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Heterogeneity in dynamic capability configurations: Equifinality and strategic performance

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ABSTRACT

The present article outlines an approach that combines finite mixture partial least squares analysis with fuzzy-set qualitative comparative analysis to assess the performance impact of dynamic capability configurations, conditional on certain levels of environmental dynamism. In consideration of business model sensing, strategic learning, and strategic reconfiguring, the findings imply that these three dynamic capability processes do not necessarily co-occur; different configurations of these processes can yield superior strategic performance, conditional on the levels of environmental dynamism.

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1. Introduction

A configurational approach assumes that *gestalts*, rather than independent factors relate to strategic performance (Fiss, 2007). Configuration typologies, such as those by Miles and Snow (1978) or Porter (1980), remain central to strategy research, but recent discussion on the role of equifinality within the dynamic capability view likewise alludes to the importance of distinct capability configurations in the pursuit of superior performance (Eisenhardt & Martin, 2000). A few studies assess configurations of the processes that make up dynamic capabilities (e.g., Löwik, 2013; Vergne & Depeyre, 2015) but tend to assume heterogeneous performance impacts, without empirically testing for such heterogeneity or theoretically explaining its possibility in dynamic capability configurations.

To close this gap, the current article draws upon the dynamic capabilities view (Eisenhardt & Martin, 2000; Teece, 2007) and examines how a set of interrelated dynamic capability processes leads to superior strategic performance (Bingham, Heimeriks, Schijven, & Gates, 2015; Lin & Wu, 2014; Schilke, 2014). In doing so, this article offers a contribution that concerns the dynamic capability view and one that is methodological in nature: First, this study refines current assumptions about the sequencing of three dynamic capability processes (business model sensing, strategic

learning, and strategic reconfiguring) that, according to conventional understanding, would yield superior strategic performance when occurring consecutively. In support of Eisenhardt and Martin (2000), the findings suggest that these three strategic processes do not always co-occur; rather, their different configurations yield certain strategic performance outcomes, conditional on the levels of environmental dynamism. Accordingly, this study identifies heterogeneous dynamic capability configurations that produce the same performance outcome; supporting the equifinality assumption within the dynamic capability view.

Second, since standard applications of partial least squares structural equation modeling (PLS-SEM), that would commonly serve to examine the performance impact of certain dynamic capability processes (e.g., Wilden, Gudergan, Nielsen, & Lings, 2013), face limitations in identifying heterogeneous equifinal dynamic capability configurations, this study proposes and implements an approach that combines finite mixture partial least squares (FIMIX-PLS) analysis (Sarstedt, Ringle, & Gudergan, 2016) with fuzzy-set qualitative comparative analysis (fsQCA) (Fiss, 2011) to assess potentially unobserved heterogeneity and identify ensuing equifinal dynamic capability configurations.

Using survey data from top-executives in the German chemical industry, the empirical analysis with PLS-SEM suggests that strategic learning and strategic reconfiguring fully mediate the relationship between business model sensing and strategic performance. In line with the findings of the FIMIX-PLS analysis, the fsQCA further demonstrates the existence of four idiosyncratic dynamic capability configurations when considering environmental dynamism as an additional causal condition. Consequently, this study affirms that different *gestalts* of

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dynamic capability processes open different paths to superior strategic performance, conditional on environmental dynamism.

2. Theory and hypotheses

2.1. Dynamic capability view

Firms require idiosyncratic and difficult-to-imitate dynamic capabilities to achieve sustainable competitive advantages in fast-moving environments (e.g., Helfat et al., 2007; Teece, 2007). Dynamic capabilities represent the capacity of firms to integrate, build, and reconfigure resources (Teece, Pisano, & Shuen, 1997). A firm's dynamic capabilities, which allow it to adapt to changing environments (Zahra, Sapienza, & Davidsson, 2006) or develop new business models (Teece, 2010), affect performance by strategically transforming the business (Helfat et al., 2007).

Teece (2007) conceptualizes dynamic capabilities as encompassing three processes: sensing and shaping opportunities and threats, seizing opportunities, and reconfiguring the business enterprise's resource base. Yet dynamic capabilities function in firm-specific, idiosyncratic ways (Drnevich & Kraicunas, 2011; Eisenhardt & Martin, 2000). As Pettus, Kor, and Mahoney (2009, p. 189) suggest, even if the processes underlying dynamic capabilities overlap, "...they serve unique and complementary roles to boost the likelihood of operating successfully in environments of significant change." The processes that constitute dynamic capabilities thus "neither exist uniformly in all firms, nor matter equally in all industries" (Pettus et al., 2009, p. 191; see also Delmas, Russo, & Montes-Sancho, 2007; Gajendran, Brewer, Gudergan, & Sankaran, 2014; Winter, 2003).

Therefore, effective dynamic capabilities share some commonalities, but the ways firms practice them differ since they are path dependent and subject to organizational inertia and commitment (Eisenhardt & Martin, 2000). In consideration of such firm idiosyncrasies (Winter, 2000), dynamic capabilities reflect firm-specific positions, paths, and processes (Schreyögg & Kliesch-Eberl, 2007) and their performance impacts are not necessarily homogeneous but differ across firms, subject to how they form in those firms. Also, the impacts of dynamic capabilities vary with external conditions (Eisenhardt & Martin, 2000) and are contingent on environmental dynamism (Li & Liu, 2014; Schilke, 2014; Wilden & Gudergan, 2015; Wilden et al., 2013). Any assessment of heterogeneity needs to account for both the ways that dynamic capabilities shape within firms and the environmental dynamism they face.

2.2. Hypotheses

2.2.1. Homogeneous impacts of dynamic capabilities

A firm's capacity to sense and filter strategic opportunities concerning its business model is an important means to address changing business environments (Teece, 2012). This process of business model sensing, or the firm's capacity to validate its business model, involves monitoring competitors' business models, scanning for external and internal discontinuities that potentially threaten an existing business model, and assessing this business model (Teece, 2010).

Because business model sensing generates new information (e.g., new revenue models) and can monitor market opportunities, it supports a firm's ability to create strategically relevant knowledge. This knowledge-generating proficiency is an important basis for strategic learning (Zollo & Winter, 2002), denoting "a firm's proficiency at deriving knowledge from past strategic actions and subsequently leveraging that knowledge to adjust firm strategy" (Anderson, Covin, & Slevin, 2009, p. 218). That is, business model sensing fosters not only knowledge generation but also strategic change, through leveraging the strategic knowledge. In turn, business model sensing promotes strategic change, because "a plethora of business models ... can be designed and employed, but some will be better adapted to the ecosystem than others" (Teece, 2007, p. 1330). Firms with high awareness of their own and competitors' business models are in a better position to

identify new business models that fit the ecosystem, such that these firms can better seize new opportunities and strategically reconfigure their business than companies with low awareness (Pavlou & El Sawy, 2011).

Hypothesis 1. Business model sensing relates positively to (a) strategic learning and (b) strategic reconfiguring.

Strategic learning enables firms to innovate and adapt to changes in technology and markets (Anderson et al., 2009; Helfat & Raubitschek, 2000) and also facilitates the modification and transformation of firms' business (Nooteboom, 2009). Firms that engage in learning should experience less organizational inertia (Levinthal, 1991), such that strategic reconfigurations are more likely. Thus, strategic learning facilitates both the effective selection and the actual development of business models that yield competitive advantages (Teece, 2007).

Hypothesis 2. Strategic learning relates positively to (a) strategic reconfiguring and (b) strategic performance.

Strategic reconfiguring processes influence firm performance (Helfat & Peteraf, 2009) and enable firms to adapt more quickly and effectively, creating a stream of temporary competitive advantages (Helfat et al., 2007; Teece et al., 1997). By reconfiguring their business in novel ways, firms can leverage new opportunities and new sources of economic value (Galunic & Rodan, 1998).

Hypothesis 3. Strategic reconfiguring positively relates to strategic performance.

2.2.2. Heterogeneous impact of dynamic capabilities

In the implicit, evolutionary novelty creation sequence (i.e., H1–H3; see also Teece, 2007; Zollo & Winter, 2002), strategic reconfiguring depends on prior strategic learning, which in turn rests on business model sensing. This sequencing concurs with prior conceptualizations (e.g., Dess & Lumpkin, 2005; Eisenhardt & Martin, 2000), but the processes likely develop and function differently across firms, due to firm idiosyncrasies such as path dependencies. The impact of dynamic capabilities also varies with environmental conditions (Eisenhardt & Martin, 2000; Schilke, 2014). Thus, and in drawing on Löwik (2013) and Vergne and Depeyre (2015), there likely is heterogeneity in how certain dynamic capability processes affect firms' strategic performance, and environmental dynamism likely affects their impact.

Hypothesis 4. Equifinality characterizes certain dynamic capability configurations, conditional on environmental dynamism.

3. Research design, data, and methodology

3.1. Sample

The empirical data of this study is cross-sectional and part of a larger study investigating organizational capabilities within the German chemical industry in 2014 (Gelhard and von Delft, 2016). The chemical industry is particularly suitable to study dynamic capabilities as it is facing shifting market dynamics. By making use of an online questionnaire, this study solicits data from top-managers as key informants. To ensure that these key informants are knowledgeable to adequately respond to the questions under examination, the study applies the following key-informant criteria: (1) involvement in strategic, operational, and innovation decision making; (2) job experience; (3) job title; and (4) organizational tenure (see Appendix A). From an initial sample of 286 respondents, this study discards 187 entries, due to missing data or mismatches with the key informant criteria. The final sample of 99 respondents represents a response rate of 34.61% (accounting for all participants who started the online survey; Joshi, Kathuria, & Porth, 2003).

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