When do Dynamic Capabilities Lead to Competitive Advantage? The Importance of Strategic Fit

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This is the peer reviewed version of the following article:

Fainshmidt, S., Wenger, L., Pezeshkan, A., and Mallon, M.R. (2019). When do Dynamic Capabilities Lead to Competitive Advantage? The Importance of Strategic Fit. *Journal of Management Studies*, *(56)* 4, 758-787. https://doi.org/10.1111/joms.12415

Abstract:

Recent studies suggest the relationship between dynamic capabilities and competitive advantage may be jointly affected by organizational and environmental factors. We enrich this nascent perspective by developing a configurational theoretical framework – underpinned by the mechanism of strategic fit – wherein dynamic capabilities lead to a competitive advantage when they support a strategic orientation appropriate for the levels of dynamism and munificence in the environment. Results of a fuzzy-set Qualitative Comparative Analysis using primary data show that dynamic capabilities lead to a competitive advantage in dynamic, munificent environments by enabling the combination of differentiation and low-cost orientations. In stable, non-munificent environments, dynamic capabilities are effective in support of a low-cost orientation. The central insight of this study is that the relationship between dynamic capabilities and competitive advantage is contingent upon the strategic fit between organizational and environmental factors, contributing to a more rigorous and configurational dynamic capabilities view.

Keywords: configurational theory | dynamic capabilities | environmental dynamism | environmental munificence | fuzzy-set analysis | strategic fit | strategic orientation

Article:

Introduction

The dynamic capabilities view suggests that the extent to which dynamic capabilities contribute to competitive advantage depends on the environment in which firms operate (Schilke, 2014; Winter, 2003). Often, the focus has been on dynamic environments, because such environments require that firms change more frequently, offering more opportunities to exercise dynamic capabilities and recuperate the costs of developing them (Drnevich and Kriauciunas, 2011; Wilden and Gudergan, 2015). However, several conceptual and empirical contributions suggest that the relationship between dynamic capabilities and competitive advantage is more complex, and that focusing on environmental dynamism without attention to other relevant factors may paint an incomplete portrait of the value of dynamic capabilities (Fainshmidt et al.,2016; Grant and Bakhru, 2016; Peteraf et al., 2013; Ringov, 2017).

Accordingly, Wilden et al. (2016) propose an 'architectural model' whereby 'the effects of DCs [dynamic capabilities] on performance need to be investigated using a configurational mindset, that is, including both internal and external contextual factors' (p. 1001). As a literature review, Wilden et al. (2016) provide the foundation for a configurational theory and call for more studies identifying the configurations of environmental and organizational factors that render dynamic capabilities conducive to competitive advantage. However, a meaningful configurational theory of dynamic capabilities can only develop if we flesh out the configurations that are effective and explicate the underlying theoretical mechanisms. In this paper, we take a step in that direction by developing a configurational theoretical framework predicting combinations of dynamic capabilities, environmental factors, and organizational factors that lead to competitive advantage, underpinned by the concept of strategic fit (Ginsberg and Venkatraman, 1985; Zajac et al., 2000).

Specifically, alongside dynamism, we introduce environmental munificence as an environmental factor shaping access to resources and thus the potential value of dynamic capabilities in supporting alignment with the external environment (Aragon-Correa and Sharma, 2003; Zott, 2003). In terms of internal factors, we draw from multiple works arguing that the firm's strategic orientation may steer dynamic capabilities in producing resource configurations (e.g., Bingham and Eisenhardt, 2008; Wang and Ahmed, 2007; Wilden et al., 2016). Indeed, Wilden et al. (2016, p. 1032) argue that a more complete model of the value of dynamic capabilities ought to consider the firm's strategic orientation, as it 'comprises the long-term managerial plans that are put in place to adapt to internal and external changes'. We argue that if firms' strategic orientation affects their ability to obtain a competitive advantage by aligning operational capabilities with environmental conditions, then dynamic capabilities may either strengthen such fit or generate change that weakens fit. Accordingly, we put forth several hypotheses predicting specific configurations of dynamic capabilities, environment, and strategic orientation associated with competitive advantage.

To test our configurational theoretical framework, we utilize fuzzy-set Qualitative Comparative Analysis (fsQCA), a configurational technique rooted in set theory and Boolean algebra (Fiss, 2011), and a primary dataset of 162 Israeli firms. Results suggest that dynamic capabilities are associated with competitive advantage in dynamic, munificent settings, and may enable the effective combination of differentiation and low-cost orientations in such environments. Additionally, dynamic capabilities are associated with competitive advantage in stable, non-munificent environments for firms with a low-cost orientation. In stable, munificent environments, firms can achieve a competitive advantage with or without dynamic capabilities by employing an effective strategic orientation. Finally, in dynamic, non-munificent (resource-scarce) environments – arguably the most challenging environment to navigate – neither deploying dynamic capabilities nor an effectively implemented strategic orientation is associated with competitive advantage.

Our study makes two key contributions to the dynamic capabilities view. First, we develop a theory of how organizational and environmental factors interact to affect whether dynamic capabilities lead to a competitive advantage, highlighting the importance of strategic fit as the underlying mechanism. We enrich Wilden et al.'s (2016) general notion by building a configurational theoretical model and explicating why dynamic capabilities may lead to competitive advantage only within particular configurations. Second, the lack of conceptual clarity regarding the role of contingencies, such as dynamism, in the value of dynamic capabilities has been 'particularly striking' over the years (Ringov, 2017, p. 654; see also, Di Stefano et al., 2014). By developing a configurational theory that accommodates the role of strategic orientation and the multidimensional nature of the environment, we theoretically and empirically demonstrate that dynamic capabilities can lead to competitive advantage in both relatively stable and dynamic environments, provided they enhance fit between strategic orientation and environmental conditions.

This paper is organized as follows. In the next section, we review relevant dynamic capabilities literature and formulate a configurational theoretical framework underpinned by the strategic fit concept. Then, we proceed with a detailed overview of our data and empirical analyses conducted to test our theoretical predictions. Subsequently, we provide the study's results and elaborate the implications for theory and practice. We end with an overview of the study's contributions and avenues for future research within the dynamic capabilities view.

Theory and Hypotheses

Dynamic Capabilities and Competitive Advantage: An Overview

Helfat and Winter (2011, p. 1244) define organizational capabilities as 'the capacity to perform a particular activity in a reliable and at least minimally satisfactory manner'. Dynamic capabilities represent the 'capacity of an organization to purposefully create, extend, or modify its resource base' (Helfat et al., 2007, p. 4). These capabilities rest upon collective activities inside the firm that alter the way the firm makes its living and 'promote economically significant change… even if the pace of change appears slow or undramatic' (Helfat and Winter, 2011, p. 1249). Put differently, dynamic capabilities modify existing organizational capabilities and resources or develop new ones (Teece et al., 1997; Winter, 2003).

Teece (2007) provides a framework for dynamic capabilities, encompassing three underlying components: sensing, seizing, and reconfiguring. Sensing entails continuous observation of a firm's external environment and accumulation of insights regarding opportunities and threats (Augier and Teece, 2009). Seizing is characterized by ongoing evaluation of firm capabilities and resources (Wilden et al., 2013), often accompanied by substantial investment in tangible and intangible assets (Helfat and Peteraf, 2015). Reconfiguration entails the recombination of a firm's resources and ordinary capabilities to optimize complementarities internally and with the environment (Teece, 2012; Wilden and Gudergan, 2015).

The three components of sensing, seizing, and reconfiguring are interrelated, but not interchangeable (Fainshmidt and Frazier, 2017; Martin, 2011; Wilden and Gudergan, 2015). They act in concert to effectuate organizational outcomes (Danneels, 2015; Teece, 2007), and together constitute a framework for the overarching dynamic capabilities construct (Wilden et al., 2013). For instance, reconfiguration without sensing and seizing may lack direction and thus fail to create resource bundles that fit with environmental conditions (Drnevich and Kriauciunas, 2011; Wilden et al., 2013). Indeed, Teece (2007, p. 1341) emphasizes that 'the enterprise will need sensing, seizing, and transformational/reconfiguring capabilities to be simultaneously developed and applied for it to build and maintain competitive advantage'.

Although the capacities to sense, seize, and reconfigure may not be rare (Eisenhardt and Martin, 2000), there is variation in the frequency and skill with which firms enact such activities (Winter, 2000), because firms accumulate knowledge about how to change (Zott, 2003). Thus, dynamic capabilities can be a source of competitive advantage (Teece, 2014). However, dynamic capabilities also entail costs associated with devoting resources to change activities (Zollo and Winter, 2002). For instance, firms usually incur transaction and coordination costs when altering their resource base (Chakrabarti et al., 2011; Karim, 2006), such as hiring external consultants and other professionals who facilitate the change. Similarly, sensing capability rests upon the allocation of managerial effort and attention to outward-looking activities (Helfat and Peteraf, 2015; Wilden and Gudergan, 2015). In addition, unlearning costs occur when it becomes necessary to remove existing processes to reduce friction from implementing changes (Lavie, 2006). The disruptive effect of changes to the resource base, especially when done repeatedly, can prevent a firm from realizing a potential competitive advantage (Schilke, 2014).

Given these costs, contextual factors may ultimately influence the utility of dynamic capabilities with regards to competitive advantage. Most notably, environmental dynamism has been put forward as a key contingency, as dynamic capabilities can help the firm adapt to frequent environmental shifts (Teece et al., 1997). Indeed, studies show a positive relationship between dynamic capabilities and competitive advantage in dynamic environments, though this relationship might become weaker at very high levels of environmental dynamism (Schilke, 2014). Further, although dynamic capabilities might, on average, be more valuable in dynamic settings (Karna et al., 2016), dynamic capabilities may also be useful in stable environments (Ambrosini and Bowman, 2009; Eisenhardt and Martin, 2000; Wilden and Gudergan, 2015). Ringov (2017) adds that the firm's resource base interacts with environmental dynamism to affect the dynamic capabilities-performance relationship. Recent work has begun advocating for a more nuanced approach to the role of context in shaping the value of dynamic capabilities, with an emphasis on environmental factors beyond dynamism, as well as factors internal to the firm (e.g., Ambrosini and Bowman, 2009; Peteraf et al., 2013; Wilden et al., 2013, 2016). For instance, environmental dynamism may provide more opportunities to exercise dynamic capabilities but doing so in a manner conducive to competitive advantage might require the firm to access critical external resources and to calibrate change activities to support an appropriate strategic orientation. Hence, to better understand the effect of dynamic capabilities on competitive advantage, we need a conceptualization of how external and internal factors interact to shape the dynamic capabilities-competitive advantage relationship.

A Configurational Model of Dynamic Capabilities and Competitive Advantage

A useful lens for understanding such a system of interrelationships is configurational theory. Configurations are a set of separate attributes that are collectively meaningful as a system (Miller and Mintzberg, 1983). Within the field of management, configurational theory maintains that organizations are best understood as 'clusters of interconnected structures and practices, rather than as modular or loosely coupled entities whose components can be understood in isolation' (Fiss, 2007, p. 1180). As such, configurational theory provides the basis to identify patterns of attributes associated with a particular outcome (Ragin, 2008). These attributes within configurations tend to exhibit complementarity, reinforcing one another's effects or compensating for one another's deficiencies. As a consequence, not all attributes must appear in every configuration, and equifinality may exist, whereby more than one combination can be equally effective in producing an outcome (Gresov and Drazin, 1997).

Configurational theory suggests the concept of strategic fit (Boyd et al., 2012; Venkatraman, 1989), or 'matching organizational resources with the corresponding environmental context' (Ginsberg and Venkatraman, 1985, p. 421). As Zajac et al. (2000, p. 429) note, 'strategic fit is a core concept in normative models of strategy formulation, and the pursuit of strategic fit has traditionally been viewed as having desirable performance implications'.[1] Derived from configurational theorizing, Wilden et al. (2016) suggested an architectural model of dynamic capabilities wherein the firm is viewed as a house. In their analogy, the basic structural integrity of the house/firm is determined by its strategic orientation and dynamic capabilities. This structure must be appropriate for the house to withstand (fit) the 'weather' of the external environment.

The architectural model proposed by Wilden et al. (2016) is a recent addition to the literature and provides the general foundation for a configurational theory of the dynamic capabilities view, but such theory remains nascent. Consequently, we do not have a clear understanding of either the configurations of organizational and environmental factors that render dynamic capabilities conducive to competitive advantage or the theoretical mechanism underlying these configurations. We address this gap in theory by developing a configurational theoretical framework that hinges on the concept of strategic fit and predicts specific configurations of organizational and environmental factors that, along with dynamic capabilities, lead to competitive advantage. Whereas Wilden and colleagues (2016, p. 1031) focus on how dynamic capabilities may prepare the firm to 'weather storms (i.e., environmental turbulence)', our configurational theorizing enables us to explicate that dynamic capabilities may also lead to competitive advantage in relatively less dynamic environments as part of specific configurations that accommodate the firms' strategic orientation and the multidimensional nature of the

[1] The concept of strategic fit is also associated with contingency theory and consistent with the focus of Helfat and colleagues (2007) on evolutionary fitness as a key potential outcome of dynamic capabilities. As Schilke et al., 2018 (p. 26) note: 'Dynamic capabilities are proposed to confer a competitive advantage by adding unique value to the firm through systematic change, which enhances operational efficiency and enables increased alignment with the environment'.

environment. We now turn to discussing the relevant factors within a configurational framework of dynamic capabilities and competitive advantage.

Environmental context

Although the role of environmental dynamism looms large in the dynamic capabilities view, this perspective overlooks a highly relevant environmental characteristic, namely, environmental munificence (Fainshmidt et al., 2016). Environmental munificence is the abundance of critical resources within an industry (Castrogiovanni, 1991). Munificence is often reflected in expanding demand, but it may more broadly capture the extent to which firms in an industry have access to tangible and intangible resources needed to upgrade capabilities, experiment, and grow their enterprises (Dess and Beard, 1984; McNamara et al., 2008). Prior research suggests that munificence may be important to dynamic capabilities because it allows firms to leverage externally available growth resources to develop new resource configurations (Augier and Teece, 2009; Zollo and Winter, 2002). Koka et al. (2006, p. 723) echo this notion, positing that while dynamism may provide opportunities related to exercising an array of change options, 'munificence provides the resources necessary to exercise those options'. Hence, the value of dynamic capabilities in supporting fit may depend on both environmental dynamism and munificence.

However, focusing only on the dynamic capabilities-environment interplay might erroneously assume either that the firm's internal context is always conducive to competitive advantage (i.e., fits the environment) or that internal context does not matter. Consistent with our configurational approach, we explicate why an element of the organizational context, strategic orientation, constitutes a particularly relevant factor affecting the value of dynamic capabilities in different environments.

Strategic orientation

Although numerous elements within the organization may be relevant to the value of dynamic capabilities (e.g., Wilden et al., 2013), we draw from prior research to highlight the role of strategic orientation (Wang and Ahmed, 2007; Wilden et al., 2016). According to Barney (1991), competitive advantage is closely related to strategy or 'how' firms compete. Yet, the concept of strategy can be overly broad and thus preclude the development of parsimonious theory and the testing of hypotheses (Snow and Hambrick, 1980). Accordingly, we focus on the notion of strategic orientation (also referred to as strategic positioning), which encompasses the long-term direction of the firm and sets of activities constituting operational capabilities (Argyres and Mostafa, 2016; White, 1986).

Porter's (1985) framework of strategic orientation has been widely used in the strategy literature and continues to be a useful means of understanding firms' general positions in their industries (e.g., Argyres et al., 2015; Shinkle et al., 2013; Zatzick et al., 2012). According to this framework, firms generally position themselves using two generic strategic orientations: differentiation or low-cost. A differentiation orientation hinges on value-chain activities aimed at increasing perceived value, uniqueness, or quality. A low-cost orientation, in comparison, focuses on configuring efficiency-driven value-chain activities in a manner that allows the firm to offer price-competitive products or services. Although the specific activities involved in achieving fit with the environment may vary among firms, these two orientations indicate the general differences among such activities.

A firm's strategic orientation is particularly relevant to our model because it determines which operational capabilities will be changed by the firm's dynamic capabilities (Wang and Ahmed, 2007). As a result, strategic orientation has been suggested as a key element acting in conjunction with dynamic capabilities to affect firm performance (Wilden et al., 2016). For example, when a firm exhibits a differentiation orientation, its dynamic capabilities may direct change toward the development of operational capabilities that support unique products or services. In contrast, with a low-cost orientation, dynamic capabilities may focus on efficiency-enhancing improvements and activities supporting overall cost reduction. Hence, if operational capabilities are developed in line with the firm's strategic orientation, then whether dynamic capabilities result in a competitive advantage depends on which strategic orientation they support and whether continuous change of the resource base – as part of the chosen orientation – fits with environmental conditions in a given competitive context (Cacciolatti and Lee, 2016). If dynamic capabilities do not operate in tandem with a strategic orientation that is appropriate for the firm's environment, then they may actually impede the firm's alignment with the environment (Schilke et al., 2018). These arguments are congruent with configurational logic and support a model of dynamic capabilities, environment, and strategic orientation. We next turn to putting forth several specific hypotheses by synthesizing previous research to consider each type of environment, which strategic orientation best fits within it, and whether dynamic capabilities enhance this fit.

Hypothesis Development

As discussed above, environmental dynamism provides opportunities for firms to utilize dynamic capabilities and change their resource base. However, previous theorizing regarding the role of dynamism assumes that 'resources can be quickly adjusted through portfolio additions and deletions, while ineffective reconfigurations can be relatively easily reversed' (Girod and Whittington, 2016, p. 3). This assumption may become less tenable in environments that are not munificent, as firms often struggle to find resources to buffer against sensing activities that yield little novel insights, seizing of opportunities that turn out less promising, or implementing reconfigurations that come out ineffective (Aragon-Correa and Sharma, 2003). Munificent environments, on the other hand, often reward firms that systematically seek to upgrade resources and ordinary capabilities (Sirmon et al., 2010). As munificence increases, a wider range of change options is available because resource abundance allows firms to survive even with temporary organization-environment misfit (Castrogiovanni, 1991; Tushman and Anderson, 1986). Experimentation and exploration are encouraged, as doing so is less likely to have severe or long-lasting negative impact. In addition, munificence may help firms recover costs associated with developing and deploying dynamic capabilities in environments where such capabilities can help the firm keep up with changes.

As prior studies suggest (e.g., Aragon-Correa and Sharma, 2003; Bingham and Eisenhardt, 2008; Nandakumar et al., 2010), dynamic and munificent settings are fruitful for firms with a differentiation orientation, as this orientation often encompasses experimentation and the development of unique, yet costly, resources. For instance, Lee and Miller (1996) find that among Korean firms operating in a context of technological growth and dynamism, differentiation strategies are more effective. The need for frequent change together with the abundance of external resources increase the value of dynamic capabilities, which can help strengthen the firm's fit with the environment by experimenting with resource configurations aimed at enhancing novelty and/or reinforcing perceptions of a quality brand.

Furthermore, a differentiation orientation is generally harder to imitate (Banker et al., 2014; Barney, 2001; Hill, 1988), and dynamic capabilities can continuously improve uniqueness (the essence of a differentiation orientation), thereby impeding imitation further, despite competitors' also having access to external resources. While dynamism may reward firms that engage in systematic improvement, munificence allows access to resources that make such firm-level changes possible and less risky (Winter, 2012). Dothan and Lavie (2016) explain that munificence helps attenuate the trade-off between exploration and exploitation, thus the pursuit of exploratory knowledge can be conducted with less concern for exploitative activities. Hence, firms deploying dynamic capabilities with a differentiation orientation engage in change activities that render them more likely to continuously produce unique resource configurations that fit well in an environment that values newness (Banker et al., 2014; Zott, 2003). In sum, a differentiation strategic orientation is most likely to fit a dynamic, munificent environment, and dynamic capabilities enhance this fit by allowing the firm to continually develop unique resource configurations. We therefore expect the following:

> *Hypothesis 1*: In dynamic environments that are also munificent, dynamic capabilities lead to a competitive advantage for firms with a differentiation orientation; hence, the configuration of environmental dynamism, environmental munificence, dynamic capabilities, and a differentiation orientation will be associated with competitive advantage.

Conversely, a dynamic, resource-scarce environment is doubly challenging: it requires frequent change but does not offer abundant resources for experimentation and cost recuperation, which entails increased risk of failing to produce valuable resource configurations (Miller and Friesen, 1983). Firms must not only be on the efficiency frontier, as resource scarcity usually signifies that consumers are increasingly price-sensitive (Barnett et al., 2015), but they must also make frequent changes to remain so. Therefore, the consequences of having the 'wrong' resource configuration (i.e., misfit) are more severe (McArthur and Nystrom, 1991), and dynamic capabilities within a differentiation orientation may be an overly costly and uncertain path to change in such a context (Schilke, 2014). Dynamic capabilities supporting a low-cost orientation, on the other hand, may be a better option in such settings for two reasons. First, a low-cost orientation often hinges on efficient internal operations rather than on shaping consumer demand or creating superior consumer perceptions (Barney, 2001), and systematic internal improvements to operational capabilities may be less risky in a punishing environment where fewer competitors are able to sustain superior operational efficiency (Banker et al., 2014).

Second, dynamic capabilities may allow firms to sense when external changes to the low-growth demand are about to occur, make preparatory internal adjustments to operational routines, and reconfigure their resources to maintain superior efficiency in the face of new external conditions.

Firms without such ability may be caught unprepared by environmental shifts, resulting in a disadvantage (Bingham and Eisenhardt, 2008). Moreover, due to the scarcity of resources in the environment, competitors without finely honed dynamic capabilities will also lack access to resources needed to upgrade or develop operational capabilities (Barker and Duhaime, 1997; Barnett and McKendrick, 2004; Sirmon et al., 2010). Although a low-cost orientation is generally easier to imitate (Banker et al., 2014; Hill, 1988), resource scarcity in the environment helps inhibit imitation efforts by competitors who do not utilize dynamic capabilities or lack access to external resources, both of which could be used to upgrade the resource base (Aragon-Correa and Sharma, 2003; Barker and Duhaime, 1997; Barnett and McKendrick, 2004; Sirmon et al., 2010).

In sum, we argue that firm-level variation in dynamic capabilities matters in dynamic, resource-scarce environments, in that firms with dynamic capabilities can achieve greater efficiencies in their low-cost orientations and quickly reconfigure firm resources to maintain fit with a continually changing environment. Competitors lacking dynamic capabilities would likely struggle to imitate them or substitute for them, given the resource scarcity in the environment. We therefore put forth the following:

> *Hypothesis 2*: In dynamic environments that are also resource-scarce, dynamic capabilities lead to a competitive advantage for firms with a low-cost orientation; hence, the configuration of environmental dynamism, environmental resource-scarcity, dynamic capabilities, and a low-cost orientation will be associated with competitive advantage.

In contrast, environments that are stable and munificent may offer the most flexibility in terms of strategic orientation and dynamic capabilities. Prior studies indicate that in environments that change with relatively lower frequency, returns on differentiation are generally lower, but the costs of developing novel resources are nonetheless high (Kabadayi et al., 2007). Hence, competitive advantage more strongly hinges on efficiency (Barth, 2003; Porter, 1980), and firms with a low-cost orientation are more likely to achieve better fit with the environment (Nandakumar et al., 2010). However, if the stable environment is also munificent, abundant external resources may provide the slack and impetus for firms to experiment with novelty (Barker and Duhaime, 1997; George, 2005), effectively allowing firms to implement a differentiation orientation. In fact, in a stable environment with sufficient growth in consumer dollars or capital investment (i.e., munificence), differentiation-oriented firms can use such external resources to more effectively carve out a premium market segment. Therefore, in such contexts, either low-cost or differentiation orientations may offer equally viable paths to achieving fit with the environment.

However, dynamic capabilities may not necessarily enhance either orientation in such a way that distinctly contributes to competitive advantage. The slower pace of change in stable environments reduces the need to ‘keep up’ through extensive environmental analysis and reconfiguration (Miller and Friesen, 1983), enabling firms to rely on existing capabilities to a greater degree and for longer periods of time. Moreover, any changes that may occur in the task environment are usually linear and predictable (Bingham and Eisenhardt, 2008). Thus, developing dynamic capabilities may not result in a competitive advantage over other firms doing so to lesser degrees. Even if firms deploy dynamic capabilities to capitalize on opportunities that go unnoticed by competitors, the abundance of external resources can ease imitation of new resource configurations generated by dynamic capabilities. Since the rate of change is low, competitors will be able to develop a timely strategic response (Aragon-Correa and Sharma, 2003).

Developing dynamic capabilities in stable and munificent contexts can help firms leverage external resources for continuous improvements, but because there is less need to keep up with environmental changes, competitors without dynamic capabilities might allocate resources to other areas that may support fit and thus a competitive advantage (e.g., advertising, sales force incentives, production capacity scaling). We therefore expect that in stable environments that are also munificent, dynamic capabilities *may* contribute to competitive advantage for firms with either a differentiation or a low-cost orientation, but dynamic capabilities are not needed and thus do not exhibit a systematic relationship with competitive advantage. In other words, a relatively stable and munificent setting means that fit could be achieved as long as the firm has an effective strategic orientation. Formally stated:

> *Hypothesis 3*: In stable environments that are also munificent, dynamic capabilities do not exhibit a systematic relationship with competitive advantage, such that an effective strategic orientation will be associated with competitive advantage regardless of whether dynamic capabilities are utilized.

Finally, when resources are scarce in a stable setting – a context which values novelty relatively less – a differentiation orientation becomes generally less tenable and more risky (Miller, 1988). Rather, efficiency-focused activities become key (Lee and Miller, 1996), and dynamic capabilities help foster competitive advantage by improving cost efficiency in a systematic manner (Barrales-Molina et al., 2014; Beal, 2000). When considered in a context that is also resource-scarce, dynamic capabilities may provide the firm with an efficiency edge over competitors who, due to lack of resources in the environment, cannot rely on external resources for growth or imitation (Aragon-Correa and Sharma, 2003). That is, competitors in such settings may find it harder to keep up with the firm's internal efficiency improvements.

Additionally, environmental stasis likely means prices will continue on a downward trend, often requiring consolidation of production capacity (Porter, 1980). Dynamic capabilities could play a significant role in such settings by, for instance, sensing acquisition targets, seizing opportunities to purchase and consolidate them, and reconfiguring acquired resources to enhance efficiency in the face of slowing demand (Anand and Singh, 1997; Karim, 2006). Given the status quo and resource-scarce nature of the environment, it may not be economically viable to recoup the substantial costs associated with dynamic capabilities geared toward a differentiation orientation (Vergne and Depeyre, 2015). In fact, the opportunity costs of dynamic capabilities are high when utilized in conjunction with a differentiation orientation in a stable, resource-scarce setting, in that the firm may have to forego opportunities to enhance operational efficiency, an activity that is more likely to improve fit with environmental conditions. Therefore, the strategic orientation most likely to fit stable, resource-scarce environments is a low-cost orientation, with dynamic capabilities enhancing fit with the environment via systematic efficiency improvements. Overall, we expect the following:

Hypothesis 4: In stable environments that are also resource-scarce, dynamic capabilities lead to a competitive advantage for firms with a low-cost orientation; hence, the configuration of environmental stability, environmental resource-scarcity, dynamic capabilities, and a low-cost orientation will be associated with competitive advantage.

We summarize the theoretical rationale underpinning each of the four hypotheses in Table 1.

Table 1. Summary of theoretical arguments underlying configurational hypotheses

Munificence	**Dynamism**	**Strategic orientation more likely to fit**	**Role of dynamic capabilities in enhancing fit**	**Hypothesis**	**Results**
High	High	Differentiation	• Innovating to maintain fit amid frequent environmental changes. • Engaging in uniqueness-seeking resource configurations, fueled by abundant external resources that allow for experimentation and cost recuperation. • Accessing external resources to sustain experimentation and differentiation, thus thwarting threat of imitators.	1	Partially supported
Low	High	Low-cost	• Increasing efficiency of internal resource use to survive environmental hostility. • Adapting to frequent environmental changes by improving internal operations and enhancing fit with cost-sensitive demand. • Impeding imitation because competitors lack access to external resources.	2	Not Supported
High	Low	Either	• Supporting novel resource combinations or improving ordinary capabilities for operational efficiency. • Not necessarily needed due to slow pace of change, easier access to resources, and alternative ways of achieving fit and thus competitive advantage.	3	Supported
Low	Low	Low-cost	• Increasing efficiency of internal resource use to reduce threat of or dependency on scarce external resources. • Initiating improvements in operational efficiency that competitors struggle to imitate due to lack of external resource access.	4	Supported

Methods

Sample

Because dynamic capabilities are difficult to measure with archival data, a survey of key organizational informants provides a suitable solution (Fainshmidt and Frazier, 2017). Data for this study comes from a survey of key informants (e.g., CEOs, CFOs, owner/managers) managing firms in Israel. Israel provided an empirical context where a market-oriented economy makes dynamic capabilities relevant to organizational success. It also offered a vibrant mix of industries experiencing different degrees of dynamism and munificence, which made it an appropriate context to test our theoretical framework. The informants' positions allowed them to provide relevant knowledge pertaining to their firms' dynamic capabilities, competitive advantage, strategic orientation, and competitive landscape (Danneels, 2008).

Table 2. Sample characteristics

Criterion	Number of firms	Proportion	Mean	SD
Number of employees			240.34	809.29
<10	19	12%		
11–50	59	36%		
51–250	63	39%		
251–1000	14	9%		
≥1001	7	4%		
Firm age in years			31.09	17.99
2–5	7	2%		
6–10	14	9%		
11–25	57	35%		
26–50	56	36%		
≥51	28	18%		
Respondent tenure			14.72	11.23
<1	4	1%		
1–5	38	23%		
6–10	29	18%		
11–26	66	41%		
≥26	25	15%		
Industry				
Computer hardware, software, and information technology	31	19%		
Industrial goods	29	18%		
Pharmaceuticals and medical equipment	15	9%		
Electronics	14	9%		
Aviation systems, support, and parts; security/defence systems	10	6%		
Construction/real estate	10	6%		
Food and beverage	9	6%		
Agriculture	9	6%		
Consulting and professional services	7	4%		
Textile	7	4%		
Logistics	5	3%		
Natural resources	4	2%		
Consumer goods	4	2%		
Other services	4	2%		
Home improvement	4	2%		

Note: SD = standard deviation.

The survey instrument was translated into Hebrew and back translated into English by two bilingual experts and Israeli executives/business owners. Similar to Schilke (2014), we then employed a call centre experienced with surveys for use in academic research. The centre contacted companies randomly selected from the Dun and Bradstreet Israel Business Guide (DUNSGuide, 2014). The call centre was able to gather data from 249 firms out of a total of

1,257 contacted, for a response rate of approximately 19.8 per cent, a rate that is roughly equivalent to previous studies (e.g., Schilke, 2014). During the data collection process, a member of the research team visited the call centre twice to observe the method of work. As suggested by Elliott and Hawthorne (2005), we imputed missing data for each scale using the person mean substitution method whenever only one scale item was missing. If more than one scale item was missing for a given observation, it was excluded from the sample. At the end of this process, data for 162 firms remained as the final sample.

The responding firms were diverse in terms of industry and age, though all informants indicated they represented firms with a single line of business (i.e., not diversified). The latter was important to ensure that our measure of strategic orientation was not affected by multi-industry firms, which may exhibit different orientations for their distinct lines of business. The average organizational tenure of informants was 14.7 years in our final sample, indicating substantial experience and relevant knowledge regarding the constructs in our study. Characteristics of the firms in the final sample are presented in Table 2. We used the proportions of contacted and responding firms to evaluate non-response bias via a proportion-difference z-test for number of employees. Results suggest non-response bias is unlikely in our sample.

Measures

Our measurement scales were based on prior literature, used seven-point Likert scales (1 = strongly disagree; 7 = strongly agree), and exhibited acceptable reliabilities, with Cronbach's alpha of at least 0.7. We measured competitive advantage using six items (three for strategic performance and three for financial performance) taken from Schilke (2014). Example items included: 'We have gained strategic advantages over our competitors'; 'Overall, we are more successful than our major competitors'; and 'Our sales growth is continuously above industry average'.

Consistent with our conceptualization of dynamic capabilities as an overarching construct, we measured dynamic capabilities using twelve items taken from Wilden et al. (2013), with four items for each of the three components of sensing, seizing, and reconfiguring. Example items included: 'We gather economic information on our operations and operational environment' (sensing); 'We change our practices when customer feedback gives us a reason to change' (seizing); and 'In my organization, we have new or substantially changed ways of achieving our targets and objectives' (reconfiguring).

To measure strategic orientation, we used two sets of items from Li et al. (2009), as their scales are based on prior strategy research (e.g., Narver and Slater, 1990; Porter, 1985). Prior studies indicate firms may exhibit neither or both orientations; hence, we measure low-cost and differentiation orientations separately (Koka and Prescott, 2008). For the sake of brevity and to avoid respondent fatigue (Hinkin, 1998), we included three items for these scales based on interviews with managers to determine how to capture these constructs most accurately in our survey (Li et al., 2009). Specifically, we captured a differentiation orientation using the following items: 'We take great efforts in building a strong brand name – nobody can easily copy that;' 'Compared to competing products, our products offer superior benefits to customers'; and 'Our products are unique and nobody but our company can offer them'. A low-cost orientation was captured using the items: ‘Our manufacturing costs are lower than our competitors’; ‘Our efficient internal operation system has decreased the cost of our products’; and ‘We have achieved a cost leadership position in the industry’.

To measure dynamism and munificence in each firm’s external environment, we relied on respondents’ perceptions (e.g., Miller and Friesen, 1982; Schilke, 2014). Perceptual data is appropriate because experienced top managers are embedded within their firms’ environment and thus are in a good position to provide an accurate account of their firms’ operational context. Based on Schilke (2014), we used five items to gauge dynamism. Example items include: ‘In our industry, the modes of production/service change often and in a major way’; ‘In our industry, the environmental demands on us are constantly changing’; and ‘In our industry, new business models evolve frequently’. Munificence was assessed using three items from Sutcliffe (1994): ‘Demand for the products/services of our principal industry is growing and will continue to grow’; ‘The opportunities for firms in our principal industry to expand the scope of their existing products/markets are extremely abundant’; and ‘Resources for growth and expansions are easily accessible in our industry’. Similar to our scales for strategic orientation, we included three items to avoid respondent fatigue.

Validity Analyses

In assessing convergent validity, we note adequate values for reliability parameters (with composite reliability and Cronbach’s alpha greater than or equal to 0.7 for latent variables), significant loading of all items on their latent variable in a confirmatory factor analysis, and adequate values for squared multiple correlation coefficients (greater than 0.2 for thirty of thirty-two indicators; Hair et al., 1998). Four of six latent variables surpassed the recommended average variance extracted (AVE) of 0.5. We address this issue in detail in Appendix A (see supporting information).

Additionally, in 25 instances, we were able to obtain responses regarding competitive advantage from a second respondent within the same firm, which we used to further validate responses to the study’s survey instrument. Values of the matched responses displayed a significant, positive correlation ($p < 0.01$), indicating that responses were consistent within each firm. Likewise, an intra-class correlation coefficient of 0.719 ($p < 0.01$) demonstrates substantial agreement between raters. Furthermore, we were able to obtain annual sales growth figures, a useful measure in gauging competitive advantage or fit with the environment (Anand and Ward, 2004), from a subset of 29 executives. We relied on self-reports of performance figures because our sample is comprised of private firms, for which archival financial data is generally unavailable. We found sales growth correlates positively with survey measures of competitive advantage ($p < 0.10$), suggesting that survey responses regarding competitive advantage are valid.[2]

We took several steps to establish discriminant validity and account for potential common method bias. First, the questionnaire was designed and administered such that items measuring competitive advantage were separated from other constructs. By doing so, predictors were psychologically separated from predicted variables for respondents. Additionally, respondents

[2] We used Spearman’s correlation because Pearson’s correlation coefficient may be sensitive to violations of normality in a small sample (Myers and Sirois, 2014).

were explicitly informed that their responses to the questionnaire would remain anonymous in order to reduce the threat of bias due to social desirability (Podsakoff et al., 2003). Second, Harman's single-factor test was conducted to ensure that no one factor accounted for a majority of the variance. An exploratory factor analysis with Varimax rotation indicated that the first factor accounted for 10.42 per cent of the variance (27.58 per cent when not rotated), well below 50 percent (Podsakoff et al., 2003).

Third, although our sample size is not ideal for confirmatory factor analysis (CFA), we compared the six-factor model to alternative specifications to assess discriminant validity. In each iteration, the alternative model fit the data significantly worse than the unconstrained model (see Appendix A, see supporting information). Furthermore, the highest shared variance of each construct was smaller than the construct's AVE for five constructs, which further helps establish discriminant validity. For one construct, dynamic capabilities, AVE was lower than its shared variance with environmental dynamism. However, loading both constructs on a single factor produced poorer fit and thus demonstrated that the two are sufficiently distinct. We address this issue further in Appendix A (see supporting information).

Lastly, we included a latent marker variable in our survey to address validity threats due to single-respondent data. In doing so, we were better able to evaluate common method bias (Podsakoff et al., 2012). On the advice of methodology experts, we chose amiability as a latent marker variable and measured it with a five-item scale from the International Personality Item Pool (IPIP, 2013). We assessed common method bias through several model comparisons, as outlined in Williams et al.'s (2010) comprehensive marker variable method (Appendix A) (see supporting information). These tests indicated minimal evidence of common method bias that is equal across the substantive items.

Analytical Technique

We utilized fsQCA, a set-theoretic technique rooted in Boolean algebra, to examine our hypotheses. FsQCA uncovers how the membership of cases (i.e., firms) in causal conditions (i.e., dynamic capabilities, strategic orientation, and environment) relates to their membership in the outcome (i.e., competitive advantage; Ragin, 2000). This technique allows for conjunctural causation, whereby causal conditions are examined in concert rather than independently, and equifinality, whereby more than one configuration of causal conditions can lead to the same outcome (Schneider and Wagemann, 2012). Both of these features accommodate the configurational nature of our theoretical framework, and allow for configurations of dynamic capabilities, strategic orientation, and environment that lead to competitive advantage to emerge. FsQCA assumes complex causality and nonlinear relationships (Fiss, 2007), and is thus better suited for our study than regression modelling, which assumes singular causality and generally does not handle well interaction terms involving more than three variables (Fiss, 2011).

Before conducting fsQCA, it is necessary to calibrate the raw data into membership scores between 0 and 1. A score of 0.0 indicates full exclusion from a set (i.e., complete non-membership), while a score of 1.0 indicates full inclusion (i.e., complete membership). Additionally, a score of 0.5 indicates the crossover point, at which it is not clear whether a condition is present or absent. Consistent with prior studies (e.g., Fiss, 2011), we use the 'direct method' of calibration suggested by Ragin (2008). The direct method focuses on the three qualitative anchors that structure fuzzy sets: the threshold for full membership, the threshold for full non-membership, and the crossover point. In this regard, survey instruments provide qualitative anchors to guide calibration. For instance, a mid-scale response (e.g., neither agree nor disagree) may represent a point of ambiguity where it is not clear if a case is a member of a particular condition.

However, oftentimes the hypothetical maximum and minimum ends of a scale are not exhibited in reality. Further, where data are skewed toward one end of the scale, using the mid-point of a Likert-scale can be problematic. Due to reasons including skewness, measurement error, meaning of the calibrated condition, and the nature of responses a given scale invokes, set calibration of survey data with Likert-type scales does not always follow an adherence to the 'natural' anchors such scales intuitively provide (e.g., Emmenegger et al., 2014; Fiss, 2011; Ho et al., 2016; Meijerink and Bondarouk, 2018; Mikalef and Pateli, 2017). In such cases, the recommendation by Ragin (2008) becomes particularly important, namely, to combine the researcher's theoretical knowledge with knowledge of the empirical context and data when choosing the calibration anchors.

Because we are interested in conducting a comparative analysis, we calibrated the data in relation to the actual responses. We set the 75th percentile, mean, and 25th percentile for each condition as the fully in, crossover, and fully out thresholds of set membership, respectively (Fainshmidt et al., 2016; Ho et al., 2016). This approach to calibration helps counterbalance the skewness toward higher values seen in several variables in the data, as cases are calibrated relative to each other. Given that the firms in our data were sampled using simple random sampling, calibration relative to the sample seemed appropriate: first, it helps address potential respondents' bias towards considering themselves as better than average even if they are not (Brown, 2012), and relatedly, it ensures that there is a more stringent threshold for inclusion in the set of firms with a competitive advantage, thereby reducing the odds of identifying spurious configurations (Cooper and Glaesser, 2016). For the crossover point, we considered using both the mean and median for each construct. Upon examination, we discovered that the medians in our data were farther than the means from the scale midpoint. We therefore used the mean of each construct as the crossover point in calibration. We return to this issue in the sensitivity analyses summarized in Appendix B (see supporting information). Table 3 presents descriptive statistics for the study's variables as well as the values used as anchors for the calibration procedure. Calibrated scores of exactly 0.50 were manually replaced with values of 0.499 to avoid cases being dropped during analysis due to maximum ambiguity in membership.

Table 3. Descriptive statistics, calibration thresholds, and correlations for the study's variables

Construct	Mean	SD	Out, crossover, and in anchors for calibration	1	2	3	4	5	6
1. Competitive Advantage	4.84	1.16	4.17, 4.84, 5.67	1.00					
2. Dynamic Capabilities	5.39	0.78	5.08, 5.39, 5.92	0.51	1.00				
3. Environmental Dynamism	4.21	1.28	3.40, 4.21, 5.00	0.15	0.46	1.00			
4. Environmental Munificence	4.74	1.24	4.00, 4.74, 5.67	0.47	0.37	0.42	1.00		
5. Differentiation Orientation	5.23	1.20	4.67, 5.23, 6.00	0.50	0.47	0.24	0.36	1.00	
6. Low-cost Orientation	4.06	1.37	3.00, 4.06, 5.00	0.42	0.36	0.26	0.37	0.27	1.00

Note: N = 162. SD = Standard deviation. Correlations above 0.15 are statistically significant at the 0.01 level.

In the next step, fsQCA requires that researchers determine a minimum number of cases (frequency cut-off) in order for a configuration of causal conditions to be considered in the analysis, and a threshold of consistency between a configuration and the outcome considered sufficient to establish a systematic pattern (see Ragin, 2008, for the consistency formula). We followed prior studies and used 0.80 as the consistency threshold and three cases as the frequency cut-off (Fiss, 2011; García-Castro et al., 2013). Alternative thresholds are discussed in Appendix B (see supporting information).

Results

First, we conducted a necessity test for the presence of competitive advantage. This procedure indicates whether each causal condition, by itself, is necessary for the outcome. No causal condition exhibited the 0.9 consistency threshold demarcating that a condition is 'almost always necessary' for an outcome to occur (Schneider et al., 2010). Consistencies ranged from 0.60 to 0.76. We therefore retained all conditions for subsequent sufficiency analysis (Schneider and Wagemann, 2012).

Results of the sufficiency analysis in Table 4 reveal that three configurations are sufficient for the presence of competitive advantage. Both the solution coverage (0.48) and consistency (0.87) indicate the configurations identified in the solution systematically lead to the presence of competitive advantage and explain a substantial portion of membership in that condition. We present the intermediate solution, as it is most appropriate for interpretation (Fiss, 2011). The intermediate solution allows for easy counterfactuals – the incorporation of information regarding potential additional configurations for which the researcher can specify *a priori* expectations of causal linkage (Soda and Furnari, 2012). We did not specify expected linkages based on the assumption that a condition will work differently depending on circumstances – the essence of our theory. Because we did not specify any simplifying assumptions, easy counterfactuals were not incorporated, hence the complex and intermediate solutions are identical.

Table 4. Configurations sufficient for competitive advantage

Causal Condition	**Configuration**		
	A	**B**	**C**
Dynamic capabilities	●		●
Environment			
Munificence	⊗	●	●
Dynamism	⨂	•	
Strategic orientation			
Differentiation orientation		●	●
Low-cost orientation	●	●	●
Raw coverage	0.13	0.16	0.37
Unique coverage	0.08	0.04	0.24
Consistency	0.83	0.87	0.90
Solution coverage		0.48	
Solution consistency		0.87	

Note: A black circle represents the presence of a condition, a crossed-out circle represents the absence of a condition, and an empty cell indicates an irrelevant condition. Core conditions are indicated by larger circles.

In addition to the intermediate solution, a sufficiency analysis generates a parsimonious solution. This parsimonious solution is simpler than the intermediate solution because it incorporates ‘difficult’ counterfactuals – possible configurations that did not exist in the data or were removed during analysis, regardless of whether they are consistent with theory. The configurations produced in the parsimonious solution include conditions that are deemed ‘core’, as these conditions were not minimized even in the face of difficult counterfactuals. Other conditions are designated as ‘peripheral’, and both types are presented in the overall solution, which therefore includes both the intermediate and parsimonious solutions.

Turning our attention to the specific hypotheses, Hypothesis 1 is partially supported by Configurations C and B in that dynamic capabilities seem to be conducive to competitive advantage in dynamic-munificent environments.[3] Configuration C exhibits the highest consistency with competitive advantage as well as the highest coverage, indicating it is the most common configuration among firms that have a competitive advantage. Yet, it also exhibits the effective employment of both orientations, rather than only differentiation, as we hypothesized. Some studies suggest that pursuing a single strategic orientation is more effective (e.g., Thornhill and White, 2007), partly because trying to combine orientations can result in an orientation with no distinctive emphasis, also known as ‘stuck-in-the-middle’ (Spanos et al., 2004). However, there is empirical evidence showing that the two orientations ‘do not represent two ends of the same continuum, consistent with the observation of several firms (e.g., Caterpillar, Toyota) successful in the past that have chosen to focus on both differentiation as well as efficiency’ (Banker et al., 2014, p. 874; see also, Bowman and Ambrosini, 1997). Particularly in settings with access to growth resources and frequent change, an effective differentiation orientation continuously improved by dynamic capabilities can not only help firms keep up with changes, but also increase demand for firms’ products and thus increase economies of scale and learning effects, both of which improve a low-cost position (Acquaah and Yasai-Ardekani, 2008; Hill, 1988). Similarly, firms with a low-cost orientation continuously refined for higher efficiency by dynamic capabilities might be able to differentiate by leveraging efficiency across a wider product scope (Spanos et al., 2004). For instance, Reitsperger et al. (1993) show that cost reduction and quality enhancement can be mutually supportive, and Helms et al. (1997) note that product innovation can trigger process innovation that often lowers the cost of production.

As for Hypothesis 2, the sufficiency analysis indicates that there were no configurations systematically associated with competitive advantage in dynamic, resource-scarce settings. Therefore, Hypothesis 2 is not supported. This might be due to such environment being relatively harder to navigate or adapt to in a systematic manner.

Hypothesis 3 is supported by Configuration B, wherein effective employment of both differentiation and low-cost orientations contributes to competitive advantage in stable,

[3] As dynamism is a ‘don’t care’ condition in Configuration C, the results do not provide evidence that dynamism causes competitive advantage. However, the results do provide evidence that dynamic capabilities are associated with competitive advantage in environments that are munificent, whether they be dynamic or stable. Taken together with Configuration B, where dynamic capabilities do not lead to competitive advantage in a stable-munificent environment, the results suggest that dynamic capabilities are particularly important to competitive advantage in munificent environments that are also dynamic. We further explore this pattern later in this study.

munificent environments, but dynamic capabilities can be either present or absent to achieve a competitive advantage. Further, Configuration C features dynamic capabilities deployed alongside effective employment of both strategic orientations in munificent environments. This configuration seems to be effective in both stable and dynamic settings, which is also consistent with Hypothesis 3 in that stable, munificent environments allow paths to competitive advantage with or without dynamic capabilities. It appears that munificence is conducive to the deployment of both orientations, which may result in a competitive advantage vis-à-vis firms that only implement one orientation. Dynamic capabilities can be effectively utilized but are not needed in stable-munificent settings, though the patterns suggest they add distinct value in dynamic-munificent settings where they may enable the combination of both orientations. For instance, although environmental dynamism creates discontinuities that disrupt firms' efforts to keep costs low, dynamic capabilities might leverage abundant external resources into continuous improvements that keep the firm on the efficiency frontier (Marlin et al., 1994), while at the same time allowing the firm to differentiate via economies of scope (Hill, 1988).

Hypothesis 4 is directly supported by Configuration A, wherein dynamic capabilities are deployed alongside a low-cost orientation to achieve a competitive advantage in a stable, resource-scarce environment.[4]

Because dynamism is an irrelevant condition in Configuration C, and Configuration B applies only to munificent-stable settings, we conducted another analysis to gain further insights into the configurational patterns occurring in dynamic-munificent settings (Hypothesis 1). Specifically, we followed Ragin's (2008) recommendations to directly assess the association between deductively derived configurations and an outcome. We plotted membership scores for four configurations (where dynamism and munificence are present, but the presence of dynamic capabilities and strategic orientation vary) against the calibrated value of the outcome condition, competitive advantage. We then compared the consistencies of these configurations with the outcome condition (by means of a z-test). Results are shown in Table 5.

Table 5. Direct comparisons in dynamic, munificent environments

Dynamic Capabilities	Strategic Orientation	Consistency with Competitive Advantage	Difference in Consistency
Present	Differentiation	0.85	0.14*
Absent	Differentiation	0.71	
Present	Low-cost	0.84	0.15*
Absent	Low-cost	0.69	
Present	Differentiation	0.85	0.01
Present	Low-cost	0.84	

Note: * significant at the 0.05 level.

[4] The absence of munificence is a peripheral condition in this configuration. This means that there might be evidence, outside of our data, to make this condition a 'doesn't matter' condition (could be present or absent). A similar pattern is evident in the presence of a differentiation orientation in Configuration B. However, as Dwivedi et al. (2018, p. 390) note, 'an interpretation of core conditions as being theoretically more important than contributing conditions is only relevant when one a priori theorizes about such a distinction… Therefore, we denote this distinction for transparency, but do not distinguish between the conditions in our theoretical interpretations'.

We observe that in dynamic-munificent environments, configurations where dynamic capabilities were absent exhibited low consistency scores, indicating that either strategic orientation *without* dynamic capabilities is not consistent with competitive advantage, thus highlighting the value of dynamic capabilities in dynamic-munificent environments. More specifically, as Hypothesis 1 would predict, the first direct comparison indicates dynamic capabilities work well with a differentiation orientation. Yet, the second comparison suggests that dynamic capabilities work with a low-cost orientation almost as well, while the third comparison shows that there is only a slight difference between employing dynamic capabilities with either orientation. However, because our sufficiency analysis indicates that firms with a competitive advantage that exhibited one strategic orientation also exhibited the other, we must refine our theorizing regarding this environment wherein competitive advantage is achieved not by demonstrating effectiveness in one orientation but by doing so in both orientations.

To examine the robustness of our results, we conducted several additional analyses. We summarize results of these analyses in Appendix B (see supporting information). Further, we conducted an analysis using the absence of competitive advantage as the outcome. These results are summarized in Appendix C (see supporting information).

Discussion and Conclusion

Theoretical Implications

Building on the notion that the relationship between dynamic capabilities and competitive advantage is shaped by 'a complex interplay of environmental and internal factors' (Ringov, 2017, p. 2), we set out to enrich a nascent configurational theory of dynamic capabilities and competitive advantage. To borrow a metaphor from Wilden et al. (2016), the 'house of dynamic capabilities' must be constructed with a specific strategic orientation in order to meet the needs of the firm's 'neighbourhood' (industrial environment). We advance this line of thinking by theorizing about and empirically testing the specific configurations of dynamic capabilities, strategic orientation, and environmental factors that lead to a competitive advantage. The overarching insight from our study is that *strategic fit* among all these attributes is important if dynamic capabilities are to produce a competitive advantage.

Prior research on dynamic capabilities has focused a great deal on the contingency of environmental dynamism (e.g., Schilke, 2014; Teece et al., 1997), though recent advancements recognize that dynamic capabilities can be equally effective in stable environments (Schilke et al., 2018). Extending this line of thinking, we show that munificence is an overlooked environmental aspect that affects the fit between dynamic capabilities and dynamic environments. That is, dynamic capabilities are conducive to fit in high-velocity environments that are also munificent, but may have limited ability to do so in high-velocity environments that are resource-scarce. In such settings, *routinized* activities for sensing, seizing, and reconfiguring may not help firms adapt to an unpredictable and unforgiving environment (Wilden et al., 2016, p. 1035). A lack of munificence means recouping costs associated with dynamic capabilities would be difficult. On the other hand, the availability of resources in the environment likely helps firms recover the costs of dynamic capabilities, regardless of whether the environment is dynamic or stable. We therefore extend the architectural model of dynamic capabilities by demonstrating that munificence must be considered as part of the ‘weather’ (environment) surrounding the ‘house’ (firm), as it affects the structural integrity linking the component parts of the house (dynamic capabilities and strategic orientation).

Our results also shed light on the importance of fit between the components of the house. Wang and Ahmed (2007, p. 41) maintain that ‘capability development is an outcome of dynamic capabilities, often steered by firm strategy’. Strategic orientation shapes the overall direction of the firm and thus the types of ordinary capabilities that will be developed or altered by dynamic capabilities in support of a competitive advantage (Porter, 1980; Wang and Ahmed, 2007). Our results highlight the importance of complementarity between the firm’s strategic orientation and dynamic capabilities (Karna et al., 2016). The configurations where dynamic capabilities were deployed also involved the effective implementation of a strategic orientation. By themselves, dynamic capabilities did not seem to lead to a competitive advantage. However, we also go one step further by showing that the efficacy of any combination of strategic orientation (and the implied ordinary capabilities) and dynamic capabilities is dependent on environmental factors. For instance, dynamic capabilities can support a low-cost orientation by improving operational efficiency. Such a configuration best fits stable, resource-scarce environments that exert continuous pressure on firms to remain on the efficiency frontier.

Finally, to extend the architectural metaphor further, our results show dynamic capabilities are not needed for the house to stand in *all* kinds of neighbourhoods. For instance, stable, munificent environments are generally not hostile, so there are reduced benefits from deploying dynamic capabilities to create fit between strategic orientation and the environment, and less severe penalties if there is misfit. This finding qualifies Eisenhardt and Martin’s (2000) assertion that dynamic capabilities are a necessary, but insufficient, condition for competitive advantage. Dynamic capabilities may *in certain environments* be a necessary *part* of a larger bundle that includes strategic orientation (Peteraf et al., 2013). In other environments – in particular, stable, munificent ones – an effective strategic orientation may be sufficient. In these industrial contexts, ‘*ad hoc* problem solving’ may allow firms to react to occasional environmental changes as they occur, reducing the need for routinized change activities in the form of dynamic capabilities (Winter, 2003, p. 992).

Implications for Managers

Our study provides several implications for managers seeking to best position their firms and to decide where to allocate resources. The preceding discussion of strategic fit indicates that managers should think carefully about whether to invest in the development of dynamic capabilities and, if the answer is yes, how dynamic capabilities can improve fit with the environment. Managers should consider their firms’ strategic orientation and environment when contemplating the deployment of change-oriented routines. For instance, our results suggest that dynamic capabilities that support a differentiation orientation should only be deployed in munificent environments, as the costs incurred by such change-oriented routines may not be recoverable in resource-scarce settings.

In munificent environments that are stable, managers should carefully consider whether the potential benefits of deploying dynamic capabilities are worth the costs. In such settings, managers might achieve fit with the environment by allocating resources to improving ordinary capabilities rather than attempting to develop dynamic capabilities. Alternatively, *ad hoc* problem solving may suffice. In stable, resource-scarce environments, it may seem counter-intuitive to invest in dynamic capabilities given the resource constraints. However, our results show that dynamic capabilities can be deployed to achieve an advantage with a low-cost position, probably because most competitors would likely refrain from expending limited resources to develop or deploy dynamic capabilities. Firms that do so may be able to make continuous improvements to their operational capabilities and thus make the firm a pioneer in efficiency. In sum, there are multiple ways to change, even in high-velocity environments, so managers should carefully consider whether routinized change in the form of dynamic capabilities is the best means of change given the firm's environment and strategic orientation.

Finally, although combination orientations are difficult to achieve because they can leave the firm 'stuck in the middle' (Porter, 1980), managers can leverage dynamic capabilities either to implement these orientations successfully or leverage effectiveness in one orientation to improve effectiveness in the other (as we have discussed earlier). Examples of firms taking such paths to competitive advantage include Amazon, IBM, and Toyota (Banker et al., 2014; Harreld et al., 2007; Resca and Spagnoletti, 2014). Dynamic capabilities likely support this form of ambidexterity: 'In organizational terms, dynamic capabilities are at the heart of the ability of a business to be ambidextrous… ' (O'Reilly and Tushman, 2008, p. 190). Our study suggests that when environmental munificence allows for the recovery of the costs involved, deploying dynamic capabilities is one means by which managers may be able to implement a combination orientation.

Limitations and Future Research

Our study is not without limitations that present fruitful research avenues. First, the data included in our analyses are derived from a single country. The diversity of industry characteristics in our sample does provide a degree of heterogeneity, increasing the generalizability of our findings. Similarly, although our primary data offer many benefits, the data are cross-sectional and we therefore cannot rule out reverse causality or make assertions regarding long-term performance outcomes. Although we address this issue in the paper and in Appendix B (see supporting information), further examining lagged performance data may help identify temporal boundary conditions to the value of dynamic capabilities. Additionally, two of the constructs in our study exhibit relatively lower AVE. We address this issue in Appendix A (see supporting information), but the interpretation of results should be done in light of this potential limitation.

Second, we focused on major components affecting the value of dynamic capabilities, but important enablers of dynamic capabilities might also support or weaken fit. For example, as internal contingencies, organizational structure, culture, and managerial cognition might play an important role because they shape how organizational actors interact with each other in effectuating change (Fainshmidt and Frazier, 2017; Wilden et al., 2013, 2016). Similarly, although we believe we focus on the most conceptually relevant environmental characteristics, examining the role of other environmental dimensions, such as complexity, may be fruitful as well.

Finally, future research could investigate the configurations of internal and external factors that may enable the effective deployment of dynamic capabilities in dynamic, resource-scarce environments, where we could not detect systematic patterns. It could be that a contingency which we have not yet uncovered, such as organizational structure or culture (Wilden et al., 2013), may make dynamic capabilities effective in such settings. Alternatively, it could be that less formalized heuristics are more important in instilling the flexibility needed in environments that are both dynamic and resource-scarce (Eisenhardt et al., 2010). Future research could further illuminate such contingencies to the value of dynamic capabilities.

Conclusion

Despite these limitations, we have contributed to a nascent configurational theory of dynamic capabilities. We developed a configurational theoretical framework – underpinned by the mechanism of strategic fit – wherein dynamic capabilities lead to a competitive advantage when they support a strategic orientation appropriate for the levels of dynamism and munificence in the firm's environment. These findings advance a more nuanced dynamic capabilities view by detailing when and why dynamic capabilities may result in a competitive advantage, and by indicating dynamic capabilities are not always needed to achieve a competitive advantage. In closing, the central insight of this study is that the relationship between dynamic capabilities and competitive advantage is contingent upon the strategic fit between organizational and environmental factors, contributing to a more rigorous and configurational dynamic capabilities view.

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APPENDIX A: CONFIRMATORY FACTOR ANALYSES AND COMMON METHOD VARIANCE TESTS

Table A1 below shows changes in model fit for the theoretically expected measurement model versus alternative models wherein the co-variance between each pair of latent constructs was set to 1. Based on an examination of the modification indices, we specified four co-variances between error terms of items only within the same construct. We observed similar results as alternative measurement models without the specified error co-variances. The measurement model where all constructs are measured separately ($\chi 2 = 772.93$, df = 445, RMSEA = 0.068, and CFI = 0.85) fit the data better than any alternative model, which helps establish discriminant validity. The CFI was slightly below the recommended level 0.90, but this is to be expected due to the relatively large number of indicators in our model (Williams et al., 2010). In the first model we also observed that all indicators loaded significantly ($p < 0.001$) and highly on their respective constructs.

Table A1: comparison of model fit for alternative measurement models

Measurement Model	**ΔChi-Square (Δdf) from hypothesized model**
DCs and CA combined	23.43 (1)*
DCs and Mun combined	16.56 (1)*
DCs and Dyn combined	3.92 (1)*
DCs and Diff combined	7.32 (1)*
DCs and LC combined	7.52 (1)*
CA and Mun combined	23.19 (1)*
CA and Dyn combined	36.05 (1)*
CA and Diff combined	19.51 (1)*
CA and LC combined	7.1 (1)*
Diff and Dyn combined	9.3 (1)*
Diff and Mun combined	9.44 (1)*
Diff and LC combined	4.81 (1)*
LC and Mun combined	4.75 (1)*
LC and Dyn combined	6.23 (1)*

Note: * = statistically significant difference at 0.05 level. DCs = Dynamic capabilities, CA = Competitive advantage, Mun = Munificence, Dyn = Dynamism, Diff = Differentiation orientation, LC = Low-cost orientation.

Two of the constructs exhibited AVEs lower than 0.5. However, prior research suggests that despite the AVE's not reaching 0.5 in some cases, we can conclude from the composite reliability values and the standardized loading parameter estimates that adequate convergent validity was demonstrated in our measures (Boyatzis et al., 2015; Cheung and Wang, 2017; Fornell and Larcker, 1981; Matzler et al. 2006; Ping, 2004). Convergent validity is often assessed by multiple means, as any one statistic can be sensitive to different factors (Hair et al., 2010; Malhotra and Dash, 2011). AVE is conservative and can be sensitive to measurement error in any single item; it is an average-based statistic, so one item with a relatively high error can reduce AVE substantially, especially in constructs with relatively few substantive indicators. Therefore, AVE may be more suitable to test discriminant validity rather than convergent validity. In our data, composite reliability for all constructs was above the recommended minimum of 0.7, and all indicators loaded significantly on their designated latent constructs, both of which indicate adequate convergent validity (Boyatzis et al., 2015; Cheung and Wang, 2017; Hair et al. 2010; O'Rourke et al. 2013; Ping, 2004).

Although AVE for differentiation was near 0.5, it was lower for dynamic capabilities. For measures that are not yet well established, such as the one for dynamic capabilities, some issues with psychometric properties are not uncommon (Hinkin, 1998). Measurement error is more likely to be larger with multidimensional higher-order factors, such as dynamic capabilities (Wilden et. al., 2013), because error from item to first-order factor is combined with error from first-order to second-order factor. To explore this, we conducted a CFA while adding three first-order latent constructs (sensing, seizing, and reconfiguring) with four corresponding items loading onto each. These three latent variables then loaded onto a second-order latent variable representing the overarching dynamic capabilities construct (MacKenzie, Podsakoff, and Podsakoff, 2011). We observed that the AVE of the dynamic capabilities construct surpassed the 0.5 threshold substantially (0.758), thus indicating adequate convergent validity and further supporting discriminant validity.

With regard to common method bias we first conducted a CFA to obtain estimates of marker variable indicator loadings and error variance. We next specified those estimates in a baseline model wherein the latent marker variable was not related to other latent constructs or substantive indicators. Then, we compared the baseline model to a constrained model wherein the latent marker variable was free to influence all substantive indicators equally (see Table A2 below). This model exhibited significantly better fit to the data, which may indicate the presence of common method bias. To check for the possibility that the latent marker variable influences substantive indicators differently, we examined whether an unconstrained model fits the data even better. Results showed that the unconstrained model fit the data worse than the constrained model, indicating that common method bias was largely equal across items.

Williams et al.'s (2010) method allows for an estimation of the variance predicted by the latent marker variable. This estimation is achieved by squaring and summing all substantive indicator standardized loadings on the latent marker variable. Results showed that the average and median variance in substantive indicators of the six focal constructs accounted for by the latent marker variable was less than one percent. In total, these estimates show that the influence of common method bias was very slight and equal across items.

Table A2: Common method variance tests with marker variable

Model	**Chi-Square**	**Df**
Baseline	865.04	590
Method-C	859.23	589
Method-U	818.69	558
Model Comparison	**Δ Chi-Square**	**Δ df**
Baseline vs. Method-C	5.81*	1
Method-C vs. Method-U	40.54	31

Note * = statistically significant difference at the 0.05 level.

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APPENDIX B: SENSITIVITY ANALYSES

Because results are partially dependent on subjective specifications, it is important to determine the level of sensitivity to those specifications (Ragin, 2008; Schneider & Wagemann, 2012). First, we raised the frequency threshold from three to four. The resulting solution contained one fewer configuration with the remaining two being identical to our main solution (Configurations A and C).

Second, we evaluated the consequences of using the mean rather than the median as the crossover point in the calibration of causal conditions and the outcome by replicating the analysis using the median. In this alternative specification, Configurations B and C are replicated and a subset of Configuration A is identified. This subset solution included the absence of differentiation (as opposed to Configuration A, where this condition was irrelevant). Therefore, our main solution can be interpreted as robust, as there were no instances of contradictory patterns between solutions (Skaaning, 2011). Along similar lines, we conducted a sufficiency analysis with competitive advantage calibrated with values of 7, 4, and 1 as the thresholds for fully in, crossover, and fully out (Fiss, 2011). The solution (Table B1 below) expectedly yielded more configurations, but each with fewer conditions, as the crossover point for competitive advantage is now lower; 80% of the sample is to different extents considered a member of the outcome condition. Importantly, the configurations are subsets of the three configurations produced in our main analysis.

Table B1: Sufficiency Analysis for Competitive Advantage Calibrated around Survey Anchors

	Configuration (subset in main results)					
	1 (A, B, C)	2 (A, B, C)	3 (A)	4 (A)	5 (C)	6 (C)
Causal Condition						
Dynamic Capabilities			•		●	•
Environment						
Munificence			⊗	⊗	●	
Dynamism	⨂		⊗	⊗	•	•
Strategic Orientation						
Differentiation Orientation	●	•				
Low-cost Orientation		●		●		●
Raw coverage	0.36	0.47	0.20	0.19	0.38	0.37
Unique coverage	0.09	0.04	0.02	0.03	0.04	0.01
Consistency	0.90	0.90	0.94	0.87	0.91	0.92
Solution coverage	0.84					
Solution consistency	0.86					

Third, we examined the solution when a more stringent PRI threshold was applied. PRI consistency considers whether a condition contributes not only to the presence of the outcome condition, but also to its absence. There is no clear consensus on applying PRI consistency, but all configurations in our sufficiency analysis demonstrated PRI consistency greater than 0.65 with a range of 0.68 to 0.88, which is reasonable given the larger sample size for fsQCA (Schneider & Wagemann, 2012). With a higher PRI threshold of 0.75, we observed two configurations that are identical to those in the main solution (Configurations B and C). In assessing robustness, we examine whether the solution terms are in a subset relation with one another (Schneider & Wagemann, 2012, p. 286). While the quantity of configurations within each solution varied (as can be expected), the results were not substantively different. We therefore conclude that the results are adequately stable.

Fourth, given the centrality of environmental dynamism as a moderator of the value of dynamic capabilities in prior literature, we ran a sufficiency analysis with only two causal conditions: environmental dynamism and dynamic capabilities. This analysis yielded no configurations sufficient for competitive advantage, which suggests that additional contingencies must be incorporated in order to identify patterns that are systematically associated with competitive advantage. We then ran an ordinary least-squares regression predicting competitive advantage and included the five variables from which we derived our five causal conditions alongside an interaction term between environmental dynamism and dynamic capabilities (Table B2 below). The interaction term was not statistically significant, again supporting the notion that the relationship between dynamic capabilities and competitive advantage seems to be more complex than simply being uniformly moderated by environmental dynamism.

Table B2: OLS Regression Results

Model	Coefficients	ß	Std. Error	t	p-value
1	(Constant)	-0.048	0.493	-0.097	0.923
	Dynamic Capabilities	0.475	0.112	4.241	0.000
	Differentiation Orientation	0.235	0.066	3.538	0.001
	Low-Cost Orientation	0.163	0.056	2.931	0.004
	Environmental Dynamism	-0.200	0.063	-3.177	0.002
	Environmental Munificence	0.270	0.066	4.083	0.000
2	(Constant)	0.109	0.505	0.216	0.829
	Dynamic Capabilities	0.456	0.112	4.051	0.000
	Differentiation Orientation	0.224	0.067	3.35	0.001
	Low-Cost Orientation	0.161	0.055	2.895	0.004
	Environmental Dynamism	-0.192	0.063	-3.039	0.003
	Environmental Munificence	0.274	0.066	4.146	0.000
	Dynamism-DCs Interaction	-0.085	0.063	-1.357	0.177

Fifth, Fiss, Sharapov, and Cronqvist (2013) provide a useful way to supplement sufficiency analyses with an OLS regression as a means of assessing the validity of fsQCA findings. In this method we assigned to each observation in the sample its membership score in each of our main solution's three configurations. Membership is calculated as the minimum membership score among the individual conditions within each configuration. Because the resultant variables display relatively high correlation, we recoded them as binary variables with 0.5 membership as the cut-off (Fiss et al., 2013). In essence, we created three new variables denoting each firm's membership in the three configurations we identify in the main solution. We then entered these variables and several relevant control variables into a regression model predicting the dependent variable, competitive advantage. The expectation is that the three variables will be significantly and positively associated with competitive advantage, thus providing corroborating evidence that membership in these configurations is associated with higher scores on the competitive advantage scale. For control variables, we used the same variables used in Fainshmidt and Frazier (2017), namely, firm age, firm size, respondent tenure, and high-tech industry classification. Results showed that Configurations A and C were positively and significantly ($p < 0.05$) associated with competitive advantage (see Table B3, Model 1 below). Configuration B was in the expected direction, but the p-value did not reach conventional levels of significance. However, this may be driven by the subset relations between the configurations, due to some shared conditions, alongside the relatively smaller sample size for a regression model. We therefore examined each of the configurations in a separate model including the control variables. In these tests, all three configurations were positive and statistically significant, with Configuration B exhibiting a substantial effect size and high statistical significance (Table B3, Model 2 below). Overall, these results provide corroborating evidence to the main findings we present in the manuscript.

Table B3: OLS Regression Results Using Membership in Configurations

Model	Variable	Unstandardized ß	Std. Error	t-statistic	p-value
1	Constant	0.348	0.079	4.397	0.000
	Configuration A	0.269	0.134	2.005	0.047
	Configuration B	0.111	0.130	0.858	0.392
	Configuration C	0.442	0.080	5.546	0.000
	Firm Age	0.002	0.002	0.919	0.359
	Firm Size	0.000	0.000	0.424	0.672
	Respondent Tenure	0.003	0.003	0.868	0.387
	High-tech Industry	-0.04	0.062	-0.649	0.517
2	Constant	0.393	0.086	4.573	0.000
	Configuration B	0.381	0.131	2.907	0.004
	Firm Age	0.002	0.002	1.075	0.284
	Firm Size	0.000	0.000	-0.026	0.979
	Respondent Tenure	0.005	0.003	1.481	0.141
	High-tech Industry	-0.032	0.068	-0.470	0.639

Finally, Zahra et al. (2006: 947) have argued that "the positive effects (if any) of dynamic capabilities require time to appear." In terms of the nature of our survey, the wording of survey items prompts respondents to report on current performance (such as latest accounting measures and current competitive position), while dynamic capabilities items refer to ongoing routinized activities. These items call respondents to reflect on past practices that continue into the present, as such activities require the respondent to engage in recollection of activities from memory. The outcomes of dynamic capabilities may not necessarily be instantaneous, but the assessment of ongoing activities solicited from respondents captures continued engagement in deploying dynamic capabilities, rather than a punctuated change that might take several years to be beneficial. Empirical research demonstrates that the performance outcomes of dynamic capabilities are manifested in the short-term as well as in the long-term (e.g., Drnevich & Kriaucianas, 2011; Girod & Whittington, 2017; Wilden and Gudergan, 2015). Given that we have ruled out common method variance as an explanation driving our results (see Appendix A), we believe that our results capture the dynamic capabilities-competitive advantage relationship effectively.

With that said, we collected additional data on the competitive advantage of the firms in our sample, with a 3.5-year lag from the original survey (Schilke, 2014). We were able to collect data from 62 firms, of which 42 provided sufficient responses to questionnaire items measuring financial and strategic performance. We again collected actual sales growth data, with 36 firms providing this measure. Sales growth was positively correlated with competitive advantage ($r = 0.30$; $p < 0.1$). Further, the lagged competitive advantage was correlated with the original competitive advantage scores ($r = 0.56$; $p < 0.001$). This indicated the data is valid, as one would expect some change and some persistence in performance over the selected time period.

Next, we ran a sufficiency analysis using the causal conditions from the first wave, and competitive advantage measured approximately three and a half years later. We used the same calibration anchors and specifications as in our original analysis to make the findings comparable. This analysis yielded one configuration exactly replicating Configuration C from the main results, which is also in subset relation with Configuration B. This result speaks strongly to the validity of these configurations in our main results. The relatively smaller sample size might be why Configuration A was not exhibited, but there is an indication that many of the patterns we observed in the main results are robust. Finally, we reduced the frequency threshold from three to two cases, as a frequency of three is quite stringent for a sample of 42 cases. Here, analysis yielded two configurations that were nearly identical subsets of the main results. Overall, these results suggest that the patterns we observe are generally robust to a longer time lag.

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APPENDIX C: RESULTS FOR ABSENCE OF COMPETITIVE ADVANTAGE

We conducted an analysis using the absence of competitive advantage as the outcome. By examining such results and comparing them with our main results, we may glean additional insights regarding potential distinctions in configurations associated with the focal outcome. Here, we applied the same frequency and consistency cutoffs as in the main analysis and found four configurations (Table C1 below). The first configuration exhibited the absence of dynamic capabilities and absence of a differentiation orientation in stable, resource-scarce environments. Compared to Configuration A in our main results, it provides additional evidence that dynamic capabilities contribute to competitive advantage in such environments with a low-cost orientation.

The second configuration exhibited the absence of dynamic capabilities, absence of differentiation orientation, and absence of low-cost orientation in munificent environments (either dynamic or stable). This configuration highlights the vulnerability of firms that lack both an effective differentiation and an effective low-cost orientation; in other words, those firms that are stuck in the middle. This configuration provides additional evidence to bolster Configuration C from our main results in that dynamic capabilities in dynamic, munificent environments are associated with competitive advantage and may allow the effective combination of low-cost and differentiation orientations, while the absence of dynamic capabilities in such environments is associated with the absence of competitive advantage.

The final two configurations include dynamic, resource-scarce environments, a type of environment that did not appear in any configuration for the presence of competitive advantage. In both configurations, dynamic capabilities were present. The first configuration in this pair specified the presence of differentiation, while the second specified the presence of low-cost orientation. These two configurations suggest that firms operating in dynamic environments with scarce external resources may be at a competitive disadvantage when they invest in dynamic capabilities. These findings lend credence to our emphasis on the importance of considering *both* munificence and dynamism as important external contingencies to the value of dynamic capabilities. Furthermore, these patterns are consistent with our main results suggesting that dynamic capabilities may not be a viable path to change in dynamic, resource-scarce settings.

Table C1: Sufficiency Results for the Absence of Competitive Advantage

	Configuration			
Causal Condition	**1**	**2**	**3**	**4**
Dynamic Capabilities	⨂	⨂	•	•
Environment				
Munificence	⊗	•	⨂	⨂
Dynamism	⊗		●	●
Strategic Orientation				
Differentiation Orientation	⨂	⨂	•	⨂
Low-cost Orientation		⊗	⨂	•
Raw coverage	0.31	0.16	0.10	0.12
Unique coverage	0.22	0.07	0.05	0.05
Consistency	0.89	0.83	0.81	0.83
Solution coverage	0.50			
Solution consistency	0.83			