilities of outcomes, as in the case of the Ellsburg Urn. Ellsburg demonstrated experimentally that people are ambiguity averse to differing degrees; thus, most people tend to prefer certain outcomes to uncertain gambles, even if both have the same expected value (Ellsberg, 1961). In economics therefore, ambiguity usually refers to Knightian

uncertainty. Both Knight and Ellsburg apply an old concept, that of predictable versus unpredictable variation, to decision-making (Deming, 1975; Keynes, 1921; Leibniz, 1703). In management theory, psychology and neuro-science, more multi-dimensional concepts of uncertainty and ambiguity that better reflect environmental and cognitive decision-making complexity are commonplace and the concepts remain "fuzzy" and difficult to disentangle. One study unpacks uncertainty as a multi-dimensional construct composed of state, effect, and response types of uncertainty (Milliken, 1987) to investigate the relationship between uncertainty and entrepreneurial action (McKelvie, Haynie, & Gustavsson, 2011) (Table 1). AU:2 AU:3

The authors find that the "type" of uncertainty matters, and that entrepreneurs make different decisions with regard to exploitation of opportunities depending on the type of uncertainty involved in the process (McKelvie et al., 2011). Milliken differentiates between three types of uncertainty that decision-makers experience: state, effect, and response uncertainty. State uncertainty is the inability to predict how the components of the environment (states of the world) are changing. The effect

Table 1. Overview of Uncertainty and Ambiguity in Economic and Business Literature.

Authors	Research Focus	View of Uncertainty
Milliken (1987)	Types of uncertainty	Differentiation between *state*, *effect*, and *response* types of uncertainty
Eisenhardt (1989)	Executive decision-making (DM) in high-velocity industries	Leads to difficulty to reach decisions
Kahnemann and Tversky (1992)	General DM process	Defined as source-dependent variable
Boulding et al. (1994)	DM process	Must be deconstructed
Papadakis et al. (1998) and Elbanna and Child (2007)	DM framework	Both external and internal
Hsu et al. (2005)	Neural circuitry of ambiguity and risk	Internal variable in form of uncertain DM probabilities
McKelvie et al. (2011)	Interpretations of uncertainty	Multi-dimensional construct
Burghart, Epper, and Fehr (2015)	Ambiguity and ambiguity attitudes	Multi-dimensional construct ("ambiguity triangle")

uncertainty describes the inability to predict how changes in the environment will influence the firm (firm outcome uncertainty, i.e., performance, success, failure, etc.). Finally, response uncertainty describes a lack of information regarding potential response options given a changing environment and the inability to predict the likely consequences of a chosen response. In Milliken's model, the types of uncertainty can be distinguished by the nature of the information shortage represented by each type (Milliken, 1987). A recent study utilizing the three different types of uncertainty found out the culture influences on the way entrepreneur deals with uncertainty in the context of supplier-entrepreneur relationship (Liu & Almor, 2016). Finally, a working paper by Burghart et al. (2015) examines the links between expected utility theory and revealed preferences for (or against) ambiguity; the authors find preference heterogeneity among 60% of research subjects concerning their attitude toward uncertainty, lending weight to the notion that uncertainty should be viewed as a multi-dimensional phenomenon.[3]

In this study, the notion of uncertainty is transposed to perceived ambiguity, which can be influenced by both individual-level and institutional-level factors, while the perceived ambiguity itself plays the role of a mediator in entrepreneurial decision-making.[4] Further, the role of perception as a mediator between actual ambiguity and that which is perceived by the entrepreneur is emphasized. Sitkin and Weingart differentiate between risk perceptions and risk propensity (Sitkin & Weingart, 1995), drawing on prospect theory (Kahneman & Tversky, 1979) which suggests that the framing of decisions impacts the perceived risk, specifically that negatively framed risk probabilities are perceived as weighing more than those positively or neutrally framed. This differentiation seems to find support in neuro-economics (De Martino, Kumaran, Seymour, & Dolan, 2006), De Martino et al. find a strong role for the emotional system in the brain in mediating decision biases in their fMRI[5] study. In a related study, Tom, Fox, Trepel, and Poldrack (2007) find support for prospect theory (hereafter PT) and attempt to map-related factors to areas of the brain. While it is not yet clear how accurate the predictions of PT are as neuro-economics is still in its early footsteps as a field, the vital role of perception or framing as a mediating factor is becoming increasingly clear. While most research on decision-making and the brain continues to study subjects with a single nationality and cultural background, at least a few studies have begun to explore the role of culture in cognition, which strikes the authors as highly relevant to understanding different strategic orientations among entrepreneurs with varying degrees of exposure to

Western and Chinese cultures and decision-making styles, such as bilinguals or expatriates.

Culture and Cognition

Mitchell defines entrepreneurial cognitions as: "the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation and venture creation and growth" (Mitchell et al., 2002). According to Duening, recently studied cognitive biases common to the way entrepreneurs think include the "law of small numbers," "reasoning by analogy," and "overconfidence" (Balcetis, Dunning, & Miller, 2008). In addition, entrepreneurs have different cognitive heuristics (mental habits) which aid them in governing risk and ambiguity and in overcoming failures. This cognitive strategy selection process is believed to occur in individuals largely at the sub-conscious level (Zuk & Carpendale, 2007).

In this chapter, we argue that national culture, which includes norms, language and symbols, and rituals or patterns of behavior, has a major impact on cognition: from reasoning styles (Ketay, Aron, & Hedden, 2009; Norenzayan, Smith, Kim, & Nisbett, 2002) to perception and visual attention (Boduroglu, Shah, & Nisbett, 2009; Ketay et al., 2009). Such research often utilizes less controversial variables from established intercultural frameworks such as "individualism versus collectivism" (Hofstede & Bond, 1984)[6] and "high-context versus low-context" (Hall, 1966; Hall & Hall, 1990) which both have implications for decision-making heuristics and strategies under uncertainty (Chen & Li, 2005). Chen and Li find that Chinese people in their study make less cooperative decisions than Australians in mixed-motive business situations in which no formal or informal sanction systems are in place and that the nation effects on cooperative decision-making are partly mediated by individual cultural orientation.

In general, while individual identity-driven, low-context national cultures such as the United States and Australia emphasize causality, whereas high-context, collectivist cultures utilize more holistic approaches which seem to place greater emphasis on contextual variables. The "logical" or causative reasoning style following the ancient Greeks is widespread in Western Europe, Australia, and the United States, whereas people in Asian countries seem to approach reasoning from an entirely different perspective: in China, for instance, dialectical reasoning is common, which seems to be a more holistic approach to strategic decision-making. Varnum and colleagues find that when comparing Chinese and American subjects,

Chinese prefer dialectic arguments, while Americans prefer more "linear," logical arguments (Varnum, Grossmann, Nisbett, & Kitayama, 2008).

These differences find support in recent cross-cultural, neuro-scientific studies: a large-scale study by Henrich and colleagues finds that low-level perceptual processing and spatial cognition differs considerably between Western versus non-Western and industrial versus small-scale societies (Henrich et al., 2010). This finding lends credence to the argument that both cultural differences (such as common levels of cooperation and the degree a culture values money as an end as opposed to as a means) and differences in the level of institutional development of a geographic region play major roles in decision-making and strategic orientations. Further support for such differences can be found in neuro-scientific studies. For instance, a transcultural neuro-imaging study demonstrated that one's cultural background can influence the neural activity that underlies both high- and low-level cognitive functions (Han & Northoff, 2008). Park and colleagues go even further in the journal *Nature*, demonstrating strong evidence that "Culture Wires the Brain," focusing on substantial differences found between Westerners and East Asians in focal object processing, attention, and categorization (Park & Huang, 2010).

Two studies on affect and reasoning find links between positive versus negative affect and adherence to cultural norms and reasoning styles, that is, analytic versus holistic (Ashton-James, Maddux, Galinsky, & Chartrand, 2009; Koo, Clore, Kim, & Choi, 2012). Others report that cognitive structures derived from organizational identity and cued by strategic frames influence salience of an issue among managers (Bundy, Shropshire, & Buchholtz, 2013). Novaes studies culture-task alignment in firms and finds that when culture and tasks align, performance tends to be higher (Novaes, 2013), replicating previous findings on corporate culture. Woo and colleagues show that cultures differ on openness to experience (Woo et al., 2014), with implications for opportunity recognition. Finally, a recent study examines expatriate adaptation during early phases of international assignments (Firth, Chen, Kirkman, & Kim, 2014) (Table 2).

Given these major – and as yet poorly understood – differences in reasoning, it can be argued that national culture and resulting tendencies to decide and act according to certain dominant patterns in a given context must indeed be instrumental in determining an individual entrepreneur's logic orientation. It further seems likely that an individual should be capable of different reasoning styles to some degree, much like a person may have different moods evoked by a certain situational context. Thus, one should generally be capable of using differing reasoning styles given a

Table 2. Overview of Recent Studies on Culture and Cognition.

Authors	Research Focus	Key Arguments
Han and Northoff (2008)	Cognitive neuro-science	Cultural background found to influence both low- and high-level cognition: need for a transcultural approach to neuro-imaging
Henrich, Heine, and Norenzayan (2009)	Norms, behavior and decision-making in small-scale versus industrial societies	Differences in spacial and low-level cognition: need for cross-cultural differentiation in subject-pools
Ashton-James et al. (2009)	Affect and reasoning	Find that positive affect allows individuals to explore novel thoughts and behaviors that depart from cultural constraints, whereas negative affect binds people to cultural norms
Park and Huang (2010)	Cognitive neuro-science	Differences in focal object processing and attention allocation: culture "wires" the brain
Koo et al. (2012)	Affect and reasoning	Find that, using a global-local processing task and inclusion and exclusion tasks, in happy (compared to sad) moods, Koreans engage in more holistic reasoning, whereas Americans engaged in more analytic reasoning
Bundy et al. (2013)	Issue salience among managers	Study how a firm's cognitive structures of organizational identity and strategic frames use different core logics to influence managerial interpretation of an issue as salient
Novaes (2013)	Culture-task alignment	Find when culture and task align, there is a performance gain from an activity
Firth et al. (2014)	Expatriates	Study expatriate adaptation during early phases of international assignments
Woo et al. (2014)	Culture and learning	Show that cultures differ on openness to experience
Oyserman (2015)	Culture and cognition	Propose culture as situated cognition theory (CSC)

certain task, situation, and environment. It also seems likely that individuals have tendencies toward (or preferences for) a certain mixed strategy of reasoning styles available to them in their personal reasoning set at a given moment in time, due largely to their upbringing in a certain culture (i.e., beliefs and genetic markers of social sensitivity, see, e.g., Chiao & Blizinsky, 2010). In this section and the analysis that follows, the concept of mixed strategies from game theory is borrowed purely in a loose sense as a metaphor about how to think about the strategy selection process, that is, entrepreneurs are not necessarily trying to make their competitors indifferent about their pure strategies and may not even be consciously aware of which logical heuristics (or strategic orientations) they are utilizing in a given situation. In light of these findings, the authors differentiate in the sample between different types of Chinese entrepreneurs, based on their exposure to Western culture and decision-making practices and then further develop the link to the level of institutional development and the entrepreneur's resulting logic orientation.

Chinese Argonauts versus Domestic Chinese Entrepreneurs

Recent studies emphasize the danger of oversimplification and the importance of examining the degree of entrepreneurial heterogeneity (Honig & Samuelsson, 2009). Weidenbaum and Hughes (1996) argue that expatriate entrepreneurs are creating a new superpower in Asia. In this study, these notions are used as an inspiration and differentiate between globalized entrepreneurs (i.e., *Chinese Argonauts*) with strong exposure to western logic and institutional environments and *domestic Chinese entrepreneurs* with more traditional orientations as significant differences in cognitive framing and perception are assessed regarding opportunity recognition and the pursuit of opportunities. Expatriates are people temporarily or permanently residing in a country and culture other than that of the person's upbringing. The term *Argonauts* (the Argonauts were sailing heroes in Greek mythology) here refers to a subgroup of these – the expert entrepreneurs among the expatriates.

Institutional Context

Institutional environments in emerging economies differ greatly from those of established economies with various implications for entrepreneurship

(Ahlstrom & Bruton, 2010; Bruton, Ahlstrom, & Li, 2010). Here, it is important to distinguish between formal and informal institutions as there is a major difference between what some large groups in a particular society understand as *legalized* (and legitimized) by laws and regulations and what they consider to be *legitimized* (but not legalized) by norms, values, and beliefs – the informal institutional boundaries (Dowling & Pfeffer, 1975). Entrepreneurs "… rely on cooperative groups to recognize and exploit opportunities in the informal economy" (Webb, Tihanyi, Ireland, & Sirmon, 2009). Webb and colleagues argue that collective identity plays a major role in how entrepreneurs pursue opportunities through formal versus informal institutions. Further, they argue that different types of entrepreneurs are attracted to the resulting informal versus formal economies.[7]

Puffer and his colleagues argue that informal institutions, such as Blat, Guanxi, and trust, play critical roles in filling institutional voids, such as missing property rights protection and enforcement (Puffer, McCarthy, & Boisot, 2010). This parallels the idea of structural holes in network theory (Burt, 1995). Puffer et al. (2010) emphasize that in the foreseeable future the institutional environment in China will differ from the form preeminent in today's western world, due to deep Chinese social and cultural roots. Institutions in the BRICs are facing fast-paced changes in transitional environments that involve high degrees of uncertainty and change, while entrepreneurs in established economies can rely on a relatively certain environmental and market stability (i.e., the political, legal, and financial environments are established and largely stable and norms and routines are often deeply rooted). Recent field-based survey research suggests that a dominant logic characterized by (1) external orientation, (2) proactiveness, and (3) simplicity of routines significantly influence the performance of entrepreneurial firms in emerging economies (Obloj, Obloj, & Pratt, 2010).

Within one emerging economy, the regional differences can manifest the variations of institutional contexts. The development phases of marketization and industrialization differ greatly across regions (Redfern & Crawford, 2010). A recent study profiles this variation in comparing two Chinese high-tech parks (Liu, 2011). The National Economic Research Institute (NERI) Index of Marketization for China's Provinces has been developed to track marketization development over time (Ganga, Xiaolua, & Guangrongb, 2011). Marketization has made progress with remarkable achievement in the non-state enterprise sector (Wang, Fan, & Zhu, 2007). A survey study of 2,854 respondents from 20 Chinese cities demonstrates the strong role of the institutional environment as a key determinant of entrepreneurial decision-making in China (Lu & Tao,

2010). Most recently, effectuation scholars highlight that the realm of international entrepreneurship might offer the opportunity to move inquiry on effectuation forward (Sarasvathy et al., 2014).

Further, a comparative study of business systems investigates the relationship between institutional elements and entrepreneurial cognition (Lim, Morse, Mitchell, & Seawright, 2010). It is argued that founder perceptions of an ambiguous institutional environment determine the variance in choice of organizational form for social entrepreneurial ventures (Townsend & Hart, 2008). In line with this argument, the framework presented in this chapter generalizes this notion: it argues that individuals and institutional contexts each can be seen as pursuing a (domain-specific) mixed logic orientation moderated by the degree of perceived ambiguity involved in the decision-making process.

Biculturalism and Bicultural Identity Integration

Bicultural individuals are individuals who identify with two or more distinct cultures because of having internalized more than one set of cultural schemas (Brannen & Thomas, 2010). A cultural schema is a socially constructed cognitive system that represents one's knowledge about values, attitudes, beliefs, and behavioral assumptions of a culture as well as the relations among these attributes (Fiske & Taylor, 1984). Bicultural employees and managers are a growing demographic due to globalization and play an important role in boundary spanning of organizations (Brannen & Thomas, 2010). An influential bidimensional model studying acculturation, Berry (1990) suggests distinct patterns of assimilation (identification with mainstream culture only), integration (identification with both cultures), separation (identification with culture of origin only), or marginalization (lack of identification with either culture). This framework has been utilized as a basis for studying biculturals equating integration with biculturalism (Nguyen & Benet Martínez, 2007). Further, scholars (Bochner, 1982) have argued that marginals have bicultural competence such that they alternate between two cultures that are perceived as having salient but mutually incompatible norms.

Research on bicultural identity integration (hereafter, "BII") has extended the understanding of bicultural individuals to show how the degree of integration of bicultural identities relates to behavioral, cognitive, and other psychological variables. In Table 3, we provide an overview of literature streams on bicultural identity integration. In general, individuals

Table 3. Overview of Literature on Bicultural Identity Integration.

Authors	Research Focus	Key Arguments
Bochner (1982)	Biculturals	Marginals have bicultural competence, alternate between two cultures that are perceived as having salient but mutually incompatible norms
Berry (1990)	Bidimensional model studying acculturation	Distinct acculturation patterns of *assimilation* (identification with mainstream culture only), *integration* (identification with both cultures), *separation* (identification with culture of origin only), or *marginalization* (lack of identification with either culture)
Nguyen and Benet Martínez (2007)	Biculturals	Following Berry's framework (1990), equate integration with biculturalism
Benet Martínez and Haritatos (2005)	Bicultural identity integration (BII)	High BII may allow individuals to be more effective in appropriately employing their cultural knowledge in specific contexts
Cheng et al. (2008)	BII among Asian-Americans	High BII Asian-Americans come up with more innovative ideas (creative fluency and originality)
Brannen, Garcia, and Thomas (2009)	Identity conflicts	Degree of conflict between cultural identities is positively correlated with a self-report of a higher order cognitive skill called *cultural metacognition*
Hong, Wan, No, and Chiu (2007)	Identity negotiation	Integration, in which elements from multiple cultures fuse into a *unitary* (multicultural) identity, alternation, which involves switching among cultural identities according to context and synergy, in which new identities emerge which cannot be reduced to the sum of their parts
Tadmor and Tetlock (2009)	Cognitive complexity	Biculturals not only develop more complex cultural representations, but also they seem to develop increased cognitively complexity across domains
Brannen (2010)	Biculturals	Bicultural employees and managers play a role in boundary spanning; growing demographic due to globalization
Mok and Morris (2010)	Creativity	High BII helps cross-cultural creativity performance
Friedman et al. (2012)	Biculturals	in Taiwan, cultural frame-switching occurs only among managers with both foreign experience and high BII

Table 3. (*Continued*)

Authors	Research Focus	Key Arguments
Mok and Morris (2012)	BII among Asian-Americans	Examine Asian-Americans and view BII as a global processing style, that can be enhanced by situational/environmental cues
Fitzsimmons (2013)	Multicultural employees	Theorize about how multicultural employees contribute to organizations
Lakshman (2013)	Culture and attribution	study the link between cross-cultural leadership effectiveness and attributional complexity
Lücke, Kostova, and Roth (2013)	Management of multinational corporations (MNCs)	Use connectionism perspective to explain how sociocultural experiences interact with existing individual cognitions to form different patterns of multiculturalism yielding differential managerial effectiveness
Molinsky (2013)	Cultural frame-switching	Describe the underlying psychological processes of cultural retooling as they relate to management and the workplace
Mok and Morris (2013)	Biculturals/ decision-making	Assimilation for high BII applies to consumer information-seeking and decision-making
Saad et al. (2013)	Creativity	Greater bicultural identity blendedness predicts domain-general creativity in bicultural but not in monocultural contexts, mediated by ideational fluency
Chand and Tung (2014)	Biculturals/ investment behavior	Cultural boundary spanners are more likely to invest in their country of origin
Burks, Karlesky, and Lee (2015)	Identity conflict	Psychological bricolage, the process through which an individual integrates previously unrelated knowledge to create novel solutions
Aydinli and Bender (2015)	Biculturals/acculturation	Culture can be primed and therefore is more than a categorical variable that is stable over situations, but rather dynamic
Wry and York (2015)	Identity and social enterprise	How different BIIs perceive the conflict between social and commercial goals and recognize and develop social enterprise opportunities

that score highly on the overall BII measure perceive their two identities as largely compatible and complimentary, while those who show lower values on BII feel caught between their two cultural identities and prefer to keep them separate. In later work, BII has been shown to be composed of two

components: cultural blendedness and cultural harmony (Benet Martínez & Haritatos, 2005). Research has shown that high BII can allow individuals to be more effective in appropriately utilizing their cultural knowledge in specific contexts. In one study, high BII Asian-Americans came up with more innovative (in terms of creative fluency and originality) fusion restaurant dishes than did low BII Asian-Americans (Cheng, Sanchez-Burks, & Lee, 2008; Sanchez-Burks, Karlesky, & Lee, 2015). The authors find that high bicultural identity integration (BII) moderates the effect of attribution (the process of how individuals explain the causes of behavior and events) such that attributions are congruent with cultural norms, while low BII participants exhibit a reverse effect. Burks, Karlesky, and Lee define psychological bricolage as the process through which an individual integrates previously unrelated knowledge to create novel solutions −This bricolage is facilitated when individuals can integrate social identities that are often considered separate (Sanchez-Burks et al., 2015). A separate study investigates how BII effects creative performance and finds that high BII is helpful for cross-cultural creativity (Mok & Morris, 2010). In a follow-up experimental study with Asian-American subjects, the authors find that BII can be viewed as a global (cognitive) processing style that can be enhanced by situational or environmental cues (Mok & Morris, 2012), Friedman and colleagues study attribution patterns among Taiwanese managers who have both worked and studied abroad and specifically, in which situations overseas experience changes how managers with foreign experience think. They find that cultural frame-switching only occurs among managers with both foreign experience and high BII (Friedman, Liu, Chi, Hong, & Sung, 2012).

In contrast to the cultural integration perspective, which finds positive affects of BII on frame-switching for some individuals and not for others, research on identity conflicts finds positive affects of multiculturalism on a more general level: Brannen et al. (2009), for example, find that the degree of conflict between cultural identities was positively correlated with self-report of a higher order cognitive skill called cultural metacognition. Thus, those biculturals who confront the most difficult time dealing with or integrating their cultural identities may develop higher levels of certain skills and are ultimately more effective in a variety of cross-cultural contexts. Hong and colleagues identify three modes of identity negotiation that individuals seem to use over the course of their lives (Hong et al., 2007). These are labeled *integration*, in which elements from multiple cultures fuse into a unitary (multicultural) identity, *alternation*, which involves switching among cultural identities according to context and *synergy*, in which new identities emerge which cannot be reduced to the sum of their parts.

Biculturals not only develop more complex cultural representations, but they also seem to develop increased cognitive complexity across domains (Tadmor & Tetlock, 2009). Studies indicate that biculturals bear certain characteristics, such as greater empathy (Brannen et al., 2009), flexibility (Chiu & Hong, 2005), and the ability to integrate ideas in more novel and creative ways (Leung & Chiu, 2010). Wry and York extend the identity-based approach to social enterprises and study how managers with different levels of BII perceive the goal conflict between welfare and commercial goals (Wry & York, 2015). Mok and Morris find that high BII may affect consumer information-seeking and decision-making (Mok & Morris, 2013). Chand and Tung study subjects from the Indian diaspora in Canada and the United States who have spent at least four years in their country of residence (rather than country of origin) and find that cultural distance and cultural conflict and their interaction have a significant impact on economic engagement behaviors such as trade and investment: cultural boundary spanners are more likely to invest in their country of origin (Chand & Tung, 2014). Lücke and colleagues employ a connectionism perspective to explain how specific sociocultural experiences interact with existing individual cognitions to form different patterns of multiculturalism yielding differential managerial effectiveness depending on the task involved in managing MNCs: global integration of dispersed operations, cross-border transfer of management practices, and learning across different environments (Lücke et al., 2013). Finally, Aydinli and Bender note that culture can be primed and therefore it is necessary to perceive culture as more than a categorical variable that is stable over situations, but rather dynamic, that is, domain-specific, situated, and constructed over time (Aydinli & Bender, 2015).[8] AU:4

METHODS

Research Design

To examine the interplay of effectuation and causation logics in the Chinese high-tech sector and the resulting strategies employed, we adopted a qualitative research approach, as both the research stream on ambiguity in entrepreneurs' decision-making and on testing the theory of effectuation are still in the emerging phase (Bansal & Corley, 2011; Edmondson & McManus, 2007). This stage calls for methods that allow us to explore the phenomenon in depth and to capture a large degree of contextual information missing from most quantitative studies. Further, international business

(IB) scholars urge researchers to (re)apply qualitative methods in international studies (Birkinshaw, Brannen, & Tung, 2011). The empirical sample studied in this chapter contains overseas high-tech entrepreneurs who can be characterized as biculturals (Brannen & Thomas, 2010). Semi-structured interviews were conducted using the case study method which is the suggested approach when building new theory (Eisenhardt & Graebner, 2007; Siggelkow, 2007). The case study approach can also be very helpful when studying complex phenomena (Vissak, 2010) and can help bridge the gap between academia and industry (Simon, Sohal, & Brown, 1996), a secondary goal of both entrepreneurship and M&A research. Further, narrative stories about decision-making were solicited (Gartner, 2007): At the end of the interview, participants were asked to fill out two scenarios ("Wearable Computing" and "Small Recording Label") of the entrepreneurial scenario survey (Wiltbank, Read, Dew, & Sarasvathy, 2009), a research instrument is used to measure the degree of effectuation among research subjects. The interviews were tape-recorded and transcribed, after which cross-case analysis was performed using the qualitative research software Atlas TI (Gibbert, Ruigrok, & Wicki, 2008).

Data Collection and Sample

Given the research design, the sample under investigation manifests the variation between two groups, namely domestic and overseas entrepreneurs, as well as a third group, government officials in the high-tech sector, which were examined to capture the institutional environment. One author visited China twice from July 2010 to Aug 2011; thus, the data collection phase contains two phases. During the first phase, a snowball approach was pursued, in which entrepreneurs were asked to recommend other entrepreneurs as potential informants; this was done to initially obtain a breadth of information on the phenomena under study. In phase two, data was collected by following a quasi-random approach; this allowed us to triangulate on our research setting in a more focused way, while assuring the novelty of the information and a balanced approach. For this step, the authors obtained access to an overseas entrepreneurs association, through which interviews were arranged by randomly calling individuals in the association's membership database. In total, 10 interviews with entrepreneurs and 5 interviews with governmental officials were conducted over 12 months in China (Table 4). These lasted between 60 and 120 minutes each and presented us with a wealth of information on our research questions.

39 37 35 33 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1

Table 4. Semi-Structured Interviews Conducted from August 2010 to July 2011 in the PRC.

Interviewee (with Degrees)	Industry	Date (dd/mm/yy)	Venue	Length (Min.)	Type
CEO, Dr.-Ing	ICT: wireless sensor design house	31/08/10	CEO's office in Wuxi New District High-Tech Park	90	Overseas
CEO, MBA	ICT: mobile Internet application provider	01/09/10	CEO's office at Wuxi (National) Industrial Design Park, Wuxi	120	Domestic
CEO, Ph.D.	Biotech: biotech production materials provider	03/09/10	CEO's office at Wuxi Bio-pharmaceutical R&D Outsourcing Service Park, Wuxi	90	Overseas
CEO, MD, MBA	Biotech: outside test products provider	03/09/10	CEO's office at Wuxi Bio-pharmaceutical R&D Outsourcing Service Park, Wuxi	120	Overseas
CEO, Dr.-Ing	ICT: financial service software developer in Wuxi	05/09/10	Coffee shop in Shanghai Pudong District	60	Overseas
CEO, M.S.	Energy: solar PV cell and module	18/07/11	CEO's office in Jiangsu	60	Domestic
VP, COO, M.S.	Energy: solar PV cell and module	20/07/11	COO's office in Zhejiang	60	Domestic
Marketing Director, M.S.	ICT: software outsourcing	25/07/11	Office in Wuxi T-Park	60	Domestic
CEO, M.S.	Energy: bio-energy cell	26/07/11	Coffee shop near Wuxi T-Park	60	Overseas
CTO, founder, Dr.	ICT: mobile Internet	26/07/11	Office in Wuxi T-Park	60	Overseas

RESULTS

The interview data suggests that individuals and institutions each have inclinations toward certain logic orientations, pursuing mixed strategies of effectuation and causation. National culture (and resulting cognitive heuristics or mental habits) can be seen as the driving force behind logic orientations at the individual level. Globalized entrepreneurs (i.e., Chinese Argonauts) with significant exposure to Western logic and domestic Chinese entrepreneurs are differentiated here. At the institutional level, one can distinguish between domestic Chinese entrepreneurs (which are entrenched in a transitional economy) and Chinese Argonauts that have had significant exposure to Western logic (and to the corresponding established economies). Both levels impact the resulting logic orientation (or logic orientation mix), which is mediated by the level of perceived ambiguity (i.e., of the environment). In the framework presented below, the perceived level of ambiguity is multi-faceted, comprising both individual ambiguity and institutional ambiguity (Fig. 1).

The logic orientation spectrum can be seen as the spread between "full effectuation (100% effectuating)," "balanced effectuation (50/50)," and "full causation (100%)." Effectuators tend to choose those strategy mixes that more frequently select the effectuation approach while causators tend

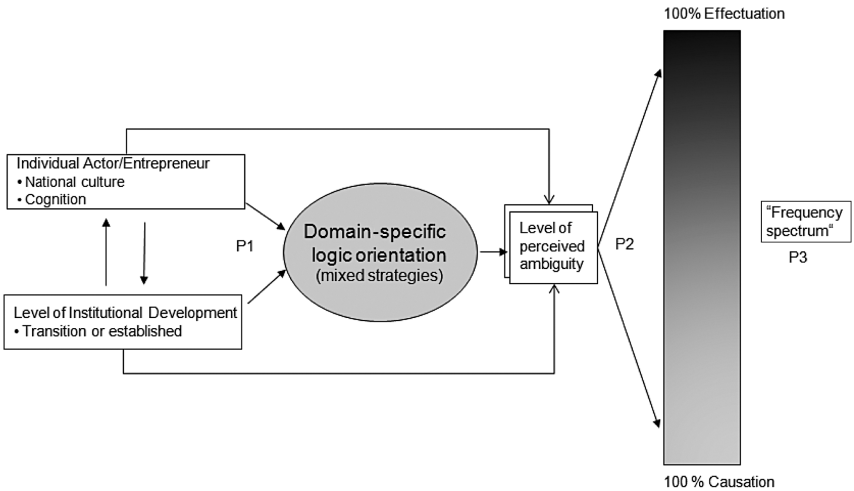

Fig. 1. A Model of Domain-Specific Logic Orientation Linking Effectuation to Causation.

to choose strategy mixes that assign higher probabilities to causal approaches. The authors argue that as the level of perceived ambiguity (on behalf of the entrepreneur) rises, the chosen strategy is driven closer to the effectuation, and closer to causation as perceived ambiguity decreases. Further, it is maintained that the logic orientations utilized are likely to be domain-specific. Cognitive frame-switching (especially resulting from bicultural identities) is identified as a potential mechanism underlying the domain-specific logic orientation. The findings here lend support to a recent study that identifies the complementary effects of effectuation and causation from a behavioral perspective (Fisher, 2012). Next, based on the discussion so far, propositions are set forth and preliminary conclusions are drawn.

As acknowledged in the literature, bicultural individuals swiftly use frame-switching strategies in different contexts. Following this line of argument, the returnee entrepreneurs studied should bear the characteristics of flexibility. The empirical evidence here partly confirms this argument. Another approach, seemingly more effective, is a complementary composition of the venture team. One co-founder in the bio-pharmaceutical industry explains,

> We have three founders, and we three have complementary skill sets: I am specialized in technology, but don't know much about marketing, especially marketing in China. […] is more experienced for business operation in China, while I have been overseas for too long. He is more familiar with the domestic market situation. […] is specialized in economics, so he is an expert about international trade.

The authors argue that the founders internalize knowledge and use frame-switching on the team-level. Bicultural individuals can understand each other well due to their similar multicultural exposure and cognitive roots within the team. The individuals who are more familiar with the Chinese business environment channel knowledge to other founding team members who are more competent in other areas, that is, international trade. This synergy is achieved on the team-level rather than on the individual-level. Biculturalism can facilitate such synergy creation processes. Hence, the authors attempt to address the questions of biculturalism:

1. Do biculturals possess unique skills and abilities that allow them to function more effectively in global business environments?
2. Do the different ways in which bicultural individuals experience their multiple identities result in distinct skill sets for today's complex global organizations?

The study presented here covers both entrepreneurs from a variety of regions in China as well as government officials from a concentrated region, Wuxi. Wuxi is a city, where the local government proactively promotes technology entrepreneurship by attracting overseas technology entrepreneurs. The data analysis from the in-depth interviews with local governmental officials indicates that regional characteristics impact the entrepreneurial decision-making process. One co-founder, for instance, claims the following regarding the choice of location for their technology venture:

> Although Dalian is becoming the center of chromatographic research and development, the city has very little government support for venture creation. Additionally, we did not choose this metropolis as our corporate location because the starting cost would have been extremely high. Another advantage is that Wuxi is pretty close to Shanghai, where many biochemical companies are located.

In addition, the local government of Wuxi seems to create a friendly environment for high-tech entrepreneurs and to strongly support them. One director of the Wuxi 530 Entrepreneur Service Center explains in an interview:

> We feel that the 530 Plan brings positive effects. Wuxi definitely bolsters a good reputation luring talented overseas entrepreneurs. We are the first and enjoy the first-mover advantage.

The first-mover effect affects follow-up entrepreneurs when they decide where to start their venture and formulate strategies. Based on the data analysis conducted, the authors posit the following:

> **Proposition 1.** Individual actors and the level of institutional development jointly compose the logic orientation.

The level of perceived ambiguity varies among returnee entrepreneurs and domestic entrepreneurs. The multi-dimensionality of the uncertainty construct is acknowledged. The authors therefore chose to resort to the definition suggested by Santos and Eisenhardt "ambiguity as lack of clarity about the meaning and implications of particular events or situations (Santos & Eisenhardt, 2009, p. 644). Ambiguity leads to confusion and multiple potential interpretations (Santos & Eisenhardt, 2009) and differs from uncertainty, which refers to the inability to predict the probability of specific outcomes (Davis, Eisenhardt, & Bingham, 2009).

In comparison to overseas entrepreneurs, domestic entrepreneurs in the sample studied here seem to follow more conservative strategic approaches in deciding which markets to enter.

One domestic CEO explains:

> I will not choose any industry; I refer to industry reports and believe that the mobile internet market is huge and uprising.

In contrast, an overseas entrepreneur reveals his attitudes toward risk:

> I am not risk-averse. But I set an upper line. For instance, if I can afford a loss of 50 thousand, I will not hold back before I reach that amount. If I have not succeeded after spending 50 thousand, I will simply stop.

This statement reconciles directly to the "affordable loss" principle of effectuation theory. The evidence from this study suggests that overseas (Chinese) entrepreneurs decide and act in line with effectuation theory more frequently than do domestic (Chinese) entrepreneurs.

Proposition 2. The level of perceived ambiguity mediates the strategy adopted by high-tech entrepreneurs.

An individual's causal reasoning is to a degree cognitively hardwired and possibly even genetically pre-disposed (de Geus, Wright, Martin, & Boomsma, 2001; Fugelsang & Dunbar, 2009). However, recent studies demonstrate the aptitude of biculturals of engaging in cultural frame-switching; even individuals exposed only to one culture have tendencies to "switch cognitive gears," from habits of mind to active thinking (Louis & Sutton, 1991). This implies that entrepreneurs that engage in effectuation strategies in some circumstances or domains may still retain more causal logic orientations toward decision-making in other domains. Thus, serial entrepreneurs may engage in effectual reasoning when pursuing new business ventures (Morrish, 2009), but may employ more predictive, causal reasoning in another context, that is, marriage or when buying a house. Thus, while many entrepreneurs are apt to be dominantly of one type – effectuators or causators (Chandler, DeTienne, McKelvie, & Mumford, 2011), the authors theorize that it should be possible for some individuals to access or select from multiple types of logic orientations, forming a type of spectrum or gray area of logic orientations.

Proposition 3. A given logic orientation is a continual spectrum from effectuation to causation.

Opportunity recognition is a creative process (Singh, Hills, & Lumpkin, 1999) that involves the detection of meaningful patterns and the exploitation of accessible social networks (Singh, 2000). Baron and Ensley argue that the detection of meaningful patterns is facilitated by subject- or

industry-specific expertise: "cognitive frameworks acquired through experience (e.g., prototypes) play a central role in this process" (Baron & Ensley, 2006). The authors of this chapter argue that overly causal logic orientation limits opportunity recognition via an inability to connect the dots between seemingly unrelated events or trends; innovative opportunities typically result from novel combinations of seemingly unrelated ideas or from applying existing processes from one field or technology to another field. As an extreme illustration, consider how some (often autistic) "savants" can integrate incredibly large numbers in the blink of an eye without a calculator, but can show difficulties maintaining an everyday conversation. The savant's knowledge is extremely specialized and related business opportunities are apt to lie on a narrow path. For effectuators, goals emerge by imagining courses of action which start from available means: "who I am, what I know, and whom I know" (Sarasvathy et al., 2010). By pursuing an effectuation strategy and by controlling rather than predicting the future, entrepreneurs may remain more open to opportunities in their immediate or extended environment as they emerge.

Proposition 4. The more one uses effectuation strategy, the more opportunities emerge that are less densely connected; the more one uses causation, fewer opportunities emerge that are on clearly defined, narrow paths.

DISCUSSION

These findings imply that effectuation leads to breadth of opportunities and to a higher volume of innovation. Conversely, causation should lead to less innovation but also to more iterative, incremental types of innovation that are narrowly focused by subject or industry (Abernathy & Utterback, 1978; Ettlie, Bridges, & O'keefe, 1984). A good example for iterative innovation resulting from causation logic is a new type of buffer on an Intel computer chip, while effectuation should lead to more radical, disruptive innovation (O'Connor & McDermott, 2004; Schumpeter, 1942) such as the usage of military networks to create new public goods like email and the Internet. (O'Connor & McDermott, 2004) in a 6-year longitudinal study of 12 radical innovation projects in 10 large established US-based firms, find that radical innovators are characterized by (1) multiplicity of roles (2) diverse team composition during both initial and mature phases of a given project and (3) thriving informal networks both internal and external to the organization. The researchers also find that members of radical innovation

projects face significantly higher risks and that there is a mismatch between these risks and current incentive structures, implying difficulties with employee retention and motivation.

Thus, managers interested in strengthening new business or new product development, as well as those involved in cross-border transactions (such as M&As) should pay special attention to differences in logic orientations during the recruitment process but also during employee retention. The proposed differences in logic orientations could help explain why good people (or matches for a certain position and firm) are hard to find. This seems especially relevant in the case of biculturals, many of whom can select from different cultural frames and related logic orientations in the face of uncertainty; the implication is that biculturals are more valuable to international firms not only because of their understanding of and experience with cultural differences (e.g., corporate cultures in the United States versus in China, see Tellis, Prabhu, & Chandy, 2009) but also that biculturals should have a larger set of response strategies to select from than monoculturals as a result of cultural frame-switching. The ability to cope with different types of uncertainty is especially important in dynamic emerging markets with rapid growth rates such as the BRICs.

Devine, Gladino, and Lamont (Conditionally Accepted) based on a review of M&A literature, find evidence that managerial retention is more important in poorly developed institutional environments, where managerial expertise helps the acquired firms navigate the institutional environments and overcome institutional voids, such as the lack of market intermediaries or contract enforcement and regulation (Khanna & Palepu, 1997). This lends weight to our finding that the context matters in entrepreneurial (and managerial) cognition, especially in international situations or transactions.

An increasing number of overseas Chinese entrepreneurs flock back to China to utilize the growing number of entrepreneurial opportunities: local governments attempt to employ novel instruments to attract and retain these talents. This presents opportunities for both domestic Chinese enterprises and foreign SMEs, because these overseas Chinese entrepreneurs seek opportunities for cooperation to start or grow technology ventures.

As for policy implications, it is argued that transitional institutional environments can offer the right momentum in favor of effectuation. Given the importance of property rights protection and enforcement (De Soto, 2000), local governments should improve the institutional environment which promotes and protects entrepreneurship and innovation in the long-term. In addition, the authors believe that effectuation strategies associated with less densely distributed opportunities may result in greater job

creation for local economies. Next, we discuss the impact of logic orientations and context on the process and performance of cross-border M&As.

Taking a process perspective (Jemison & Sitkin, 1986), including pre-M&A (target search and planning), during M&A (deal closure), and post M&A (integration)-phases, it is suggested that different phases of M&A require different levels of cognitive complexity. As illustrated in Fig. 2, in Stage I the key strategic activities include searching for potential acquisition targets and performing valuations of the target. Extant literature regards acquisitions as a means to reach innovation, that is, to gain novel ideas or technology by acquiring innovative firms (Öberg, Conditionally Accepted). Hereby, the multi-faceted search process requires openness to opportunities which are facilitated by a mix of causation and effectuation.

In Stage II, key tasks consist of due diligence, employee retention planning (e.g., compensation); this stage is largely associated with end-goal orientated activities; hence, causation constitutes the key mindset for this stage. Stage III, post-acquisition integration, primarily focuses on sociocultural integration of the acquired firm, especially on integration of corporate cultures and on the streamlining and realignment of human resources. Planned and evolving HRM practices can emerge during the integration phase. Importantly, the quest for flexibility and agility can smooth the integration process, especially when the agreed upon plans encounter difficulties during their implementation. (Bauer, Uzelac, King, & Schriber, Conditionally Accepted) emphasize the inherent difficulty in fully predicting or controlling all relevant variables during the acquisition process

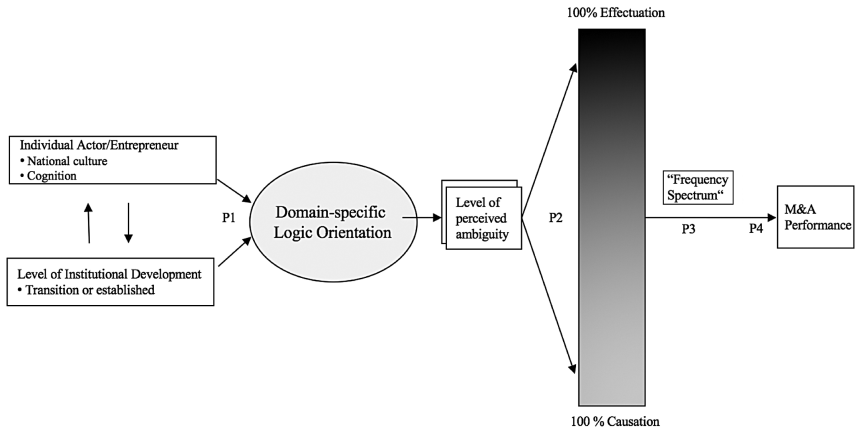

Fig. 2. Impact of Domain-Specific Logic Orientation on M&A Performance.

(Schweiger & Very, 2003), leading them to argue that entrepreneurial skills – the ability to make decisions under uncertain conditions – contribute to M&A goal achievement of internal reorganization and market expansion and therefore contribute to creating value from acquisitions. In addition, the authors distinguish four integration strategies: autonomy, socialization, absorption, and formalization and suggest that acquirers that pursue social and structural integration of a target benefit from ambidexterity (Bauer et al., Conditionally Accepted; Lubatkin, Simsek, Ling, & Veiga, 2006; Mihalache, Jansen, Van den Bosch, & Volberda, 2014) (Fig. 3).

Therefore, a mix of available logics (acquired by learning and adaptation mechanisms) may be helpful to navigate through the complexities involved during post-merger integration. In a longitudinal study of over 2,000 acquisitions by Dutch firms, Nadolska and Barkema (2014) find evidence that top-management learning affects both the success and frequency of acquisitions. In a nutshell, we suggest that both logic orientations (causation and effectuation) can facilitate the cross-border M&A process and that there is a need to align available logic orientations with M&A stages, so as to improve M&A outcomes (e.g., profitability and chances of survival of the resulting larger firm) by leveraging the advantages of both causation and effectuation. In order to build and maintain both logic orientations, it is postulated that appropriate team

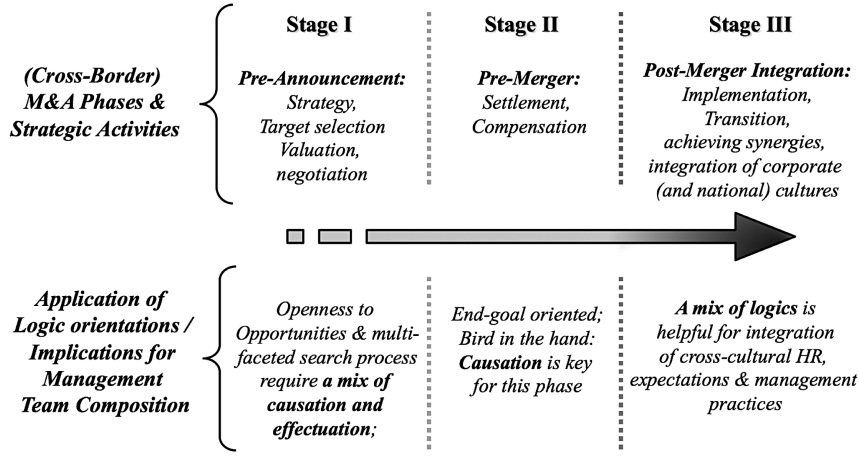

Fig. 3. Logic Orientation Fit with Stage of Cross-Border M&A.

compositions (at both the management levels and below) can offer the potential intellectual pool to offer a mixture of effectuation and causation. For the hiring process, this implies that firms that are planning to merge or tend to grow via acquisition, should factor in or even screen candidates for the required logic orientations. This could be done via questionnaire or using tasks that test for causal versus effective logics, respectively (such as asking candidates to imagine a specific scenario and describe their approach).

LIMITATIONS AND FUTURE RESEARCH

In this chapter, due to resource constraints, the research design is limited to a qualitative analysis of a small group of high-tech entrepreneurs in mainland China. The research aim was not to provide quantitative evidence from a large database of entrepreneurs to support or counter one individual theoretic argument in entrepreneurship or management theory, but rather to provocatively enliven debate on the causes and nature of the entrepreneur's chosen logic orientation. Nonetheless, the authors realize the need to both enlarge the size of the sample and the geographic regions employed in the analysis.

Another limitation of this chapter is that a large number of variables were simply out of scope. One of the factors that were not yet sufficiently analyzed for this reason is the research stream on domain-specific expertise and how this may affect effectuation and entrepreneurial logic and domain-specific decision-making under uncertainty.

The framework and arguments presented suggest the following questions for further research:

1. When may deep industry expertise hinder or facilitate the entrepreneur's tendency to effectuate and what is the effect on the ability to switch between cognitive frames? Is it possible that entrepreneurs that are active chiefly in a narrow industry can switch from initial effectuation to an increasingly causal logic orientation over time?
2. To what extent is cognitive frame-switching successful in the entrepreneurial setting and between cultures?
3. Are there similar results between mono- and bicultural high-tech entrepreneurs in other parts of Asia? (i.e., in regions with different institutional environments: Russia, Japan, etc.)

CONCLUSION

This chapter contributes to the emergent study on entrepreneurial effectuation by juxtaposing cultural, cognitive, and institutional theoretical lenses (Sarasvathy et al., 2014). Based on a qualitative study in the context of Chinese high-tech entrepreneurship, an integrative conceptual framework is proposed, contrasting domestic entrepreneurs with overseas entrepreneurs. The study reveals interesting findings on context-specific entrepreneurial decision-making processes. It can be concluded among the subjects studied, that returnee entrepreneurs who are profiled as bicultural individuals are more likely to adopt effectual strategies because they can either swiftly switch frames to the corresponding contexts or are able to internalize frame-switching into their entrepreneurial teams. Institutional context, namely the development phases across regions, impact the formation of domain-specific logic orientations and perceived levels of ambiguity. The perceived level of ambiguity, as a proxy for uncertainty, is a multidimensional construct and mediates the strategies that entrepreneurs draw from in the pool of domain-specific logic orientations.

Our framework may help explain the results of two recent empirical studies that find that entrepreneurs seem to shift between the logics of effectuation and causation (Ciszewska-Mlinaric et al., 2016; Reymen et al., 2015). The implications of context-specific logic orientations for the management of the cross-border M&A process are discussed and imply that heterogeneous and cognitively flexible top-management teams with international experience are beneficial to the integration of the acquired firm, filling a gap in extant research on effectuation and M&A. We thus contribute to the process perspective of acquisitions (Jemison & Sitkin, 1986) but also to research on heterogeneity and cognition in top-management teams (Ensley & Pearce, 2001; Smith & Tushman, 2005). The authors hope that this study will inspire further scholarly inquiry into unpacking the cultural and cognitive processes surrounding context-specific decision-making in high-paced environments and that it may further contribute to the microfoundations of the theory of effectuation.

NOTES

1. It is worth noting that the word "strategy" implies a conscious process; as in cognitive science, such processes are likely to be only partly conscious and partially ingrained from learning and adapatation. This difficulty applies similarly to the concept of choice underlying decision-making, especially given contextual ambiguity.

2. The closest translation in English is "nerd" but it does not capture the full meaning in terms of the implied narrow-mindedness.
3. The authors report that in their study, 48% of subjects were ambiguity averse, 22% were ambiguity seeking, and 30% were close to ambiguity neutral. In addition, for a portion of subjects, ambiguity attitudes seem to be variable depending on the probability of receiving a good outcome, which may be explained by prospect theory.
4. Consider, for instance, a consumer choice situation between three mobile service providers – if the consumer is only aware of two of these, the choice set reduces to only two; clearly perception and awareness play a key role here. Decisions, much less strategies, however, are rarely as simple as this example.
5. fMRI is short for "functional magnetic resonance imaging."
6. Geert Hofstede's cross-cultural studies of IBM employees have been highly influential on a macro-level but continue to be controversial in their details; Hofstede's framework continues to be widely used due to its intellectual prowess and for a general lack of alternatives; for notable exceptions see work by Edward T. Hall and Fons Trompenaars.
7. A discussion of the suggested types of entrepreneurs (i.e., growth-oriented entrepreneurs are argued to be attracted to informal economies; *Ibid.*) is outside of the scope of this chapter.
8. A summary of the literature on bicultural identity integration is included in Table 5 of the appendix.

ACKNOWLEDGMENTS

The authors sincerely thank Professor James G. March and other workshop participants for their insightful suggestions made during the Stanford workshop on "Ambiguity and Decision Making in Chinese Organizations."

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