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An empirical assessment of the dynamic capabilities–performance relationship

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ABSTRACT

Despite a plethora of empirical studies on dynamic capabilities (DCs) and convergence in the literature about core theoretical tenets, the contribution of DCs to competitive advantage and firm performance remains unclear. In this study, we take stock of the empirical DC literature by conducting a systematic, vote-count assessment of the level of empirical support for the DC view. Our analysis shows that the DC view received 60% support in empirical testing, which is higher than a previous, similar examination of the resource-based view. However, results also point to substantive and methodological variability in the level of empirical support. Importantly, support levels differ depending on the type and nature of the DC, the type of performance metric employed, whether DCs were examined independently or in interaction with contextual or organizational variables, and research design characteristics. We discuss the implications of this empirical assessment for future research on DCs.

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1. Introduction

Since Teece, Pisano, and Shuen's (1997) study, dynamic capabilities (DCs) – the “capacity of an organization to purposefully create, extend, or modify its resource base” (Helfat et al., 2007: 4) – have become a central area of research in strategic management (Barreto, 2010). As evidence of this, the *Journal of Business Research* has published seven articles directly related to DCs in the past 15 months. Despite this growing interest and agreement among scholars that strategic resources and ordinary capabilities contribute to competitive advantage and firm performance (Crook, Ketchen, Combs, & Todd, 2008; Krasnikov & Jayachandran, 2008), the extent to which the DC view is supported by empirical evidence remains unclear. Indeed, while several studies (e.g., Fang & Zou, 2009; Stadler, Helfat, & Verona, 2013; Drnevich & Kriauciunas, 2011) document a positive relationship between DCs and firm performance, other studies have found insignificant or negative effects (e.g., Schilke, 2014a; Wilden & Gudergan, 2014; Wilden, Gudergan, Nielsen, & Lings, 2013).

According to Barreto (2010: 277), “[n]ow is the right time to move toward more *selection*- and *retention*-oriented stages, that is, with a consolidation of the main construct and a capitalization on previous research in a more structured, focused way.” Indeed, recent definitional and theoretical

progress in the field (i.e., Helfat et al., 2007; Peteraf, Di Stefano, & Verona, 2013; Di Stefano, Peteraf, & Verona, 2014) has attempted to facilitate the reconciliation of once seemingly opposing theoretical perspectives on the performance implications of DCs (i.e., Teece et al., 1997; Eisenhardt & Martin, 2000). Thus, from a theoretical consensus perspective, DC research has come a long way. However, despite the *theoretical* advances, empirical evidence remains dispersed and discordant.

Accordingly, we attempt to bring the empirical literature together by conducting a systematic assessment of the level of empirical support for DC predictions. Specifically, drawing from Newbert (2007) as an organizing framework, we present a theoretically informed vote count analysis of the empirical DC literature, which reveals *how often* the hypothesized relationship (i.e., DC–performance link) has received support in empirical tests (Newbert, David, & Han, 2014). This method is particularly useful in fields such as DCs, characterized by a lack of empirical consensus and where diverse measures have been applied to capture both DCs and firm performance (Newbert et al., 2014; David & Han, 2004). In sum, as “all theories must survive repeated attempts at empirical falsification before they can be accepted as ‘true’” (Newbert, 2007: 121), we believe that a systematic review (such as this one) will contribute to the ongoing discussion about DCs and define its paradigmatic boundaries as it enters maturity by offering an aggregation of past results.

2. Dynamic capabilities and firm performance

Amit and Schoemaker (1993: 35) define organizational capabilities as “a firm's capacity to deploy *resources*, usually in combination, using

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organizational processes, to effect a desired end” [italics in original]. The long-standing literature on organizational capabilities distinguishes between different types of capabilities. Importantly, while ordinary capabilities allow the firm to make a living in the present (Cepeda & Vera, 2007), DCs are higher-order routines (Danneels, 2008) that represent a capacity to change the organizational set of resources and ordinary capabilities, i.e., the resource base (Helfat & Winter, 2011; Santos-Vijande, del Río-Lanza, Suárez-Álvarez, & Díaz-Martín, 2013). Zahra, Sapienza, and Davidsson (2006): 921 explain that “new routine for product development is a new substantive capability but the ability to change such capabilities is a dynamic capability.”

According to Teece et al. (1997), DCs systematically utilize existing resources and, in parallel, generate new resources and competencies. In other words, DCs are *patterned* organization-wide activities (Ambrosini & Bowman, 2009) that “systematically solve problems..., and change its [i.e., the organization's] resource base” (Barreto, 2010: 271; see also Arend & Bromiley, 2009 for an excellent graphical depiction). DCs, therefore, generate new knowledge, products, and processes, which allows for the creation of new competitive advantages and thus better firm performance (Helfat, 1997; Teece, 2007). Along similar lines, systematically revising operational capabilities is likely to improve efficiency (Zollo & Winter, 2002) and congruence with the environment (Drnevich & Kriauciunas, 2011). Indeed, Teece (2014) maintains that DCs are key to superior performance especially (but not only) in fast-paced environments. Overall, our review of extant literature suggests that DCs should be positively related to competitive advantage and performance.

From a *slightly* different perspective, Eisenhardt and Martin (2000: 1106) proposed that “dynamic capabilities are necessary, but not sufficient, conditions for competitive advantage.” They viewed DCs as “best practices” that can be imitated by other organizations, and their impact on competitive advantage and performance is contingent on whether the new resource configurations are the “right” ones (Ambrosini & Bowman, 2009; Slater & Narver, 2000). Further, DCs require significant commitment of managerial resources to maintain and implement (Helfat & Peteraf, 2015), which may render costs associated with DCs *at times* larger than or equal to potential benefits (e.g., Zahra et al., 2006: 925; Winter, 2003). These arguments suggest that the notion that DCs should be positively and unconditionally related to competitive advantage and performance may be challenged.

However, notwithstanding the validity of such theoretical contradictions, recent contributions have brought the competing perspectives together in several ways (e.g., Di Stefano et al., 2014; Peteraf et al., 2013). First, whatever perspective one takes, it is consistently argued that DCs alter the resource base. Further, according to Peteraf et al. (2013), even if one conceptualizes DCs as best practices, they are best for a reason (i.e., they tend to be valuable and at least somewhat rare; Winter, 2003) and may be idiosyncratic in their details. As such, firms may create a competitive advantage with best practices because the timing of adoption, idiosyncratic details, and accumulated experience associated with best practices may create considerable value. Finally, if DCs are necessary for competitive advantage (Eisenhardt & Martin, 2000), they should allow firms to create competitive advantages and outperform firms lacking such capacities.

In summary, arguments in the DCs research stream suggest that while the performance benefits from DCs may not be automatic, DCs should positively relate to competitive advantage and performance. However, given the mixed *empirical* evidence, two issues remain. First, it is unclear whether the above theoretical assertion has survived multiple attempts at falsification. Second, it is not clear whether the support for the prediction of a positive DC–performance relationship is contingent upon moderators. For instance, while some scholars argue that DCs are path dependent and thus more likely to breakdown in high-velocity settings (Eisenhardt & Martin, 2000; Schilke, 2014a), others contend that DCs are particularly relevant in such environments (Teece et al., 1997; Drnevich & Kriauciunas, 2011). According to

Peteraf et al. (2013), examining contingencies that influence the relationship between DCs and performance is also warranted for theoretical progress in the field. As such, it is important at this stage of the literature to conduct a comprehensive, systematic assessment of the empirical support for the DCs view.

3. Methods

3.1. Sample

We followed a three-thronged procedure to obtain relevant studies:

- First, we conducted an extensive search for articles published in peer-reviewed journals between 1997 – the publication year of the seminal piece by Teece et al. (1997) – and Teece (2014). We used the key terms “dynamic capabilities”/“dynamic capability” and “performance”/“competitive advantage” in the ABI/INFORM, EconLit, SAGE, Wiley, and Springer databases. We also manually searched in relevant management, international business, marketing, and entrepreneurship journals; further, we checked all the articles cited by published review articles (e.g., Barreto, 2010; Easterby-Smith, Lyles, & Peteraf, 2009; Li & Liu, 2014). Finally, we called for unpublished studies in the Academy of Management (AoM) listservs and LinkedIn page and by emailing scholars who had presented DC-related articles in the last four AoM annual meetings. We received two relevant and usable unpublished studies.
- Second, as in Newbert (2007), we excluded articles if their abstract did not include methodological keywords, such as empirical, test, data, finding(s), statistical, result(s), or evidence (Newbert, 2007).
- Third, we examined whether articles included an empirical test of the relationship between DCs and competitive advantage or performance; we excluded those studies in which performance was examined as an antecedent of DCs (e.g., Moliterno & Wiersema, 2007).
- The above-mentioned procedure resulted in a final set of 518 tests in 89 studies, 11 of which were published in *Journal of Business Research*.

3.2. Coding and analysis

To assess the level of empirical support for the DC–performance relationship, we conducted a systematic vote count analysis, which yields an estimate of the proportion of statistical tests in support of a theory's predictions, out of total statistical tests conducted (Newbert et al., 2014). David and Han (2004) employed the vote count methodology in evaluating the level of support for transaction cost economics predictions, while Newbert (2007) applied the method to assess core tenets within the RBV. Following these previous studies, we coded whether the empirical test was in support of a positive effect of DCs on performance or competitive advantage, independently or in interaction with another variable. That is, if an empirical test yields a significant coefficient in support of a hypothesized relationship, a vote of “1” is recorded; otherwise, a vote of “0” is recorded.

An empirical test in our coding procedure included any rigorous statistical test that sample studies had conducted in order to test a DC–performance relationship. Following Newbert (2007), we excluded relatively simple statistical tests such as paired *t*-tests and correlations since they are not generally considered rigorous. In addition, since there might be multiple operationalizations of DC or performance, or multiple statistical models in a single study, we have multiple observations for some studies. These statistical tests are the unit of analysis, whereby support was recorded for effects significant at least at the 0.05 level.

Because empirical tests may encompass interactions, various testing techniques, and differing DCs, we follow Newbert (2007) and provide a more nuanced, theoretically informed breakdown of empirical support

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