Sengul *Journal of Organization Design* (2019) 8:22
https://doi.org/10.1186/s41469-019-0063-8

Journal of Organization Design
a SpringerOpen Journal

COMMENTARY Open Access

Organization design as a competitive choice: an application to the study of innovation

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Abstract

This commentary reflects on how a perspective that concentrates on the role of competitive context and sees organization design as a competitive choice may inform the research stream on the link between organization design and innovation. Focusing on multiunit firms and their formal organization, I discuss the benefits of, and the need for, adopting such an approach for this research stream, in particular, and the study of organization design, in general. I conclude by outlining some implications and directions for future research.

Keywords: Organization design, Competitive context, Innovation

Introduction

A central aspect of my research has been its emphasis on the influence of the competitive context on firm organization. Seeing organization design as a competitive choice, I have studied how a firm's organization (decision rights, incentives, etc.) is influenced by the competitive context in which the firm is embedded. In other words, the firm's choice of design parameters responds to its competition. Thus, the emphasis is not on internal mechanisms to improve efficiency, as in the classical work by Chandler, Williamson, and others, but on competitive mechanisms that are external to the firm.

This perspective offers not an alternative, but a complementary approach to organization design. In particular, I see the design choices of a firm as organizational commitments because they affect the firm's optimal courses of action. As a result, the firm's organization affects the optimal strategic choices of its rivals and, ultimately, how the rivalry unfolds between them.[1] This implies that organization design should be both externally oriented to shape competitive interactions *and* internally oriented to allow efficient strategy formulation and implementation (Sengul, 2018). As Joseph and his colleagues (2018: 16–17) stated, "strategy following structure in this way has the effect of broadening the scope of interesting research questions...[and] leads to a substantially different understanding of the role played by organization design in strategy."

[1]The perspective that I highlight can be seen as a broad interpretation of the "strategic delegation" literature (see Sengul, Gimeno, & Dial, 2012 for a review) and its application to strategic management.

In this commentary, I expand this perspective to the study of innovation. Innovation remains one of the most fundamental areas of research for management scholars and, along with "fit," one of the two most salient topics in JOD (Joseph, 2018). Thus far, I have not contributed to the field on this topic, although I have followed it with great interest over the years. Nevertheless, I hope my commentary will inspire an interest in the role of competitive context and the conceptualization of organization as an outcome in this area of research. In particular, I believe that studying whether and how essential levers of organization design—i.e., groupings, authority structure, and linkages—influence innovation through a competitive lens may prove to be illuminating.

I limit my discussion to multiunit firms (such as multi-business firms, firms with multiple branches, and multinationals) and to their formal organization (i.e., aspects of organization that result from the mandates of formal authority, such as reporting relationships, organizational groupings, decision rights, and incentives). This allows me to be more concise, hopefully without loss of generality. I posit that the underlying intuition applies more broadly to all types of firms and to a broader conceptualization of organization design.

Competitive context: the missing piece in organization design research on innovation

Innovation effort and outcomes

The research on innovation is vast, multi-dimensional, and multi-disciplinary. Focusing on the relevant research in the management field, Ahuja, Lampert, and Tandon (2008) provided an informative survey of this research stream. In their framework, technological innovation effort and outcomes are influenced by industry structure (e.g., concentration, inter-firm networks), firm characteristics (e.g., size, scope), institutional influences (e.g., science, appropriability regime), and intra-organizational attributes (e.g., structure, incentives). Note that intra-organizational attributes are all, in essence, components of organization design.

Organization design influences innovation along four dimensions, using Ahuja and his colleagues' (2008) categorization: (1) organizational structure and processes (e.g., Argyres and Silverman, 2004; Henderson and Clark, 1990; Szulanski, 1996; Tushman et al., 2010); (2) governance and incentives (e.g., Galbraith and Merrill, 1991; Graves, 1988; Zahra, 1996); (3) manager characteristics (e.g., Bantel and Jackson, 1989; Khan and Manopichetwattana, 1989; Wu et al., 2005); and (4) search processes (e.g., Ahuja and Katila, 2001; Paruchuri et al., 2006; Puranam et al., 2006). More recent research extends these lines of inquiry to novel mechanisms, such as attention structure (Joseph and Wilson, 2018), inventor networks (Argyres, Silverman, and Rios, 2019), micro-geography (Lee, 2019), path-dependent routines (Theke, Polidoro, and Fredrickson, 2018) and reorganization (Karim and Kaul, 2015).

A common thread across these studies is their focus on the link between organization design and innovation. With few notable exceptions (e.g., Toh and Polidoro, 2013), competition does not enter into the picture, let alone become a major consideration. Even the studies that allude to competition consider it only as something that can be controlled for (typically with the inclusion of a measure of market concentration in the model specification). This is not surprising, considering that the overarching theoretical

framework in this body of work implicitly assumes that organization design and competition (and firm characteristics and institutional influences) have independent influences on innovation.

Knowledge spillovers and diffusion of innovation

A comparatively smaller literature on the diffusion and adoption (instead of creation) of innovations (both technological innovations and non-technological innovations, such as administrative or organizational best practices) explicitly takes into consideration both internal and external (competitive) influences on innovation.

According to this literature, best practices, products, and services (new to the firm but not necessarily to the world) diffuse across business units in multiunit firms due to both internal and external factors. Adoption of a given innovation internally (by other units of a firm) increases a unit's likelihood to adopt that innovation. This is because units are exposed to the experience of other commonly owned units, as they can communicate with each other frequently, allowing people to form shared interpretations and attitudes, which may speed up knowledge transfer (Erickson, 1988; Greve, 1996, 1998). Moreover, the ability to share costs and competencies across units makes the innovation diffusion much easier within firms. In parallel, adoption of a given innovation externally (by a unit's direct rivals) also increases the unit's likelihood to adopt that innovation. This is because rivals that introduce a new technology may threaten non-adopters' market share and profitability, as innovations that reduce costs and/or increase customer's willingness-to-pay may give a competitive advantage to those rivals.[2] At the extreme, non-adopters may even face the risk of technological substitution (Christensen, 1997). Hence, rivals' adoption creates a competitive bandwagon, where firms adopt best practices, products, and services, to avoid losing market share to rivals (Abrahamson and Rosenkopf, 1993).[3]

Several studies empirically examined these mechanisms in diverse settings, such as consumer banking (Hannan and McDowell, 1984), consumer magazines (Simon and Lieberman, 2010), hotel chains (Ingram and Baum, 1997), pizza stores (Darr, Argote, and Epple, 1995), and radio broadcasters (Greve, 1996). In a similar exercise, my colleague, Tieying Yu, and I studied the early diffusion of online banking in the US banking industry in the 1991–1999 period (see Appendix for data and estimation). Although online banking goes back to the 1980s, adoption was limited to only a handful of cases in the early 1990s (the first years Internet usage surpassed 1% in the USA) and did not pick up until the mid-1990s. At the time, it was a major innovation, plagued with high uncertainty and high costs of

[2]Furthermore, given the high uncertainty associated with new technologies, managers tend to observe the behaviors of other firms and use the resulting performance outcomes to formulate their own strategy (Levinthal and March, 1993; Miner and Haunschild, 1995). This is especially the case among rivals that are similar, face similar conditions, and when adoption decisions are observable to other firms (Greve, 1998).

[3]Taking a different angle, Bloom, Schankerman and Van Reenen (2013) emphasize the need to distinguish knowledge spillovers between (typically competing) firms from product market rivalry. The former are positive externalities and the latter are negative externalities in terms of cross-firm effects on profitability. This implies that focusing on only one can confound the results, and that the effect of both externalities needs to be taken into account.

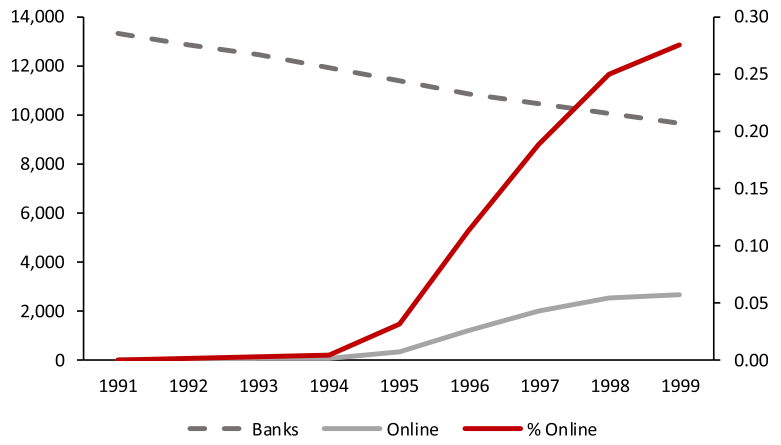

Fig. 1 US banks moving online, 1991–1999

implementation, but with potentially significant operational upsides. Online services promised to change the way banks operate, allowing them to mass customize their standardized financial services, and to reduce costs.[4] As a result, once the adoption took off, the percentage of banks adopting online banking increased rapidly, from under 1% in 1994 to over 28% in 1999 (Fig. 1). We found that the early diffusion of online banking was driven by its adoption internally, by other banks owned by the same banking holding company (BHC).[5] The effect of internal adoption was weaker for banks with rivals that had already gone online, implying that internal and external factors were substitutes in the diffusion of online banking.

Despite the intuitive appeal of this literature, it differs from the perspective that I outlined at the onset. Just as the literature on innovation effort and outcomes sidelines competition, the literature on knowledge spillovers and innovation diffusion sidelines organization design. Within this literature stream, organization design is reduced to a binary distinction between multiunit vs. standalone firms, and lacks dimensionality. Such an oversimplified conceptualization of organization design sheds little light, if any, on the link between organization design and innovation.

Why competition matters for organization design research on innovation

Going back to my initial point, I propose that a perspective that concentrates on the role of competitive context and sees organization design as a competitive choice may inform the research stream on the organization design-innovation link. My suggestion is driven by two observations.

[4]At the end of our observation period, a typical transaction over the Internet cost about a penny at an online bank, compared with $1.07 at a full-service teller window and $0.27 at an ATM.

[5]A potential explanation is the high volatility of the banking sector in 1990s, leading banks to rely more on their internal experience and resources at the early stages of online banking. Not only did the 1990s witness an extensive consolidation in the US banking industry (the number of banks decreased from nearly 14 K to under 10 K due to M&A activity and exits), the late 1990s was marked by the so-called internet bubble. Alternatively, it could be that our exclusive focus on early adoption resulted in a disproportionate number of zeros for rivals' adoption, as most markets had no rival banks with online services until the last 2 years of our observation period.

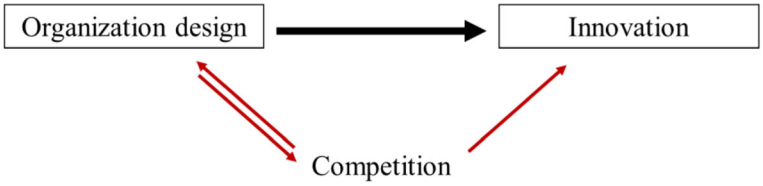

Fig. 2 Organization design and innovation, and competition

First, competition influences both organization design and innovation.[6] Intense competition calls for more efficient, typically leaner, structures because it increases the need for firms to be more adaptive and efficient organizationally. Although inefficient firms with higher costs may sustain their operations in the absence of intense competition (Leibenstein, 1966, refers to this as "x-inefficiency"), they risk losing their competitive position to more efficient rivals when competition intensifies (see, e.g., Schmitz, 2005). As a result, firms facing intense rivalry tend to have, for example, flatter organizational hierarchies (Guadalupe and Wulf, 2010), which are associated with faster response to market changes and lower informational inefficiencies in the organizational hierarchy (McAfee and McMillan, 1995; Thesmar and Thoenig, 2000). In parallel, intense competition leads to more innovation because, as noted above, rivals' innovations that reduce costs and/or increase customer's willingness-to-pay leave the focal firm at a competitive disadvantage, prompting the firm to innovate in order to match or surpass rivals.[7] Given the high uncertainty associated with investments in innovation, the effect of rivalry on innovation is more pronounced for firms that are neck-and-neck with each other or for those in the lead (see, for example, Aghion et al., 2005; Shu and Steinwender, 2018). This resonates with the notion of Schumpeterian competition assessed through a competitive dynamics lens (see Giustiziero, Kaul, and Wu, 2019).

Second, organization design influences rivalry (Sengul, 2018). Serving as commitments to specific courses of action (e.g., compensating managers on sales growth serves as a commitment to a more competitively aggressive posture), the organization design choices of a firm may shift the optimal strategic choices of its rivals and, hence, how competition between them plays out (e.g., Fershtman and Judd, 1987; Vickers, 1985; Vroom, 2006; see Sengul et al., 2012 for a review). Organization design choices can also help firms maintain their strategic commitments through selective controls on managers' ability to engage in competitively aggressive behavior (e.g., Corts, 2001; Haan and Toolsema, 2008; Sengul and Gimeno, 2013; Sengul and Obloj, 2017).

[6]In multiunit firms, multimarket competition also affects organization design and innovation. Intense multimarket competition calls for increased headquarters' control because parochial interests of business units do not sufficiently take into account competitive spillovers across units and, as a result, their profit maximizing choices may lead to lower profits for the firm as a whole. Accordingly, multimarket firms tend to have tighter control over their units' resource allocation decisions and limit their financial resources to (re)invest without the headquarters' consent (Sengul and Gimeno, 2013). In parallel, firms are likely to match innovation efforts of their multimarket rivals in order to maintain parity, especially if they compete with multimarket rivals that innovate (Scott, 2001). They are unlikely to hold back technological breakthroughs (Areeda and Turner, 1979; Jayachandran et al., 1999). See Sengul and Dimitriadis (2015) for an introduction to multimarket competition.

[7]This is especially the case for radical or architectural innovations.

Taken together, these observations call for a more comprehensive approach in the study of the organization design-innovation link that directly takes competitive context into account (Fig. 2). Failure to do so both poses a risk and is a missed opportunity.

The underlying risk of not considering competition in studying the organization design-innovation link is one of misattribution: if competition influences both organization design and innovation, it is possible that findings linking certain organization design features (such as flatter hierarchies or decentralization) to innovation effort and outcomes may be spurious. Additionally, organization design not only has a direct effect on innovation but also has an indirect effect on innovation through its influence on competition. As a result, studies not considering competition may overestimate (underestimate) the influence of organization design features on innovation when the indirect effect takes the same (opposite) sign.

Not taking competition directly into consideration is also a missed opportunity to provide new explanations and interpretations to existing findings and to unearth novel mechanisms. In other words, seeing organization design as a competitive choice can broaden the scope of research in this area. Although this is by no means an entirely new point (after all, we, as organization design scholars, see organization as something that can be designed), the predominant approach in strategy and management has been to consider organization design as a right-hand-side variable that drives, or moderates, innovation effort and outcomes. The perspective that I highlight offers a different understanding of the role played by organization design, first and foremost as a left-hand-side variable driven, at least in part, by the competitive context. In that, heterogeneity in the competitive context may explain some of the variances in organization design choices across firms and over time.

Moving forward

In my view, there are three levers of organization design that can be particularly fruitful if tied to the competitive context when studying innovation: groupings, authority structure, and linkages. Groupings, referring to the delineation of a firm's domain into distinct divisions, ultimately shape how resources, attention, and capital are allocated within the firm. Authority structure and hierarchy capture how decision rights are allocated and information/attention flows within the firm. Linkages complement authority structures, emphasizing how different units and parts of the organization are connected to one another. Studying whether and how these levers influence innovation through a competitive lens may prove to be illuminating.

In addition to direct approaches (that treat the levers mentioned above as competitive choices and/or incorporate competition to existing theoretical and empirical models), we can also adjust the way we approach the research question at hand. Let me conclude by briefly outlining three such examples. First, value appropriation can be brought forward as a central concern. Most organization design research puts a heavy emphasis on value creation (as reflected by the centrality of fit and innovation to the field of organization design and to JOD (Joseph 2018), as I noted earlier). Although value creation and value appropriation are interlinked, a

focus on value appropriation shifts the attention to a different set of threats that are typically associated with the competitive context and the appropriability regime. This opens a whole new set of questions to be explored. For example, interdependencies that primarily drive value creation (such as intra-product and inter-product interdependencies in Aggarwal and Wu (2015)) can be complemented by interdependencies that primarily drive value capture (such as competitive spillovers in Sengul and Gimeno (2013)).

Similarly, intra-firm capital allocation, and its link to search processes, internal organization, and external environment, can be scrutinized. Ultimately, all value-creating activities, including innovation, require prior allocation of financial resources. When we move away from the two extreme views (access to capital as a source competitive advantage at the one extreme and easy access to capital through efficient external capital markets at the other), however, access to capital can be seen "as a potential complement to other, more established sources of competitive advantage (e.g., proprietary technology, brand recognition, and human capital)" (Sengul, Almeida Costa, and Gimeno, 2019, p. 68). This opens up promising lines of inquiry for organization design researchers. For example, linkages are likely to influence not only innovation but also competition and allocation of capital internally, both of which shape innovation effort and outcomes.

Finally, scholars could find it rewarding to adopt a more granular approach to organization design elements. We frequently use a single measure of an organization design element to study (e.g., de/centralization, compensation). This is not surprising; everyone who gets their hands dirty with data knows that gathering information on organization design elements in a large sample of organizations is challenging, especially across multiple dimensions. At the same time, such an overgeneralized approach risks missing important heterogeneities in organization design. For example, in a study of multi-industry firms in France, Javier Gimeno and I (2013) found that competitive spillovers were associated with centralization of decisions related to resource commitments (e.g., investment) but not with centralization of other decisions (e.g., remuneration), which were influenced by other, efficiently related factors. Focusing on a single dimension of centralization, or using an aggregate measure, would have masked this important distinction. The research stream on the organization design-innovation link could benefit from a more granular approach by incorporating the role of competitive context as a salient driver of underlying heterogeneity within it.

Appendix

Data and estimation used in the online banking diffusion exercise

Our data came from two sources. First, we gathered data on the commercial banks and their BHCs from the FDIC Call Reports, which records financial data for all banks and BHCs regulated by the Federal Reserve System, Federal Deposit Insurance Corporation, and the Comptroller of the Currency. Second, we hand-collected date of establishment for all bank websites from Alexa Internet, which offers a variety of information on most websites, including the date on which the site was first registered with InterNIC (the Department of Commerce's Web Registration Service). We used this date of registration as the date that the banks went online. To identify bank websites, we relied on a list provided by the FDIC, which included the web addresses of all the banks with

legitimate charters and FDIC insurance (beginning in June 1999, FDIC required commercial banks offering online services to report the primary web address of their home page). We excluded banks that established a website before 1991 (which were very few) from the sample due to data unavailability. Our final dataset contained 15,611 unique banks owned by 8072 BHCs operating in 293 different markets (defined at county level). In terms of estimation, we used a continuous-time event history analysis with Cox's proportional hazard model, clustering standard errors by BHC.

Acknowledgements
I thank John Joseph, Tomasz Obloj, and Tieying Yu for helpful comments.

Authors' contributions
This is a sole-authored commentary. The author read and approved the final manuscript.

Competing interests
The author declares that he has no competing interests.

Published online: 23 December 2019

References

Abrahamson E, Rosenkopf L (1993) Institutional and competitive bandwagons: using mathematical modeling as a tool to explore innovation diffusion. Academy of Management Review 18:487–517
Aggarwal VA, Wu B (2015) Organizational constraints to adaptation: intrafirm asymmetry in the locus of coordination. Organization Science 26:218–238
Aghion P, Bloom N, Blundell R, Griffith R, Howitt P (2005) Competition and innovation: an inverted-U relationship. Quarterly Journal of Economics 120(2):701–728
Ahuja G, Katila R (2001) Technological acquisitions and the innovation performance of acquiring firms: a longitudinal study. Strategic Management Journal 22(3):197–220
Ahuja G, Lampert CM, Tandon V (2008) Moving beyond Schumpeter: management research on the determinants of technological innovation. Academy of Management Annals 2(1):1–98
Areeda P, Turner D (1979) Conglomerate mergers: extended interdependence and effects on interindustry competition as grounds for condemnation. University of Pennsylvania Law Review 127(4):1082–1103
Argyres N, Silverman B (2004) R&D, Organization structure and the development of corporate technological knowledge. Strategic Management Journal 25:929–958
Argyres N, Silverman B, & Rios LA (2019) Organizational change and the dynamics of innovation: Formal R&D structure and intrafirm inventor networks. Working Paper.
Bantel KA, Jackson SE (1989) Top management and innovations in banking—does the composition of the top team make a difference? Strategic Management Journal 10:107–124
Bloom N, Schankerman M, Van Reenen J (2013) Identifying technology spillovers and product market rivalry. Econometrica 81:1347–1393
Christensen CM (1997) The innovator's dilemma: when new technologies cause great firms to fail. Harvard Business School Press, Boston
Corts KS (2001) The strategic effects of vertical market structure: common agency and divisionalization in the U.S. motion picture industry. Journal of Economics and Management Strategy 10:509–528
Darr ED, Argote L, Epple D (1995) The acquisition, transfer, and depreciation of knowledge in service organizations: productivity in franchises. Management Science 41:1750–1762
Erickson BH (1988) The relational basis of attitudes. In: Wellman B, Berkowitz SD (eds) Social structures: a network approach. Cambridge University Press, New York, pp 99–121
Fershtman C, Judd KL (1987) Equilibrium incentives in oligopoly. American Economic Review 77:927–940
Galbraith CS, Merrill GB (1991) The effect of compensation program and structure on SBU competitive strategy—a study of technology-intensive firms. Strategic Management Journal 12(5):353–370
Giustiziero G, Kaul A, Wu B (2019) The dynamics of learning and competition in Schumpeterian environments. Organization Science 30(4):668–693
Graves SB (1988) Institutional ownership and corporate R&D in the computer industry. Academy of Management Journal 31(2):417–428
Greve HR (1996) Patterns of competition: the diffusion of a market position in radio broadcasting. Administrative Science Quarterly 41:29–60
Greve HR (1998) Managerial cognition and the mimetic adoption of market positions: what you see is what you do. Strategic Management Journal 19:967–988
Guadalupe M, Wulf J (2010) Flattening firm and product market competition: the effect of trade liberalization on corporate hierarchies. American Economic Journal: Applied Economics 2:105–127
Haan MA, Toolsema LA (2008) The strategic use of debt reconsidered. International Journal of Industrial Organization 26:616–624
Hannan MT, McDowell J (1984) The determinants of technology adoption: the case of the banking firm. Rand Journal of Economics 15:328–335
Henderson R, Clark KB (1990) Architectural innovation—the reconfiguration of technologies and the failure of established firms. Administrative Science Quarterly 35(1):9–30

Ingram P, Baum JAC (1997) Chain affiliation and the failure of Manhattan hotels, 1898-1980. Administrative Science Quarterly 42:68–102
Jayachandran S, Gimeno J, Varadarajan PR (1999) The theory of multimarket competition: a synthesis and implications for marketing strategy. Journal of Marketing 63(3):49–66
Joseph J (2018) Evolution of the journal and the field of organization design. Journal of Organization Design 7:7
Joseph J, Baumann O, Burton R, Srikanth K (2018) Reviewing, revisiting, and renewing the foundations of organization design. Advances in Strategic Management 40:207–228
Joseph J, Wilson A (2018) The growth of the firm: an attention-based view. Strategic Management Journal 39:1779–1800
Karim S, Kaul A (2015) Structural recombination and innovation: unlocking internal knowledge synergy through structural change. Organization Science 26:439–455
Khan AM, Manopichetwattana V (1989) Innovative and noninnovative small firms—types and characteristics. Management Science 35(5):597–606
Lee L (2019) Learning-by-moving: can reconfiguring spatial proximity between organizational members promote individual-level exploration? Organization Science 30:447–646
Leibenstein H (1966) Allocative efficiency vs. "x-efficiency". American Economic Review 56:392–415
Levinthal DA, March JG (1993) The myopia of learning. Strategic Management Journal 14(Special Issue):95–112
McAfee RP, McMillan J (1995) Organizational diseconomies of scale. Journal of Economics and Management Strategy 4:399–426
Miner A, Haunschild P (1995) Population level learning. Research in Organizational Behavior 17:115–166
Paruchuri S, Nerkar A, Hambrick DC (2006) Acquisition integration and productivity losses in the technical core: disruption of inventors in acquired companies. Organization Science 17(5):545–562
Puranam P, Singh H, Zollo M (2006) Organizing for innovation: managing the coordination-autonomy dilemma in technology acquisitions. Academy of Management Journal 49:263–280
Schmitz JA (2005) What determines productivity? Lessons from the dramatic recovery of the U.S. and Canadian iron ore industries following their early 1980s crisis. Journal of Political Economy 113:582–625
Scott JT (2001) Designing multimarket-contact hypothesis tests: patent citations and multimarket contact in the product and innovation markets of the chemicals industry. Advances in Strategic Management 18:175–202
Sengul M (2018) Organization design and competitive strategy: an application to the case of divisionalization. Advances in Strategic Management 40:207–228
Sengul M, Almeida Costa A, Gimeno J (2019) The allocation of capital within firms. Academy of Management Annals 13:43–83
Sengul M, Dimitriadis S (2015) Multimarket competition. Journal of Organization Design 4(3):18–30
Sengul M, Gimeno J (2013) Constrained delegation: Limiting subsidiaries' decision rights and resources in firms that compete across multiple industries. Administrative Science Quarterly 58:420–471
Sengul M, Gimeno J, Dial J (2012) Strategic delegation: a review, theoretical integration, and research agenda. Journal of Management 38(1):375–414
Sengul M, Obloj T (2017) Better safe than sorry: Subsidiary performance feedback and internal governance in multiunit firms. Journal of Management 43(8):2526–2554
Shu P, Steinwender C (2018) The impact of trade liberalization on firm productivity and innovation. NBER Working Paper No. 24715
Simon DH, Lieberman MB (2010) Internal and external influences on adoption decisions in multi-unit firms: the moderating effect of experience. Strategic Organization 8:132–154
Szulanski G (1996) Exploring internal stickiness: Impediments to the transfer of best practice within the firm. Strategic Management Journal 17:27–43
Theeke M, Polidoro F, Fredrickson J (2018) Path-dependent routines in the evaluation of novelty: the effects of innovators' new knowledge use on brokerage firms' coverage. Administrative Science Quarterly 63(4):910–942
Thesmar D, Thoenig M (2000) Creative destruction and firm organization choice. Quarterly Journal of Economics 115:1201–1237
Toh PK, Polidoro F (2013) A competition-based explanation of collaborative invention within the firm. Strategic Management Journal 34:1186–1208
Tushman M, Smith WK, Wood RC, Westerman G, O'Reilly C (2010) Organizational designs and innovation streams. Industrial and Corporate Change 19(5):1331–1366
Vickers J (1985) Delegation and the theory of the firm. Economic Journal 95(Supplement):138–147
Vroom G (2006) Organizational design and the intensity of rivalry. Management Science 52:1689–1702
Wu SB, Levitas E, Priem RL (2005) CEO tenure and company invention under differing levels of technological dynamism. Academy of Management Journal 48(5):859–873
Zahra SA (1996) Governance, ownership, and corporate entrepreneurship: the moderating impact of industry technological opportunities. Academy of Management Journal 39(6):1713–1735

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