Received: 29 June 2023 | Revised: 15 August 2023 | Accepted: 16 August 2023

DOI: 10.1002/gsj.1493

SPECIAL ISSUE ARTICLE

SMS | Global Strategy Journal WILEY

Complexity and multinationals

Marcus M. Larsen[1,2] | **Julian Birkinshaw**[3] | **Yue Maggie Zhou**[4] | **Gabriel R. G. Benito**[2]

[1]Copenhagen Business School, Frederiksberg, Denmark

[2]BI Norwegian Business School, Oslo, Norway

[3]London Business School, London, UK

[4]Stephen M. Ross School of Business, University of Michigan, Ann Arbor, Michigan, USA

Correspondence
Gabriel R. G. Benito, BI Norwegian Business School, Nydalsveien 37, N-0484 Oslo, Norway.
Email: gabriel.r.g.benito@bi.no

Abstract

Research Summary: The multinational corporation (MNC) is a typical example of a complex organization. In this essay, we employ an established body of literature on complexity in organizations to explore and discuss the nature and consequences of complexity for global strategy and MNCs. On that basis, we develop a simple organizing framework for complexity in global strategies emphasizing the source (external and internal complexity) and type (process and structural complexity) of complexity. We use this framework to structure and discuss the six research contributions in this Special Issue. We conclude by suggesting additional avenues of research on the interface between global strategy and complexity.

Managerial Summary: Firms internationalize because they recognize business opportunities abroad and devise strategies to successfully exploit them. At the same time, managers face increasing complexity as MNCs expand internationally and engage in more unknown and dispersed operations. Not only do MNCs face considerable complexity by operating in diverse and uncertain environments, but also by managing and coordinating organizational tasks and activities spanning multiple countries. This essay discusses these challenges and corresponding strategies for MNC managers. It also provides an overview of the six research articles included in this Special Issue about complexity and MNCs.

KEYWORDS

complexity, coordination, global strategy, multinational corporations

1 | INTRODUCTION

The task of running a multinational corporation (MNC) has always been complex. MNC executives have to adapt to various business environments and build coordinated networks of activities that operate effectively across multiple time zones. They must respond quickly when local market conditions change. They need to be resilient to external shocks threatening their cross-border supply chains.

These challenges have become more acute in recent years. International trade has become more difficult since the Global Financial Crisis of 2007–2008, with the COVID pandemic, the Russia/Ukraine war, and the cooling of US–China relations all adding to the uncertainty facing MNCs. Technological advances in areas such as digitization, biotech, and renewable energy have increased the pace of innovation in products and services. Concerns about environmental (climate change, pollution, biodiversity, etc.) and social (labor standards, corporate social responsibility, etc.) issues have put additional pressure on MNCs to make their cross-national operations sustainable, accountable, and transparent.

By framing these issues as *complex*, rather than just calling them complicated or difficult, we are building on a well-established body of literature dating back to Simon (1962) with important contributions from Anderson (1999), Levinthal (1997), and others. A complex system is one in which the parts interact in non-simple ways, making precise modeling of future outcomes impossible. Given their scope of operations and the speed of change in the international business environment, MNCs are complex systems of the highest order. Not only are they complex by virtue of managing and coordinating organizations spanning multiple countries, but they also face considerable complexity in their environments with often inconsistent and incongruent stakeholder and institutional requirements. As such, MNCs can be considered complex when internal and external components are increasingly interdependent.

Much research has been done on both the theory of complex organizations and the real-world activities of MNCs as they grapple with the challenges noted above. And yet much work remains to be done in thinking through the causes and consequences of complexity in the context of MNCs. Hence this Special Issue on Complexity and Multinationals. This introductory essay provides a framing for the collection of articles. We briefly review prior work on complexity and global strategy and develop a simple framework to organize different sources (external and internal complexity) and types (structural and process complexity) of complexity that are particularly applicable to the field of global strategy. We use this framework to structure and discuss how the articles in this Special Issue relate to each other and conclude with a discussion on important avenues for future research.

2 | COMPLEXITY

There is a long tradition of research on complexity in management research, dating back to studies in the 1970s examining the dimensions of organizational complexity and the link between complexity and performance (Beyer & Trice, 1979; Blau, 1970; Hall, 1977; Miller & Conaty, 1980). A second wave of research began in the 1990s, building on the theory of complex adaptive systems that suggests complexity is not just a function of the diversity of elements in a system but also the interdependencies between those elements (Anderson, 1999; Axelrod & Cohen, 2000; Levinthal, 1997). This interdependence-based view of complexity has now become dominant in the organizational literature. It is typically traced back to Simon's seminal article on the architecture of complexity (1962, p. 468), which describes a complex system as "one made up of a large number of parts that interact in a nonsimple way." Similarly, Thompson (1967) portrays a complex organization as one performing a set of many interdependent tasks, and a central managerial challenge is dealing with the ensuing consequences.

The interdependence-based view has been applied to many different settings and levels of analysis. As summarized in Zhou (2008, p. 21), there has been research on complexity in individual projects and operational practices, and at the level of organizations and industries (see, e.g., Ethiraj & Levinthal, 2004; Ichniowski et al., 1997; Lenox et al., 2006; Rivkin, 2000; Siggelkow, 2002). Interdependence-based complexity complicates all three components of joint decision-making—information processing, communicating, and deciding (Marschak & Radner, 1972; Radner, 1992; van Zandt, 1999), as well as two key elements of joint effort—incentive alignment and resource ownership (Hart & Moore, 2005; Simon, 1991), thereby increasing the cost of coordination (Zhou, 2008).

3 | COMPLEXITY AND GLOBAL STRATEGY

Global strategy is about strategies in an international context. As an academic field, global strategy studies "cross-border activities of economic agents or the strategies and governance of firms engaged in such activity" (Tallman & Pedersen, 2015, p. 273); or, put differently, the decisions and actions of companies and organizations dealing with business opportunities that are not limited to a strictly domestic context and to pursue them on a sustained basis.

While the majority of firms in most countries remain domestic in their scope and ambitions, in the current considerably globalized economic landscape, the challenge of developing a global strategy exists for a substantial number of firms (Benito et al., 2022). However, global strategies come in many shapes and forms. Notably, while firms see opportunities to profit from international business activities, internationalization also increases the difficulties of carrying out such activities and drives firms to get involved in more unknown and challenging (and therefore, riskier) operations (Békés et al., 2021). This increase in complexity, both in terms of opportunity and response, is our focus in this Special Issue.

The complexity of firm internationalization and global strategy is well-captured in the existing literature (Casson & Li, 2022; Leiblein et al., 2022). A well-established view of the internationalization process conceives that firms typically start internationalizing in markets close and relatively familiar to their home market, where present business models can be extended without substantial adaptations. When entering such markets, firms would initially tend to do so through modes of operation that entail low commitment (such as exports), thus offering the flexibility to disengage if necessary (Benito, 2023; Benito & Welch, 1997). This reduces the perceived costs and risks of establishing complex foreign operations. Then, as firms get more experienced and expand their resource base, firms will gradually move to more complex and less familiar contexts and engage in more commitment-intensive modes of operation, such as foreign direct investment (Hashai, 2011; Santangelo & Meyer, 2017). Verbeke et al. (2009) present a complementary view suggesting that firms' decisions regarding international expansion paths are highly firm-specific. Hence, firms will exhibit an international footprint that reflects their specific capabilities. In line with this view, extensive evidence has been provided on the role of firm-specific assets, including innovative capacity and productivity, on the degree of internationalization across modes and markets (Békés et al., 2021; Tan et al., 2020).

Moving beyond the (admittedly key) issues of which markets to enter and how, global strategies also require making other important decisions, carrying out adequate implementation processes, and developing organizational solutions that fit the chosen strategy. First, the global dimension of corporate strategy can be intertwined with the industry/business/product paths for diversification. However, increasing the scope of a firm by adding further avenues for expansion also complicates navigation. Market and product dimensions, therefore, need to be well aligned—and in line with firms' resources and capabilities—to achieve the expected gains from pursuing multi-pronged strategies (Collis & Montgomery, 2005).

Second, differences across countries and regions or across geographically local and dispersed operations create “the possibility of global strategy having content distinct from single country strategy” (Ghemawat, 2018, p. 30). Once the possibility of operating in multiple locations is on the table, firms need to consider where to conduct various tasks and activities, whether or not the activities should be streamlined and integrated across locations, and how to organize them. For example, one of the workhorses of the field, the integration-responsiveness framework (Bartlett & Ghoshal, 1989), and its subsequent developments (see, e.g., Ghemawat, 2007), suggests that companies' internationalization can take the shape of international (home-country based), multi-domestic (host-country oriented), global (standardized across countries), or transnational strategies (balanced), depending on decision-makers analysis of how much (or little) emphasis they should place on adaptation (responsiveness), and aggregation and arbitrage (integration) considerations.

Third, appropriate organizational arrangements and management processes need to be designed, put in place, and over time suitably revised to achieve a reasonable fit between the chosen strategies and the structures supporting them (Benito et al., 2014; Birkinshaw et al., 2016; Mees-Buss et al., 2019; Westney & Zaheer, 2010). Thus, the task of developing appropriate and dynamic organizational responses to idiosyncratic environments is an additional source of firm-level complexity.

Given our focus on complexity, it is helpful to frame the challenge of developing a global strategy using Simon's (1962) definition of complexity. Organizations are complex when internal and external components are increasingly interdependent (see e.g., Albert et al., 2015; Porter & Siggelkow, 2008; Simon, 1962). Thus, decisions are “global” in the sense that they involve “cross-border activities of economic agents” (Tallman & Pedersen, 2015, p. 237), and “strategic” in the sense that they engender interdependencies with other activities and choices within the firm, interdependencies with the choices made by other actors (individuals as well as organizations) in their competitive environments, and/or interdependencies with other choices made by the firm across time (Leiblein et al., 2018), as depicted in the internationalization process mentioned earlier (Leiblein et al., 2022). This also implies that an organization managing several different activities in a wide spread of countries can be regarded as more complex than a solely domestic organization dealing with only a few activities (Békés et al., 2021).

4 | STRATEGIES FOR MANAGING COMPLEXITY

How should decision-makers handle complexity? Considering the broader literature on organizations first (before returning to the global strategy arena), an important distinction is between strategies for managing internal and external complexities, such as those related to task complexity and those for managing institutional complexity, respectively (see Table 1 for a summary).

Consider task complexity first. The density and indecomposability of interdependent relationships among tasks cause complexity (Simon, 1955, 1962; Thompson, 1967), creating management challenges. For example, task complexity arising from resource sharing in multi-business firms can give rise to both synergistic benefits and coordination costs, thereby either limiting related diversification (Zhou, 2011) or influencing the dynamics of such strategy (Zhou et al., 2023). For business and competitive strategies, task or activity interdependencies contribute to the immutability of market positioning (Porter, 1980, 1985, 1991) in two important ways: "While set of past choices (e.g., those about submarket substitutability or complementarity) provide a barrier against imitation, another set of past choices (e.g., those about products and costs) generate incentives for a tough defense, both deterring entry by firms from a different position" (Ethiraj & Zhou, 2019, p. 1546).

Treating the firm not only as a subsystem of interdependent activities but also as a component in a larger ecosystem provides additional insights for strategy (Adner & Kapoor, 2010; Kapoor, 2018). For example, in platform ecosystems, providing products and services across multiple platforms (multihoming) can result in interdependencies between the providers' (complementors') activities across platform firms or business segments within the same platform firm, thereby causing unintended consequences for platform strategies such as access control and diversification (Chung et al., 2022; Chung et al., 2023).

Firms use a variety of strategies to deal with task complexity. They can try to standardize and modularize their internal task systems to leave more coordination capacity for scope extension (Zhou, 2011). They can vertically integrate their suppliers to align incentives and encourage information sharing when managing complex product varieties (Zhou & Wan, 2017a). They can leverage some complexity as the basis of their competitive advantage, either as an

TABLE 1 Challenges and strategic responses of internal and external complexity.

Source of complexity	Challenges	Examples of strategic responses
Internal complexity	Rising coordination costs, information processing demands, inertia, and rigidity from interdependent tasks and activities across borders	• Standardize and modularize internal task systems • Implement hierarchies, divisionalization, and intermediary coordination units • Leverage complexity as informational or positional barrier
External complexity	Rising coordination costs, information processing demands, inertia, and rigidity from inconsistent and incongruent stakeholder and institutional demands in and across foreign operations	• Disaggregate organizational tasks to fit local requirements • Differential assignment of international supervisory responsibilities • Designate regional or divisional headquarters

informational barrier to deter imitation (Larsen et al., 2019; Rivkin, 2000), or as a positional barrier to deter entry (Ethiraj & Zhou, 2019). In addition, organization structure provides not only the infrastructure for information processing, communication, and joint decision-making within firms (Galbraith, 1973; Marschak & Radner, 1972; Sah & Stiglitz, 1986; Simon, 1962; Tushman & Nadler, 1978), but also the incentive for cooperation and joint effort (Hart & Moore, 2005; Simon, 1991), thereby facilitating coordination and cooperation (Zhou, 2008). Therefore, firms can manage task complexity through organization structural design choices such as hierarchy, divisionalization, and intermediary coordination units (Williamson, 1975; Zhou, 2013; Zhou & Wan, 2017b).

A different set of challenges arise when managing institutional complexity (Sun et al., 2021). Organizations are "open systems" operating in dynamic environments and rely on external stakeholders to access key resources for survival (Buckley, 1967; Meyer & Rowan, 1977; Oliver, 1991; Scott & Davis, 2007). These stakeholders have different and often-inconsistent demands and expectations. Conflicts between stakeholder demands impose trade-offs for the organization. For example, conflicting demands from different stakeholders will impose trade-offs for organizations that are threatened with a product or service liability between allocating resources to mitigate the threat (but bearing the higher costs and lower profits) and ignoring the threat to save costs and maximize short-term profitability (but allowing the organizations' legitimacy to suffer); see Cho and Zhou (2021).

The conflicting demands imposed by external stakeholders are especially salient for firms engaging in international business, including MNCs, that use their unique organizational form to arbitrage between differential institutional constraints and reallocate resources across national borders, effectively putting "sovereignty at bay" (Kobrin, 2001; Vernon, 1971, p. 3; Zhou, 2015). Such arbitrage provides the basis of competitive advantage of the MNC vis-à-vis its domestic competitors in both home and host countries (Zhou, 2015). However, institutional arbitrage often involves resource reallocation across borders and hence creates coordination costs (Ghemawat, 2007; Kogut, 1983; Li & Zhou, 2017; Zhou, 2015), which might reduce the net benefit of international operations (Hitt et al., 1997; Sundaram & Black, 1992). Managing institutional complexity becomes even more challenging when MNCs operate in countries with weak institutions (Zhou, 2008): There will be a greater demand for resource reallocation within firm boundaries since external markets are weaker, and alternative coordination mechanisms such as market discipline and incentive contracts are less enforceable.

The literature suggests a few strategic and structural responses by MNCs in managing institutional complexity. For example, Zhao (2006) proposes that MNCs can divide up R&D tasks and assign affiliates in weak IPR countries to work on innovations that are only valuable after being combined with innovations developed by affiliates in other countries, effectively reducing the independent value of the innovations developed in weak IPR countries and lowering expropriation risks. Zhou (2015) studies how MNCs can use differential assignment of supervisory responsibilities to manage coordination challenges arising from task and institutional complexity. She finds that front-line subsidiaries in countries with weaker institutions are more likely to be supervised by foreign rather than domestic supervisory units, and foreign supervision is even more likely when subsidiaries in weak-institution countries conduct more interdependent activities with their parents' global operations.

These results connect MNCs' hierarchical structure with institutional imperfections that give rise to the emergence of firms in the first place. Several other studies have also examined how MNCs may use regional or divisional headquarters to manage the complexity of their global operations (Benito et al., 2011; Birkinshaw et al., 2006; Lunnan et al., 2011; Rugman & Verbeke, 2004; Valentino et al., 2019; see also Kunisch et al., 2020).

5 | AN ORGANIZING FRAMEWORK AND CONTRIBUTIONS TO THE SPECIAL ISSUE

This Special Issue comprises six research articles that explore different facets of complexity in MNCs. The articles cover a range of industry and national contexts, using a mixture of theoretical perspectives and empirical methods, including case-based studies and large-N datasets. Building on the research on strategies for managing task and institutional complexity, we propose a simple organizing framework for complexity in global strategy. This framework also illustrates how the articles contributing to this Special Issue relate to one another (see Figure 1).

Clearly, there are many ways of differentiating organizational complexity, such as environment versus management structure complexity (Contini, 2017) and complexity as coordination versus inimitability (Rivkin, 2000). However, given our focus on global strategy as strategy in context (Benito et al., 2022), we emphasize dichotomies that together offer a simple yet parsimonious view of the source and type of complexity.

In terms of the source of complexity, we distinguish between internal and external. *Internal complexity* is primarily task-based in that it resides in the structure and design of the organization, and it involves such factors as interdependencies, coordination requirements, and information processing. *External complexity* is contextual, not just economically, but also institution-based, in that it is a function of the various political, legal, and cultural environments in which the MNC does business. This distinction is well-established in organization theory (see, e.g., Duncan, 1972; Daft, 2001). It is also highly salient in the global business context. For instance, Larsen et al. (2013) illustrate how MNCs with high configuration and task complexity undermine their ability to accurately estimate the costs of implementing offshoring activities.

Clearly, external and internal complexities are not independent. In line with Ashby's (1956, 1958) law of requisite variety, an organization's complexity should "match" the complexity of its operating environment to be effective. This would suggest that firms seek to increase their internal complexity to respond to the range of challenges and opportunities they face in the external environment. In contrast, scholars like Luhmann (1984) emphasize that firms should intentionally strive for "complexity reduction" to respond to external complexity. Consequently, some organizations can be seen as "too complex" or "not complex enough".

The second dimension of our organizing framework separates structural and processual complexity. *Structural complexity* refers to the range, diversity, and interconnection of the elements

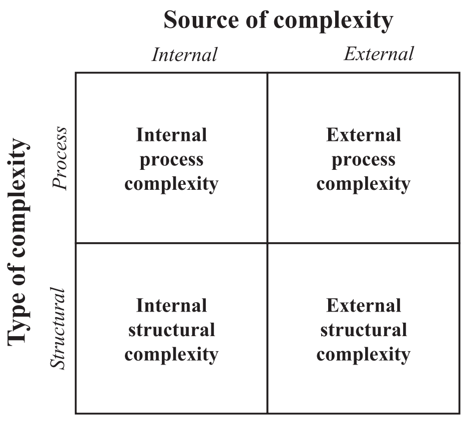

FIGURE 1 Organizing framework for complexity in global strategy.

and activities in the MNC. *Processual complexity*, on the other hand, refers to the behavior and adaptation of the MNC, its value-adding activities, and the external environment over time.

In the domain of global strategy, several dimensions of structural complexity are particularly acute (Casson & Li, 2022). For example, MNCs with a vast network of subsidiaries spanning several locations and governance modes are structurally more complex than a firm only operating domestically. The multiplexity of connections or ties between the different structural elements in the MNC only intensifies this complexity. Similarly, MNCs may evolve in complex manners that complicate effective integration and coordination. For example, the literature on subsidiary evolution highlights how subsidiaries may evolve along many trajectories that may or may not be aligned with their original mandates (Birkinshaw, 1996; Birkinshaw & Hood, 1998). The integration of mergers and acquisitions is also notoriously characterized as a complex process (Birkinshaw et al., 2000; Colman & Grøgaard, 2013; Cording et al., 2008; see also van Oorschot et al., 2022).

Again, a hard dichotomization of structural and processual complexity may be erroneous. For example, the theory of organizational adaptation holds that boundedly rational problem solvers engage in adaptive search in complex environments for satisfactory solutions to organizational structures (Cyert & March, 1963; Simon, 1955). Organizations make incremental changes to their knowledge positions and retain those changes that improve performance (see, e.g., Gavetti et al., 2005; Levinthal, 1997; March & Simon, 1958), and this also applies, of course, to MNCs (Surdu et al., 2021). In complex environments, this process results in suboptimal outcomes because organizations get stuck on "myopic" peaks or knowledge positions that offer no possibility for further incremental improvement (Levinthal, 1997). Therefore, the challenge is to design organizational structures that minimize the time at such suboptimal positions and facilitate the discovery of the universal optimum. For instance, Asmussen et al. (2016) expose how the performance of international reorganization critically depends on the timing of initiating the adaptation process.

For this essay, we distinguish between relevant dimensions of complexity that are particularly applicable to the field of global strategy, and identify four archetypes of complexity that highlight their sources and types (see Figure 1 and Table 2; see also Table 3 for an overview of the contributions to the Special Issue). First, *internal process complexity* concerns aspects such as the evolution of internal structures and the integration of new tasks and activities. For example, Jonsson and Vahlne (2021) explore how MNCs from emerging countries understand and cope with complexity. Through a longitudinal case study of the post-acquisition process between Zhejiang Geely Holding Group and Volvo Car Group, the authors study how firms can learn by internationalizing, enabling them to develop capabilities and compete globally. They frame the complexity of post-acquisition integration as an opportunity to learn at different layers of the organization. Dzikowska et al. (2023) study the complexity of the subsidiary's evolution amid value chain fine-slicing. Building on the seminal work by Birkinshaw and Hood (1998), the authors observe that subsidiaries' evolutionary trajectories transcend simple development and identify 1455 functional evolutionary paths among 266 subsidiaries. By embracing this complexity, the authors provide a more granular perspective on the antecedents of subsidiary capability and charter change.

External process complexity deals with complexities such as the rate of changes in the political and institutional environment that the MNC operates within. For example, Ma et al. (2022) explore how firms manage institutional complexity. The authors investigate the interaction between formal institutional pressure from government policy and informal institutional pressure from filial piety on firms' internationalization strategy. Based on extensive data on

TABLE 2 Types of complexity in global strategy.

Type of complexity	Description	Examples	Research opportunities
Internal process complexity	Complexity due to the evolution of internal MNC structures and the integration of new tasks and activities	Dzikowska et al. (2023); Jonsson and Vahlne (2021)	What capabilities matter and how for dealing with complexity? Does complexity spur organizational changes aiming at increasing performance?
External process complexity	Complexity due to aspects such as the rate of changes in the political and institutional environment that the MNC operates within	Ma et al. (2022), Vallone et al. (2022)	How and why do MNCs differ in their ability to handle the complexity of their environments? How can MNCs build complexity to exploit information asymmetries vis-à-vis external stakeholders?
Internal structural complexity	Complexity due to the interdependencies and coordination requirements between organizational tasks and activities within and across countries	van Oorschot et al. (2022)	How can MNCs utilize complexity as a source of competitiveness? How are various types of organizing and governance costs linked to complexity and what can MNCs do to alleviate them?
External structural complexity	Complexity due to the interdependencies with external domestic and foreign actors such as customers, suppliers, competitors, technologies, and the socio-political context	Steinberg et al. (2022)	How do various MNC characteristics correspond with external structural complexity? How do MNCs resolve trade-offs across conflicting demands among external actors?

Chinese foreign direct investment in multiple host countries, the authors argue that firms' internationalization patterns can be explained by the need to build formal and informal institutional legitimacy.

Internal structural complexity relates to complexities such as the interdependencies and coordination requirements between organizational tasks and activities within and across countries. In this respect, van Oorschot et al. (2022) investigate the complexity of post-merger and acquisition (M&A) reorganization. Using a mixed-methods approach to a large acquisition in the shipping industry, the authors emphasize the distinction and challenge of task and human integration and propose a conceptual framework to understand post-M&A integration based on the primary source of synergy (complementary vs. similarity) and location of target and acquirer (separated vs. collocated). In sum, to better understand the complexities of M&As, the authors call for a perspective that embraces how contextual factors influence effective post-integration.

TABLE 3 Summary of articles in this Special Issue.

Authors	Research focus	Aspects and type of complexity	Theoretical foundation	Empirical context and type of study
Dzikowska, Gammelgaard, and Andersson	Subsidiary capability and charter change	Complexity as evolution, internal process complexity	Capability evolution	Subsidiaries operating in Poland and Switzerland, longitudinal large-N
Jonsson and Vahlne	Post-acquisition processes, learning after M&A	Complexity as opportunity; internal process complexiy	Learning and knowledge-based view	Case study, Chinese acquisition of Swedish company
Ma, Cui, Dong, and Liao	Effect of institutional complexity on internationalization strategy	Complexity as constraint and risk; external process complexity	Institutional theory	Chinese OFDI in multiple host (BRI) countries, regional differences across China, longitudinal large-N
Steinberg, Hennig, Oehmichen, and Heigermoser	Effect of home-country competitiveness on the development of firm advantages	Complexity as opportunity; external structural complexity	National competitiveness framework, competitive dynamics	Multiple home countries, longitudinal large-N
van Oorschot, Nujen, Solli-Sæther, and Mwesiumo	Approaches to post-acquisition processes	Complexity as cost; internal structural complexiy	Contingency theory	Mixed-methods; focus groups and survey (large-N)
Vallone, Elia, and Greve	Human resource strategies to handle complexity (institutional and economic)	Complexity as cost and risk; external process complexity	TMT perspective, contingency (fit) theory	UK firms' internationalization, multiple host countries, longitudinal large-N

And finally, *external structural complexity* includes the non-simple requirements stemming from the interactions and interdependencies with external actors such as customers, suppliers, competitors, technologies, and the socio-political context. For instance, Steinberg et al. (2022) ask how the country context shapes firms' competitive repertoire complexity (diverse and dynamic arrays of competitive actions). Using longitudinal data across several countries, the authors argue that contexts defined by high-quality competitiveness factors are related to firms' ability to implement a more comprehensive range of global strategic decisions. As such, they frame complexity as an opportunity to broaden firms' competitive repertoire. Vallone et al. (2022) explore how international environmental complexity influences executive appointments. They frame environmental complexity as institutional ambiguity and economic sophistication and find results suggesting that these relate to the demand for executives with generalist and specialist backgrounds. This way, the authors make a compelling argument for how human resource strategies can effectively handle complexity.

6 | CONCLUDING REMARKS

MNCs are archetypical complex organizations. They are more complex than the equivalent firms that only operate domestically. Being exposed to multiple business environments in different institutional, geographical and cultural contexts, they face exceptional organizational and managerial challenges.

As noted by the studies selected for this Special Issue, complexity inevitably increases when firms engage in more dispersed operations. Dzikowska et al. (2023) point out that this can often be observed in the form of greater internal differentiation through the proliferation of heterogenous subsidiary units. International expansion is often done through cross-border mergers and acquisitions, which, as shown by van Oorschot et al. (2022), imply intricate post-acquisition integration processes. Of course, MNCs develop capabilities to cope with the added challenges and explore strategies that suitably match their resources and distinct advantages. The studies by Steinberg et al. (2022), Jonsson and Vahlne (2021), Ma et al. (2022), and Vallone et al. (2022) examine how MNCs reactively and proactively deal with various aspects of capability and strategy development processes. Well-thought-out global strategies help, but their implementation is rarely perfect, trade-offs are unavoidable, and coordination issues remain ever-present. For MNCs, complexity is thus pervasive.

In this essay, we have drawn on an established body of literature on complexity in organizations and combined it with global strategy research insights to explore and discuss the consequences of complexity for MNCs. On that basis, we presented a simple organizing framework to categorize complexity in global strategies. By emphasizing the source and type of complexity, we have shown how MNCs face different challenges when executing global strategies. This includes challenges like rising coordination costs, higher information processing demands, and rigidity from managing interdependent tasks and activities across borders (see, e.g., Benito et al., 2014). At the same time, this perspective allows us to identify novel response strategies to overcome these challenges, including the standardization and modularization of task systems, the disaggregation of value chains across borders, and the use of both hierarchies and decentralized divisions and coordination units. The complexity view on MNCs takes the interdependencies as a relevant unit of analysis. By applying this perspective, we thus gain a complementary view on the antecedents and consequences of central global strategy questions, such as market entry, location choice, and governance modes. As outlined above and summarized in Table 3, this Special Issue encompasses several key aspects of MNCs and complexity. These contributions provide important impetus for furthering our understanding of how MNCs are affected by and respond to different complexities. At the same time, we also stress that important issues remain under-explored (see also Table 2).

First, while referring to costs and challenges posed by complexity, the relationship between complexity and performance remains largely unmapped. Does complexity spur organizational changes aiming at increasing performance, for example, by implementing simpler and/or more flexible ways of organizing global business activities? To what extent and how does additional complexity increase the risk of failure and lead to strategic decisions such as downscaling international activities and/or the restructuring—including exit and divestment—of foreign units? Recent pointers to such issues have been presented by, inter alia, Benito (2023), Belderbos et al. (2014), and Berry and Kaul (2021), but research remains limited, especially when dealing with current technological, environmental, and societal challenges.

In this respect, the literature on complexity may offer important building blocks to understanding the consequences for MNCs. As earlier established, while higher complexity conventionally leads to rising coordination costs (Galbraith, 1973; Thompson, 1967; Zhou, 2011), it may also serve as an informational barrier to counter competitive imitation (Rivkin, 2001). For example, an MNC may build idiosyncratic business models based on the external complexities of a local market. Such efforts could prevent imitation from competing firms, but also deter opportunities for further international scaling. As such, we encourage future research to explore the performance implications of such trade-offs within the context of global strategy.

Second, while the collection of articles covers a wide range of MNCs and the industry and national contexts in which they operate, many aspects of heterogeneity remain unexplored, especially regarding MNC characteristics. A pertinent question is whether different types of firms—such as in terms of nationality, ownership, and/or governance—approach and respond to complexity similarly. For example, state-owned companies are known to be more bureaucratic and typically have "deeper pockets" than private firms and may therefore be less concerned about complexity, especially in terms of its risk ramifications (Cuervo-Cazurra et al., 2023; Lazzarini & Musacchio, 2018: Wright et al., 2021). They also often have goals beyond profit-seeking (Rygh & Benito, 2022), making their objective function as MNCs more complicated. Conversely, private firms may be more risk-sensitive, but also more agile and focused, and hence more eager and potentially better at reducing complexity to manageable levels. Accordingly, a promising avenue for future research is to explore further the relationship between various MNC characteristics and their means to manage and eventually exploit complexities arising from their global strategies.

Third, dealing with complexity depends on understanding its characteristics and drivers. The better we are at describing and analyzing internal and external environments, the more likely our solutions to handle complexity will be effective. The studies of Steinberg et al. (2022) and Vallone et al. (2022) provide exemplary uses of existing frameworks, but our knowledge inventory should be refined and expanded. For example, a key question in global strategy research is how MNCs can successfully adapt to different cultural and institutional environments. Existing literature emphasizes MNC adaptation through either local isomorphism and legitimacy (e.g., Kostova & Roth, 2002; Rosenzweig & Singh, 1991) or how subsidiaries benefit from global strategies that exploit economies of scale across a wide range of countries (e.g., Jensen & Szulanski, 2004; Meyer & Estrin, 2014; Williams et al., 2017). Yet, we also know that in complex environments, organizations are inclined to make incremental changes to their knowledge positions and keep those changes that appear conducive to improvement of performance (Levinthal, 1997; Nelson & Winter, 1996; Rivkin, 2000). Consequently, organizations, like MNCs, are often presented with suboptimal outcomes as they get stuck on knowledge positions that offer negligible possibilities for further incremental improvement (Levinthal, 1997). Future research could therefore draw more explicitly on the literature on adaptation to explore the implications of how MNC can overcome different complexities by searching locally and globally (Pedersen et al., 2020).

In conclusion, this Special Issue provides a concerted take on complexity as a significant and enduring aspect of global strategy, with a particular focus on MNCs. But, as expected, given the manifold nature of the notion of complexity and its constantly changing manifestations, ample opportunities remain for much-needed research.

ACKNOWLEDGMENTS

We thank Rene Belderbos, Alvaro Cuervo-Cazurra, Rian Drogendijk, Sergio Lazzarini, Grazia Santangelo, Stephanie Wang, and an anonymous reviewer for their many constructive comments and suggestions on an earlier version. We also thank the expert reviewers that provided very helpful feedback on the articles included in this Special Issue.

ORCID

Marcus M. Larsen https://orcid.org/0000-0002-8594-7468
Julian Birkinshaw https://orcid.org/0000-0001-8954-4132
Yue Maggie Zhou https://orcid.org/0000-0003-4632-6084
Gabriel R. G. Benito https://orcid.org/0000-0003-3181-3779

REFERENCES

Adner, R., & Kapoor, R. (2010). Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations. *Strategic Management Journal*, *31*(3), 306–333.

Albert, D., Kreutzer, M., & Lechner, C. (2015). Resolving the paradox of interdependency and strategic renewal in activity systems. *Academy of Management Review*, *40*(2), 210–234.

Anderson, P. (1999). Complexity theory and organization science. *Organization Science*, *10*(3), 216–232.

Ashby, W. R. (1956). *An introduction to cybernetics*. Chapman & Hall.

Ashby, W. R. (1958). Requisite variety and its implications for the control of complex systems. *Cybernetica*, *1*(2), 83–99.

Asmussen, C. G., Larsen, M. M., & Pedersen, T. (2016). Organizational adaptation in offshoring: The relative performance of home- and host-based learning strategies. *Organization Science*, *27*(4), 911–928.

Axelrod, R., & Cohen, M. D. (2000). *Harnessing complexity: Organizational implications of a scientific frontier*. Free Press.

Bartlett, C. A., & Ghoshal, S. (1989). *Managing across borders: The transnational solution*. Harvard Business School Press.

Békés, G., Benito, G. R. G., Castellani, D., & Muraközy, B. (2021). Into the unknown: The extent and boldness of firms' international footprint. *Global Strategy Journal*, *11*(3), 468–493.

Belderbos, R., Tong, T. W., & Wu, S. (2014). Multinationality and downside risk: The roles of option portfolio and organization. *Strategic Management Journal*, *35*(1), 88–106.

Benito, G. R. G. (2023). De-internationalization: The other side of internationalization. In ORE Business and Management (Ed.), *Oxford research encyclopedia of business and management*. Oxford University Press. https://doi.org/10.1093/acrefore/9780190224851.013.395

Benito, G. R. G., Cuervo-Cazurra, A., Mudambi, R., Pedersen, T., & Tallman, S. (2022). The future of global strategy. *Global Strategy Journal*, *12*(3), 421–450.

Benito, G. R. G., Lunnan, R., & Tomassen, S. (2011). Distant encounters of the third kind: Multinational companies locating divisional headquarters abroad. *Journal of Management Studies*, *48*(2), 373–394.

Benito, G. R. G., Lunnan, R., & Tomassen, S. (2014). The virtue of in-between pragmatism – A balancing act between responsiveness and integration in a multinational company. *Advances in International Management*, *27*, 75–97.

Benito, G. R. G., & Welch, L. S. (1997). De-internationalization. *Management International Review*, *37*(SI 2), 7–25.

Berry, H., & Kaul, A. (2021). Corporate renewal across businesses and countries. *Strategic Management Review*, *2*(2), 205–233.

Beyer, J. M., & Trice, M. H. (1979). A reexamination of the relations between size and various components of organizational complexity. *Administrative Science Quarterly*, *24*(1), 48–64.

Birkinshaw, J. (1996). How multinational subsidiary mandates are gained and lost. *Journal of International Business Studies*, *27*(3), 467–495.

Birkinshaw, J., Braunerhjelm, P., Holm, U., & Terjesen, S. (2006). Why do some multinational corporations relocate their headquarters overseas? *Strategic Management Journal*, *27*(7), 681–700.

Birkinshaw, J., Bresman, H., & Håkanson, L. (2000). Managing the post-acquisition integration process: How the human integration and task integration processes interact to foster value creation. *Journal of Management Studies*, *37*(3), 395–425.

Birkinshaw, J., Crilly, D., Bouquet, C., & Lee, S. Y. (2016). How do firms manage strategic dualities? A process perspective. *Academy of Management Discoveries*, *2*(1), 51–78.

Birkinshaw, J. M., & Hood, N. (1998). Multinational subsidiary evolution: Capability and charter change in foreign-owned subsidiary companies. *Academy of Management Review*, *23*(4), 773–795.

Blau, P. M. (1970). A formal theory of differentiation in organizations. *American Sociological Review*, *35*(2), 201–218.

Buckley, W. (1967). *Sociology and modern systems theory*. Prentice-Hall.

Casson, M., & Li, Y. (2022). Complexity in international business: The implications for theory. *Journal of International Business Studies*, *53*(9), 2037–2049.

Cho, N.-E., & Zhou, Y. M. (2021). Profits, reputation and the risk of medical malpractice liability. *Strategy Science*, *6*(3), 191–264.

Chung, H. D., Zhou, Y. M., & Choi, C. (2023). When uber eats its own business, and its competitors' too: Platform diversification and cross-platform cannibalization. Working paper.

Chung, H. D., Zhou, Y. M., & Ethiraj, S. (2022). Platform governance in the presence of within-complementor interdependencies: Evidence from the rideshare industry. *Management Science*. https://doi.org/10.1287/mnsc.2023.4706

Collis, D. J., & Montgomery, C. A. (2005). *Corporate strategy: A resource-based approach* (2nd ed.). McGraw-Hill/Irwin.

Colman, H. L., & Grøgaard, B. (2013). Integration vacuum: Creating action space for global strategy implementation in international acquisitions. *Thunderbird International Business Review*, *55*(4), 405–418.

Contini, R. M. (2017). Complexity and sociology. *Sociology Study*, *7*(7), 376–387.

Cording, M., Christmann, P., & King, D. R. (2008). Reducing causal ambiguity in acquisition integration: Intermediate goals as mediators of integration decisions and acquisition performance. *Academy of Management Journal*, *51*(4), 744–767.

Cuervo-Cazurra, A., Grosman, A., & Megginson, W. L. (2023). A review of the internationalization of state-owned firms and sovereign wealth funds: Governments' nonbusiness objectives and discreet power. *Journal of International Business Studies*, *54*(1), 78–106.

Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Prentice-Hall.

Daft, R. L. (2001). *Organization theory and design* (7th ed.). South-Western Publishing.

Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly*, *17*(3), 313–327.

Dzikowska, M., Gammelgaard, J., & Andersson, U. (2023). Subsidiary capability and charter change: Making Birkinshaw and Hood's framework actionable. *Global Strategy Journal*. https://doi.org/10.1002/gsj.1476

Ethiraj, S., & Zhou, Y. M. (2019). Fight or flight? Market positions, submarket interdependencies, and strategic responses to entry threats. *Strategic Management Journal*, *40*(10), 1545–1569.

Ethiraj, S. K., & Levinthal, D. (2004). Modularity and innovation in complex systems. *Management Science*, *50*(2), 159–173.

Galbraith, J. R. (1973). *Designing complex organizations*. Addison-Wesley.

Gavetti, G., Levinthal, D. A., & Rivkin, J. W. (2005). Strategy making in novel and complex worlds: The power of analogy. *Strategic Management Journal*, *26*(8), 691–712.

Ghemawat, P. (2007). Managing differences: The central challenge of global strategy. *Harvard Business Review*, *85*(3), 58–68.

Ghemawat, P. (2018). *Redefining global strategy: Crossing borders in a world where differences still matter*. Harvard Business Review Press.

Hall, R. H. (1977). *Organizations: Structure and process* (2nd ed.). Prentice-Hall.

Hart, O., & Moore, J. (2005). On the design of hierarchies: Coordination versus specialization. *Journal of Political Economy*, *113*(4), 675–702.

Hashai, N. (2011). Sequencing the expansion of geographic scope and foreign operations by "born global" firms. *Journal of International Business Studies*, *42*(8), 995–1015.

Hitt, M. A., Hoskisson, R. E., & Kim, H. (1997). International diversification: Effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal*, *40*(4), 767–798.

Ichniowski, C., Shaw, K., & Prennushi, G. (1997). The effects of human resource management practices on productivity: A study of steel finishing lines. *American Economic Review*, *87*(3), 291–313.

Jensen, R., & Szulanski, G. (2004). Stickiness and the adaptation of organizational practices in cross-border knowledge transfers. *Journal of International Business Studies*, *35*(6), 508–523.

Jonsson, A., & Vahlne, J. E. (2021). Complexity offering opportunity: Mutual learning between Zhejiang Geely holding group and Volvo cars in the post-acquisition process. *Global Strategy Journal*. https://doi.org/10.1002/gsj.1424

Kapoor, R. (2018). Ecosystems: Broadening the locus of value creation. *Journal of Organization Design*, *7*(1), 12.

Kobrin, S. J. (2001). Sovereignty @ Bay: Globalization, multinational enterprise, and the international political system. In A. M. Rugman & T. L. Brewer (Eds.), *The Oxford handbook of international business*. Oxford University Press.

Kogut, B. (1983). Foreign direct investment as a sequential process. In C. P. Kindleberger & D. Audretsch (Eds.), *The multinational corporation in the 1980s*. MIT Press.

Kostova, T., & Roth, K. (2002). Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects. *Academy of Management Journal*, *45*(1), 215–233.

Kunisch, S., Menz, M., & Collis, D. (2020). Corporate headquarters in the twenty-first century: An organization design perspective. *Journal of Organization Design*, *9*, art 22.

Larsen, M. M., Manning, S., & Pedersen, T. (2013). Uncovering the hidden costs of offshoring: The interplay of complexity, design orientation and experience. *Strategic Management Journal*, *34*(5), 533–552.

Larsen, M. M., Manning, S., & Pedersen, T. (2019). The ambivalent effect of complexity on firm performance: A study of the global service provider industry. *Long Range Planning*, *52*(2), 221–235.

Lazzarini, S. G., & Musacchio, A. (2018). State ownership reinvented? Explaining performance differences between state-owned and private firms. *Corporate Governance: An International Review*, *26*(4), 255–272.

Leiblein, M. J., Reuer, J. J., Larsen, M. M., & Pedersen, T. (2022). When are global decisions strategic? *Global Strategy Journal*, *12*(4), 714–737.

Leiblein, M. J., Reuer, J. J., & Zenger, T. (2018). What makes a decision strategic? *Strategy Science*, *3*(4), 558–573.

Lenox, M. J., Rockart, S. F., & Lewin, A. Y. (2006). Interdependency, competition, and the distribution of firm and industry profits. *Management Science*, *52*(5), 757–772.

Levinthal, D. A. (1997). Adaptation on rugged landscapes. *Management Science*, *43*(7), 934–950.

Li, X., & Zhou, Y. M. (2017). Offshoring pollution while offshoring production? *Strategic Management Journal*, *38*(11), 2310–2329.

Luhmann, N. (1984). *Soziale systeme: Grundriß einer allgemeinen theorie (English translation: Social systems)*. Stanford University Press.

Lunnan, R., Benito, G. R. G., & Tomassen, S. (2011). Moving abroad: Factors that motivate foreign location of headquarter activities. *Advances in International Management*, *24*, 127–151.

Ma, P., Cui, L., Dong, M., & Liao, Y. C. (2022). Government policy, filial piety, and foreign direct investment. *Global Strategy Journal*. https://doi.org/10.1002/gsj.1459

March, J. G., & Simon, H. A. (1958). *Organizations*. Wiley.

Marschak, J., & Radner, R. (1972). *Economic theory of teams*. Yale University Press.

Mees-Buss, J., Welch, C., & Westney, D. E. (2019). What happened to the transnational? The emergence of the neo-global corporation. *Journal of International Business Studies*, *50*(9), 1513–1543.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, *83*(2), 340–363.

Meyer, K. E., & Estrin, S. (2014). Local context and global strategy: Extending the integration responsiveness framework to subsidiary strategy. *Global Strategy Journal*, *4*(1), 1–19.

Miller, G. A., & Conaty, J. (1980). Differentiation in organizations: Replication and cumulation. *Social Forces*, *59*(1), 265–274.

Nelson, R. R., & Winter, S. G. (1996). *An evolutionary theory of economic change*. Harvard University Press.

Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, *16*(1), 145–179.

Pedersen, T., Larsen, M. M., & Dasí, À. (2020). Searching locally and globally: Applying Daniel Levinthal's scholarship to international business. *Journal of International Business Studies*, *51*(9), 1532–1546.

Porter, M., & Siggelkow, N. (2008). Contextuality within activity systems and sustainability of competitive advantage. *Academy of Management Perspectives*, *22*(2), 34–56.

Porter, M. E. (1980). *Competitive strategy*. Free Press.

Porter, M. E. (1985). *Competitive advantage*. Free Press.

Porter, M. E. (1991). Towards a dynamic theory of strategy. *Strategic Management Journal*, *12*(S2), 95–117.

Radner, R. (1992). Hierarchy: The economics of managing. *Journal of Economic Literature*, *30*(3), 1382–1415.

Rivkin, J. W. (2000). Imitation of complex strategies. *Management Science*, *46*(6), 824–844.

Rivkin, J. W. (2001). Reproducing knowledge: Replication without imitation at moderate complexity. *Organization Science*, *12*(3), 274–293.

Rosenzweig, P. M., & Singh, J. V. (1991). Organizational environments and the multinational enterprise. *Academy of Management Review*, *16*(2), 340–361.

Rugman, A. M., & Verbeke, A. (2004). A perspective on regional and global strategies of multinational enterprises. *Journal of International Business Studies*, *35*(1), 3–18.

Rygh, A., & Benito, G. R. G. (2022). Governmental goals and the international strategies of state-owned multinational enterprises: A conceptual discussion. *Journal of Management and Governance*, *26*(4), 1155–1181.

Sah, R. K., & Stiglitz, J. E. (1986). The architecture of economic systems: Hierarchies and polyarchies. *American Economic Review*, *76*(4), 716–727.

Santangelo, G. D., & Meyer, K. E. (2017). Internationalization as an evolutionary process. *Journal of International Business Studies*, *48*(9), 1114–1130.

Scott, W. R., & Davis, G. F. (2007). *Organizations and organizing. Rational, natural, and open system perspectives* (9th ed.). Prentice-Hall.

Siggelkow, N. (2002). Misperceiving interactions among complements and substitutes: Organizational consequences. *Management Science*, *48*(7), 900–916.

Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, *69*(1), 99–118.

Simon, H. A. (1962). The architecture of complexity. *Proceedings of the American Philosophical Society*, *106*, 467–482.

Simon, H. A. (1991). Organizations and markets. *Journal of Economic Perspectives*, *5*(2), 25–44.

Steinberg, P. J., Hennig, J. C., Oehmichen, J., & Heigermoser, J. (2022). How the country context shapes firms' competitive repertoire complexity. *Global Strategy Journal*. https://doi.org/10.1002/gsj.1458

Sun, P., Doh, J. P., Rajwani, T., & Siegel, D. (2021). Navigating cross-border institutional complexity: A review and assessment of multinational nonmarket strategy research. *Journal of International Business Studies*, *52*(9), 1818–1853.

Sundaram, A. K., & Black, J. S. (1992). The environment and internal organization of multinational enterprises. *Academy of Management Review*, *17*(4), 729–757.

Surdu, I., Greve, H. R., & Benito, G. R. G. (2021). Back to basics: Behavioral theory and internationalization. *Journal of International Business Studies*, *52*(6), 1047–1068.

Tallman, S, & Pedersen, T. (2015). What is international strategy research and what is not? *Global Strategy Journal*, *5*(4), 273–277.

Tan, D., Su, W., Mahoney, J. T., & Kor, Y. (2020). A review of research on the growth of multinational enterprises: A Penrosean lens. *Journal of International Business Studies*, *51*(4), 498–537.

Thompson, J. D. (1967). *Organizations in action*. McGraw Hill.

Tushman, M. L., & Nadler, D. A. (1978). Information processing as an integrating concept in organizational design. *Academy of Management Review*, *3*(3), 613–624.

Valentino, A., Schmitt, J., Koch, B., & Nell, P. C. (2019). Leaving home: An institutional perspective on intermediary HQ relocations. *Journal of World Business*, *54*(4), 273–284.
Vallone, T., Elia, S., & Greve, P. (2022). International environmental complexity and the demand for generalists and specialists in executive selection. *Global Strategy Journal*. https://doi.org/10.1002/gsj.1463
van Oorschot, K. E., Nujen, B. B., Solli-Sæther, H., & Mwesiumo, D. E. (2022). The complexity of post-mergers and acquisitions reorganization: Integration and differentiation. *Global Strategy Journal*. https://doi.org/10.1002/gsj.1454
van Zandt, T. (1999). Decentralized information processing in the theory of organizations. In M. Sertel (Ed.), *Contemporary economic issues*. MacMillan Press.
Verbeke, A., Li, L., & Goerzen, A. (2009). Toward more effective research on the multinationality-performance relationship. *Management International Review*, *49*(2), 149–161.
Vernon, R. (1971). *Sovereignty at bay*. Basic Books.
Westney, D. E., & Zaheer, S. (2010). The multinational enterprise as an organization. In A. M. Rugman (Ed.), *The Oxford handbook of international business* (2nd ed., pp. 341–366). Oxford University Press.
Williams, C., Colovic, A., & Zhu, J. (2017). Integration-responsiveness, local hires and subsidiary performance amidst turbulence: Insights from a survey of Chinese subsidiaries. *Journal of World Business*, *52*(6), 842–853.
Williamson, O. E. (1975). *Markets and hierarchies: Analysis and anfitrust implications*. Free Press.
Wright, M., Wood, G., Musacchio, A., Okhmatovskiy, I., Grosman, A., & Doh, J. P. (2021). State capitalism in international context: Varieties and variations. *Journal of World Business*, *56*(2), 101160.
Zhao, M. (2006). Conducting R&D in countries with weak intellectual property rights protection. *Management Science*, *52*(8), 1185–1199.
Zhou, Y. M. (2008). *Coordination costs, organization structure and firm growth*. University of Michigan.
Zhou, Y. M. (2011). Synergy, coordination costs, and diversification choices. *Strategic Management Journal*, *32*(6), 624–639.
Zhou, Y. M. (2013). Designing for complexity: Using divisions and hierarchy to manage complex tasks. *Organization Science*, *24*(2), 339–355.
Zhou, Y. M. (2015). Supervising across borders: The case of multinational hierarchies. *Organization Science*, *26*(1), 277–292.
Zhou, Y. M., & Wan, X. (2017a). Product variety and vertical integration. *Strategic Management Journal*, *38*(5), 1134–1150.
Zhou, Y. M., & Wan, X. (2017b). Product variety, sourcing complexity, and the bottleneck of coordination. *Strategic Management Journal*, *38*(8), 1569–1587.
Zhou, Y. M., Yang, W., & Ethiraj, S. (2023). The dynamics of related diversification: Evidence from the health insurance industry following the affordable care act. *Strategic Management Journal*, *44*(7), 1753–1779.

How to cite this article: Larsen, M. M., Birkinshaw, J., Zhou, Y. M., & Benito, G. R. G. (2023). Complexity and multinationals. *Global Strategy Journal*, 1–17. https://doi.org/10.1002/gsj.1493