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International environmental complexity and the demand for generalists and specialists in executive selection

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Abstract

Research Summary: This study investigates the selection of generalists and specialists as an organizational response to the complexity of firms' international operations. Drawing on the concept of executive job demands, we identify institutional ambiguity and economic sophistication as two distinct sources of country environmental complexity resulting from a firm's foreign investment and predict how they affect the selection of new executives at multinational firms. Our hypotheses associate institutional ambiguity and economic sophistication with the appointment of executives with generalist and specialist backgrounds, respectively. We also examine how the two sources of environmental complexity interact and test multiple alternative specifications to enhance our understanding of environmental complexity as a determinant of executive job demands in the context of international business. Our empirical analyses are performed on a sample of 436 executive appointments occurring in 132 UK-based manufacturing firms, observed between 2008 and 2018. Findings show general support for our main hypotheses. We discuss the theoretical and practical implications of our findings as well as directions for future research.

Managerial Summary: This study suggests that companies operating across different international environments through their subsidiary operations will be

exposed to distinct demands that vary according to the type of environmental complexity. Our results reveal that companies tend to appoint top managers with specialist backgrounds when their focus is on economically sophisticated environments, whereas top managers with generalist backgrounds tend to be preferred in institutionally ambiguous environments. Our findings enhance our understanding of the demand for executive generalists and specialists in the international business context by showing that top managers' backgrounds are matched with the prevailing type of complexity deriving from the international operations of the firm, thus, questioning the widely held notion that executive generalists are generally preferred over specialists. Our study has important implications for the composition of top management teams and the shaping of executive career paths at multinational firms.

KEYWORDS

economic complexity, executive job demands, generalist, institutional complexity, specialist, strategic leadership

1 | INTRODUCTION

A key challenge facing the multinational enterprise (MNE) is to manage the complexity arising from the coordination of different organizational units embedded in heterogeneous institutional and economic environments (Meyer, Mudambi, & Narula, 2011). Whilst complexity is often considered a source of coordination costs, it can also challenge the information processing capacity of the organization (Tushman & Nadler, 1978) and thus impact decision-making and performance outcomes (Hambrick, Finkelstein, & Mooney, 2005). The literature has shown that companies facing increasingly complex international environments endow their executive teams with more internationally oriented managers to increase their cross-cultural awareness and understanding of the foreign environment (Athanassiou & Nigh, 1999; Békés, Benito, Castellani, & Murakozy, 2021; Greve, Nielsen, & Ruigrok, 2009; Kaczmarek & Ruigrok, 2013; Magnusson & Boggs, 2006; Thams, Chacar, & Wiersema, 2018). However, previous studies have not delved into specific dimensions of complexity associated with the characteristics of country environments in relation to executive job demands. As a result, we still have limited knowledge of how firms adapt their management teams to address the job demands arising from the complexity associated with their international footprint.

We aim to close this gap by investigating how distinct sources of international complexity influence the hiring of new top managers. In doing so, we combine international business and strategic leadership perspectives—disentangling complexity in an international context and exploring the drivers of executive selection and job demands. Indeed, existing research in the

international business realm has largely focused on the role of firm degree of internationalization as an antecedent of executive appointments (Greve, Biemann, & Ruigrok, 2015; Kunisch, Menz, & Cannella, 2019; Thams et al., 2018). Previous studies show that highly internationalized firms seek to hire executives with extensive international experience or with foreign nationalities (Greve et al., 2015; Kunisch et al., 2019; Nielsen, 2009). These findings are consistent with the "matching managers to strategy" concept, which highlights the importance of aligning managerial characteristics with corporate strategy (Szilagyi & Schweiger, 1984; Thomas & Ramaswamy, 1996).

Our study advances research in this field by disentangling the concept of environmental complexity associated with national environments and investigating how it affects the selection of new executives with generalist or specialist backgrounds. To align the research design with the objectives of our study, we first provide a review of international environmental complexity and highlight two specific sources of complexity that we consider to be particularly salient in the context of this study, namely *institutional ambiguity*, defined as the extent to which business transactions are governed through informal rules and personal relations, and *economic sophistication*, defined as the level of knowledge required to compete and innovate effectively in a given host country.

Building on the strategic leadership perspective in the context of executive selection (Chen, 2015; Georgakakis & Ruigrok, 2017; Kunisch et al., 2019; Mueller, Georgakakis, Greve, Peck, & Ruigrok, 2021), we argue that executive task demands are shaped by the complexity stemming from institutional ambiguity and economic sophistication, which requires different managerial skill sets aligning with the firm's international strategic posture. Specifically, we posit that complexity deriving from institutional ambiguity emphasizes the need for generalists, who can provide the flexibility and adaptability required to effectively navigate a relation-based governance environment (Alon, Elia, & Li, 2020), whereas complexity deriving from economic sophistication is likely to require more in-depth specialist knowledge to compete and innovate in advanced economic environments. Our analyses, performed on a sample of 478 executive appointments at 133 UK-based companies between 2008 and 2018, provide support for our hypotheses.

Our findings contribute to the international business (IB) and strategic leadership literature. First, we emphasize the role of executive appointments as an individual-level strategic response to MNEs' country-level complexity, thus, contributing to the growing literature on the microfoundations of global strategy (e.g., Contractor, Foss, Kundu, & Lahiri, 2018). Second, we explore and disentangle the sources of international environmental complexity, thus contributing to a deeper understanding of the drivers of executive job demands from an international perspective (Kunisch et al., 2019).

2 | THEORETICAL BACKGROUND

2.1 | Executive selection in an international business context

As firms adjust to unstable and complex industry and country environments, they adapt their internal structures and resources to align with external environmental demands (Hannan & Freeman, 1984; Miller, 1991; Tushman & Nadler, 1978). One of the key organizational mechanisms that companies can leverage to deal with such complexity is to act on their managerial resources; specifically, companies can act on their management team structure and composition

to enhance their information-processing and decision-making capacity (Keck, 1997; Keck & Tushman, 1993; Wiersema & Bantel, 1993). The notion of aligning managers to the company strategy and its environment is well-established in the strategic management literature (Gupta & Govindarajan, 1984; Szilagyi & Schweiger, 1984; Thomas & Ramaswamy, 1996) and has found renewed theoretical support in recent work on executive job demands (Kunisch et al., 2019).

According to Hambrick et al. (2005), executive job demands are largely the result of three sets of factors: task challenges, performance challenges and executives' aspirations. In an IB context, we contend that executive job demands are likely to derive primarily from the task and performance challenges associated with operating an international organization in multiple complex country environments. In such contexts, task-related executive job demands entail, for example, the need to manage conflicting global–local demands and the allocation of resources across international subsidiaries, whereas performance-related executive job demands include, for example, the handling of diverse performance expectations from key international stakeholders.

Past research has shown that MNEs respond to the challenges of international complexity by recalibrating the team of top managers spearheading the firm (e.g., Greve et al., 2009), thereby ensuring requisite managerial capabilities to sustain international growth and performance (Rugman & Verbeke, 2002). Throughout their careers, executives acquire experience and knowledge specific to functional areas, industries and geographies (Crossland, Zyung, Hiller, & Hambrick, 2014; Custódio, Ferreira, & Matos, 2013; Mueller et al., 2021). Executives who have worked across multiple functions, industries and geographies have gained a broader set of managerial knowledge and skills, thus, attaining a more generalist profile. On the other hand, executives who have worked in fewer functions, industries, and geographies will have a more specialist background, endowing them with deeper knowledge and skills in specific areas.

Prior literature has mostly emphasized the advantages of generalist executives (Custódio et al., 2013; Datta & Iskandar-Datta, 2014). However, some scholars have suggested that complexity is associated with a need for specialists, who are valued for possessing the knowledge depth required to deal with nonroutine tasks and external influences affecting the organization (Child, 1973; Simmons & Berri, 2009; Smith & White, 1987). In this study, we aim to reconcile some of the mixed evidence in this literature and propose that executive background preferences depend on the type of environmental complexity faced by the MNE.

2.2 | The dimensions and sources of environmental complexity

There is a long tradition of studying the complexity of external environments in organizational research and IB. The former has commonly referred to environmental complexity as the complexity of a specific market or industry in areas such as competitive intensity, product mix, supplier diversity, and technological intensity (e.g., Cannon & St. John, 2007; Mintzberg, 1979; Sharfman & Dean, 1991). Drawing on the organization literature, environmental complexity derives from three main sources: the number of environments, the dissimilarity among them, and the sophistication and knowledge required to engage with them effectively (Cannon & St. John, 2007). Similarly, IB studies have referred to three distinct dimensions of environmental complexity: (a) the number of different country environments faced by the MNE; (b) the differences between home and host countries' formal and informal institutions; and (c) the specific characteristics of the host country environment in terms of formal and informal

institutions (Doh, Rodrigues, Saka-Helmhout, & Makhija, 2017; Kostova et al., 2019; Li & Filer, 2007; Wu & Park, 2019). Reconciling the organizational and IB perspectives, we argue that there are three key dimensions of environmental complexity (see Figure 1). First, environmental complexity is related to the multitude of countries that a company is exposed to through its subsidiary operations, potentially leading to conflicting requirements and generating tensions among subsidiaries (Meyer et al., 2011; Wu & Park, 2019). Second, complexity increases with differences in formal and informal institutions between home and host country environments (Kostova & Zaheer, 1999; Xu & Shenkar, 2002), as firms need to learn new practices and adjust their operations to effectively conduct business activities in more distant and lesser-known environments (Kostova et al., 2019). Third, environmental complexity derives directly from the social, political, legal, and economic institutions defining the "rules of the game" that govern and protect organizations' economic exchanges and interests through norms, laws, and policies (North, 1990, 1991). This form of environmental complexity can stem from a variety of sources, such as (i) the quality of the country's formal institutions, (ii) the (in)stability of the formal institutions, that is, the possibility that laws and policies governing economic activities could unexpectedly change, (iii) the ambiguity of institutional rules, defined as the business actors' reliance on informal laws and relational networks—as opposed to a rules-based system—to conduct economic activities (Khanna & Palepu, 1997; Li & Filer, 2007; Santangelo & Meyer, 2011), and (iv) the economic sophistication, defined as the presence of multiple specialized knowledge domains in the economy (Hidalgo & Hausmann, 2009).

To develop our hypothesis, we focus specifically on the third dimension of environmental complexity (see Figure 1), that is, the dimension that is shaped by the characteristics of the host country national environment.[1] Within this dimension, we unpack two sources of complexity that we expect to distinctly influence executive job demands. First, we focus on the notion of institutional ambiguity, which is a key source of host country environmental complexity arising from a lack of explicit rules governing formal and informal institutions, thus, increasing

International Environmental Complexity Matrix

Key Dimensions	***Sources of Environmental Complexity***				
(1) Number of Environments	Number of Countries	Number of Regions			
(2) Distance/ Difference between Environments	Institutional Distance	Cultural Distance	Economic Distance	Administrative Distance	Geographical Distance
(3) Characteristics of the Host Country Environment	Institutional Quality	Institutional Instability	Institutional Ambiguity	Economic Sophistication	

FIGURE 1 Environmental complexity matrix: Key dimensions and sources

pressure on decision-makers and exacerbating information-processing demands. Second, we focus on economic sophistication, which is associated with knowledge specificity and industrial specialization of a host country, typically measured as the degree of export specialization (Hidalgo & Hausmann, 2009). This generates another type of information-processing demands deriving from the pressure on decision-makers to maintain the firm's competitiveness and innovativeness in a specialized country environment (Aldrich, 1979; Cannon & St. John, 2007; Mintzberg, 1979). In the following section, we draw on this distinction to propose that institutional ambiguity and economic sophistication in MNE country environments are key antecedents of generalist and specialist executive appointments.

3 | HYPOTHESIS DEVELOPMENT

3.1 | Institutional ambiguity and executive selection

In line with the development of institutional theory (Kostova & Zaheer, 1999; North, 1990), IB research has endeavored to understand how MNEs respond to different institutional environments (Aguilera & Grøgaard, 2019; Doh et al., 2017; Xu & Shenkar, 2002). At the heart of institutional theory, there is a need for firms to adapt their strategies and develop new business models to cope with different institutional demands and establish and maintain organizational legitimacy across multiple institutional settings.

From an institutional perspective, complexity derived from the host country's governance environment creates elevated information-processing demands, which in turn are likely to increase executive job demands. If a national governance environment lacks effective institutions—such as transparent state and private regulations, independent courts, public and transferable contracts, availability and reliability of public information, and effective legal enforcement—it is more likely that individuals and organizations resort to implicit and informal agreements rather than formal contracts, thus, raising the need to leverage private information and networks to monitor and enforce contracts with partners and local stakeholders. We, therefore, argue that *institutional ambiguity*, characterized by a lack of trustworthy public information, opaque rules, partial, and selective legal enforcement, threat of government interference, and unpunished opportunistic and fraudulent behavior by local actors, is a key source of host country environmental complexity faced by the firm. Countries with such a governance environment are considered to have relation-based governance, that is, business transactions are primarily conducted through personal and private relations and governed by informal rules and norms (Li & Filer, 2007; Li, Park, & Li, 2004; Li & Samsell, 2009).

To successfully deal with the complexity challenges deriving from institutional ambiguity and respond effectively to the resulting executive job demands, we argue that MNEs are likely to prefer generalists over specialists in the appointment of new executives. Generalists are more likely to possess the flexibility and adaptability required to navigate informal and relation-based institutions. Indeed, past exposure to a wide variety of contexts is associated with greater cognitive flexibility and more transferable knowledge and skills (Mueller et al., 2021), thus, enabling executives to cope with ambiguity and deal with the conflicting logics that are often prevalent in relation-based environments. On the other hand, a specialist background is associated with cognitive entrenchment, thus, affecting the ability to adapt and solve problems in ambiguous contexts (Dane, 2010). Specialists are more likely to draw on their expertise and prior knowledge in problem-solving and may, therefore, particularly struggle with the unique and

multilayered challenges of relation-based environments (Li & Samsell, 2009). In such environments, MNEs need to develop multifaceted relations at local, regional, and national level to uphold their rights and interests (Alon et al., 2020). Operating in institutionally complex environments requires a high level of information-processing capacity as well as a broad advice network and experience base to deal effectively with the inherent uncertainty and ambiguity of such environments (Athanassiou & Nigh, 1999; Greve et al., 2009).

Executives with a broad base of international, functional, and industry experience are more effective bridge-builders (Crossland et al., 2014; Georgakakis, Greve, & Ruigrok, 2017) and, therefore, more likely to respond successfully to the challenges of integrating different industrial and functional domains in a complex institutional setting. Hence, a generalist executive – whose background is characterized by greater career variety—is more likely to be appointed by MNEs facing a high level of complexity stemming from institutional ambiguity in host countries, thus leading to the following hypothesis:

Hypothesis 1. *Firms investing in countries with a high level of complexity stemming from institutional ambiguity have a higher probability of appointing a generalist executive.*

3.2 | Economic sophistication and executive selection

Variations in economic complexity have increasingly been used to explain and predict country-level differences in economic growth, wealth, and income inequality (Jara-Figueroa, Hartmann, Hidalgo, Guevara, & Aristarán, 2017). The complexity of an economy is typically considered to derive from the diversity of its non-tradable knowledge, which is associated with the presence of multiple specialized knowledge domains (Hidalgo & Hausmann, 2009). A greater differentiation of the country product portfolio requires an industrial ecosystem that supports the development of distinct and specialized types of knowledge underlying the design and development of product outputs. Hence, the most complex national environments are those producing and exporting the largest range of products, and complex products will be traded by the most complex economies (Battiston, Cristelli, Tacchella, & Pietronero, 2014). Such economies are able to upgrade their productive systems to even more complex configurations by recombining their existing portfolios of specialized knowledge (Cristelli, Gabrielli, Tacchella, Caldarelli, & Pietronero, 2013; Tacchella, Cristelli, Caldarelli, Gabrielli, & Pietronero, 2012).

Industrially developed and technologically advanced environments drive firms to focus their efforts on a limited selection of specialized knowledge domains, thereby forcing firms to increasingly specialize and develop sophisticated products and processes to remain competitive (Hidalgo & Hausmann, 2009). Firms that are not able to continuously innovate their products and processes by enhancing their pool of specialized knowledge are likely to underperform their international and local competitors and may eventually be pushed out of the market. While remaining competitive in such environments is likely to be a significant challenge even for domestic firms, the challenge of operating across multiple such environments is likely to be amplified by the liability of foreignness and outsidership (Johanson & Vahlne, 2009; Zaheer, 1995), thus, increasing the need for requisite information-processing capacities to cope with the elevated executive job demands. Cultural and communication differences between home and host countries are likely to further impede the codification and absorption of

specialized external knowledge and its integration and recombination with the internal knowledge of the firm (Elia, Petruzzelli, & Piscitello, 2019; Zaheer & Hernandez, 2011).

Hence, under conditions of complexity stemming from economic sophistication, we argue that executives with a more specialized background, that is, with more in-depth specialized knowledge relating to specific functions, industries, and geographies, are in a better position to understand the factors driving competitiveness and innovativeness in such environments and develop strategies that enable the firm to survive and thrive (Li & Patel, 2019; Mueller et al., 2021). Executives with more focused and specialized experience backgrounds may also be more likely to combine their domain-specific knowledge and expertise in novel ways to create new business opportunities in sophisticated economic environments. Generalist executives, on the other hand, are more likely to suffer from the "jack of all trades and master of none" syndrome in such circumstances, as their career variety and diverse experiences are less likely to equip them with sufficient knowledge and specific expertise to obtain an accurate and deep understanding of the technology, knowledge, and competitive dynamics in economically sophisticated environments. Hence, we argue that specialist executives are more likely to be preferred by MNEs operating in countries with high levels of complexity deriving from economic sophistication, thus leading to our second hypothesis:

> **Hypothesis 2.** *Firms investing in countries with a high level of complexity stemming from economic sophistication have a higher probability of appointing a specialist executive.*

4 | METHODS

4.1 | Sample and data

We test our hypotheses on a sample of 133 UK-based publicly listed firms studied during the period from 2008 to 2018. The sample was constructed from Orbis. Companies had to be global ultimate owners based in the UK and stock exchange listed with their primary industry in the manufacturing sector, and they had to employ between 50 and 2000 employees at the beginning of the study period. A focus on global ultimate owners and publicly listed firms ensured that executive selection could be studied transparently and in line with the majority of prior theoretical and empirical work. We chose companies in the manufacturing sector (i.e., first two digits of Nomenclature of Economic Activities [NACE] Rev.2 industry code between 10 and 32) to prevent industry confounding effects on the characteristics of newly appointed executives. The range of 50–2000 employees was chosen due to the arguably strong influence of individual decision-makers in medium-sized companies (Elia, Greve, Vallone, & Castellani, 2021; Jansen, Curseu, Vermeulen, Geurts, & Gibcus, 2011; Laufs, Bembom, & Schwens, 2016).

We obtained financial data from the Orbis and Fame databases. Data on internationalization, executive teams, and new appointments were manually collected from company annual reports, corporate websites, public statements, as well as a variety of internet sources, such as Company House, Reuters, Bloomberg, and LinkedIn. We defined the executive team in the UK context as the executive board directors (Piaskowska & Trojanowski, 2014). Hence, an executive appointment implies that a new executive director is appointed to the board of directors.

As the focus of this study is to investigate how country environmental complexity influences executive appointments, we define the unit-level of analysis at the firm subsidiary (host-

country) level. Consistent with our data structure, an executive appointment in year t is a function of the environmental complexity of each host country in which the firm has at least one subsidiary in year $t-1$. The decision to define observations at this level is consistent with other recent IB studies (Elia et al., 2019).

Our sample originally counted 478 executive appointments at 133 companies between 2008 and 2018; however, due to the lag of one year between our independent variables and the appointment decision (Greve et al., 2015), we had to drop the observations from the first year of our study period (i.e., 2008). This left 436 executive appointments associated with 1781 subsidiaries distributed across 72 countries and 132 firms.

On average, the companies in our sample appointed 3.6 executives in the period from 2009 to 2018. The rate of executive appointments was fairly stable throughout the study period with about 40 appointments per year. The sample firms have subsidiaries located in 6.4 countries on average, with a standard deviation of 5.4. The subsidiaries are distributed across regions with the majority located in Europe (56%), followed by Asia (19%), North America (15%), Africa (5%), Latin America, and Oceania (3% each).

4.2 | Dependent variable

To construct our dependent variable, we draw on Bunderson and Sutcliffe's (2002) concept of intrapersonal experience diversity, which has been widely adopted in the literature (e.g., Georgakakis et al., 2017; Li & Patel, 2019; Mueller et al., 2021). Specifically, we consider three important dimensions of executives' careers, namely their industry, functional, and international experience (Crossland et al., 2014; Georgakakis et al., 2017). For each dimension, we use Blau's (1977) heterogeneity index to calculate the degree of intrapersonal experience diversity for each executive (Bunderson & Sutcliffe, 2002; Ferguson & Hasan, 2013; Mueller et al., 2021), that is, the extent to which the executive has a broad generalist or a narrow specialist career background in terms of industry, function, and country experience. When calculating the intrapersonal experience diversity for each career dimension, the term p corresponds to the number of years of a given experience type l (e.g., industry experience in a given sector) divided by the executive's total career length.

$$\text{Intrapersonal experience diversity}_i = 1 - \sum_{l=1}^{N} p_l^2$$

A key advantage of this measure is that it incorporates both the breadth of experience (i.e., the number of different industries, functions, or countries) as well as the depth of experience (i.e., the relative length of time spent in each industry, function, or country) (Bunderson & Sutcliffe, 2002). After computing the three distinct sources of executives' generalist experience they were normalized and aggregated into a composite *executive generalist* measure (Boone, van Olffen, van Witteloostuijn, & De Brabander, 2004). Only those observations for which we were able to retrieve complete executive career data were included in our analysis. Our dependent variable is normally distributed and ranges between 0 and 2.3; the 0 values (less than 3% of our observations) represent the rare cases in which a newly appointed executive's entire career has been spent within the same functional area, industry sector and country.

4.3 | Independent variables

The two main explicative variables aim to capture the complexity of the host countries' institutional ambiguity and economic sophistication. To account for these two sources of environmental complexity, we rely on two key indicators. First, we employ Li and Filer's (2007) governance environment indicator (GEI) as our measure of institutional ambiguity. The GEI measures the extent to which a host-country governance environment is relation-based (as opposed to rule-based). We construct the GEI indicator following Li and Filer (2007) and Alon et al. (2020).[2] However, as the original GEI indicator can take positive and negative values and measures the extent to which a host country governance environment is rule-based, we first normalized the original GEI and then computed the inverse (i.e., 1 – GEI) to capture the level of institutional ambiguity on a scale from 0 to 1, where 1 represents the most complex (relation-based) governance environment.

Second, we employ the Economic Complexity Index (ECI) published by the Observatory of Economic Complexity. This metric is widely used to measure the economic complexity of a country by considering the knowledge diversity and intensity of countries' export baskets (Hidalgo, 2021; Hidalgo & Hausmann, 2009). As above, we normalized the index[3] to obtain a continuous variable with values ranging from 0 to 1, where 1 represents the highest level of complexity deriving from economic sophistication.

In Figure 2, we plot all subsidiary countries represented in our sample along the two dimensions of institutional ambiguity and economic sophistication in the first year of our study period

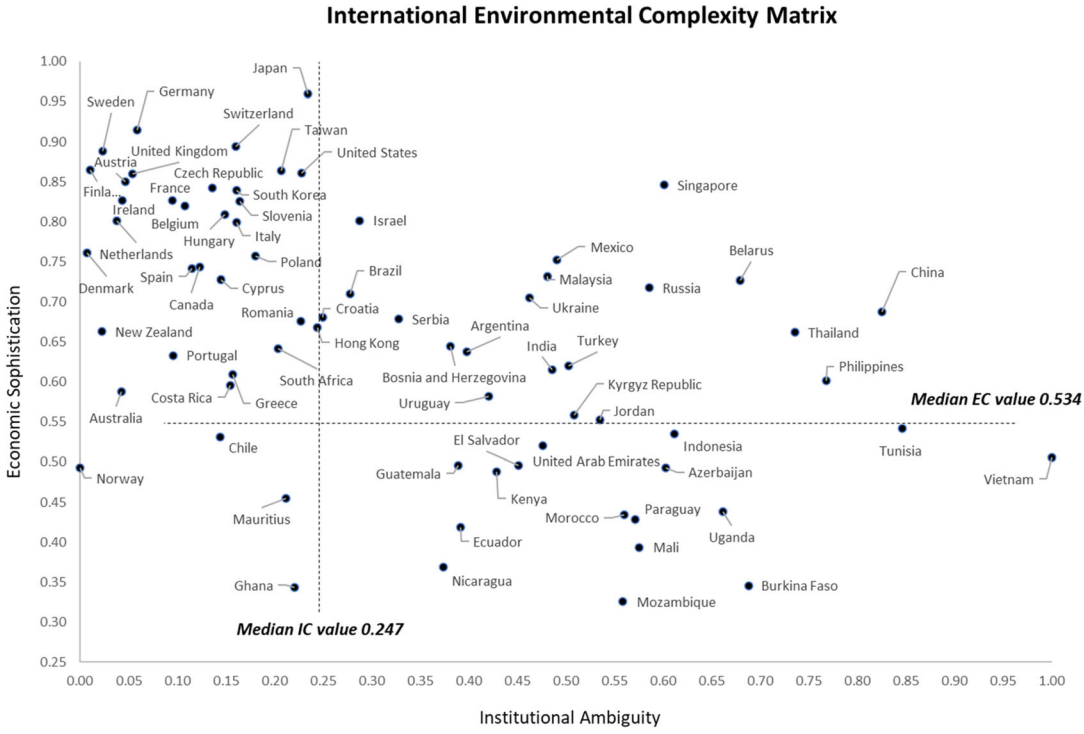

FIGURE 2 Subsidiary countries positioning with respect to the complexity stemming from institutional ambiguity and complexity from economic sophistication in 2008

(i.e., 2008). Figure 3 shows the distribution of subsidiary country observations across four quadrants based on a high (i.e., above the median) versus low (i.e., below the median) classification of the subsidiary countries along the same two dimensions. In 61% of cases, countries with high economic sophistication score low on institutional ambiguity. This aligns with the fact that 60% of our sample firms' subsidiaries are located in Western Europe, North America, and Oceania, which are economically complex economies with a mature legal infrastructure and relatively effective rule-based governance environments (Li et al., 2004).

To reflect the different combinations of complexity displayed in Figures 2 and 3, we built two alternative sets of dummy variables to conduct our analyses. The first set of dummy variables are *high complexity from institutional ambiguity* and *high complexity from economic sophistication*, each equal to 1 when the subsidiary country complexity from institutional and economic environments, respectively, is greater than the median value of each indicator, as reported in Figures 2 and 3.

In the second set of dummy variables, we constructed four dummy variables, each representing a quadrant in Figure 3, that is, *high complexity from economic sophistication and low complexity from institutional ambiguity*; *low complexity from economic sophistication and high complexity from institutional ambiguity*; *high complexity from economic sophistication and high complexity from institutional ambiguity*; and *low complexity from economic sophistication and low complexity from institutional ambiguity*.

4.4 | Control variables

We include several control variables in our models to account for additional factors that may impact executive appointment decisions. The first batch of variables refers to the characteristics of the executives who have been appointed. *Executive age* measures the age of the newly appointed executive in the year of the appointment. *Executive gender* is equal to 1 when the newly appointed executive is a male, 0 otherwise. *Executive insider* appointment indicates whether the manager has been internally (i.e., variable equal to 1) or externally appointed.

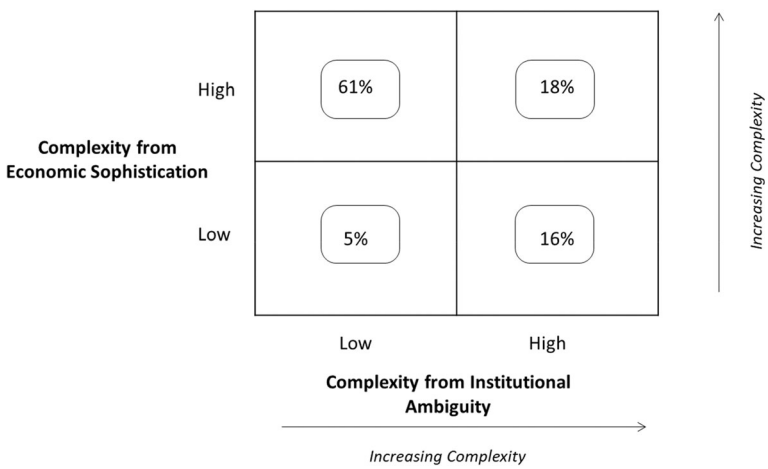

FIGURE 3 Distribution of our companies subsidiary countries in the four quadrants of the international environment complexity matrix in the sample period

Internal appointment occurs whenever the executive has 2 years or more of company tenure at the moment of the appointment (Kunisch et al., 2019). We also employ the variable *executive dissimilarity*, which measures the dissimilarity between the new executive and the incumbent top managers. Dissimilarity has been assessed in respect to three demographic dimensions, which have often been found to prompt social categorization and similarity attraction mechanisms, that is age, gender, and nationality (Georgakakis, Greve, & Ruigrok, 2021; Nielsen, 2009). The three attributes were subsequently aggregated using the distance formula as in Georgakakis et al. (2021). To obtain comparable measures and facilitate aggregation, we normalized the age component. Dissimilarity values range between 0 and 1. It was also important to control for the functional role (i.e. position) of the appointed executive. We derived four dummy categories following Greve et al. (2015).[4]

Furthermore, we consider the composition of the incumbent management team and governance characteristics. First, we compute *Top Management Team (TMT) tenure diversity* as the standard deviation of the number of years the executives have spent on the company management team (Hambrick, Cho, & Chen, 1996). Second, we compute ex-ante *TMT demographic diversity*, which gauges team diversity with respect to four dimensions: age, gender, nationality and education level.[5] Specifically, we applied Blau's formula (Blau, 1977) to measure team demographic diversity (Boone et al., 2004; Faems & Subramanian, 2013) and aggregated the four components into one variable. Third, we control for *TMT work experience diversity*, which combines the three individual experience dimensions of international, functional, and industry experience. This variable is constructed in three steps; in the first step, we apply Blau's (1977) formula at the individual level (similar to our dependent variable), then, we averaged individual work experience diversity values at the team level, and finally we aggregated[6] the three averages into one composite variable.

We also control for a set of variables capturing the characteristics of the Chief Executive Officer (CEO) position. First, we control for *CEO career variety*, which is measured by applying Blau's (1977) index to the CEO functional and international work experience and aggregating the two dimensions (Georgakakis et al., 2017). Next, we control for *CEO tenure*, which is calculated as the number of years since the CEO was appointed to the firm (Hambrick & Fukutomi, 1991). *CEO duality* and *board independence* enable us to control for the balance of power within the executive team and the degree of external monitoring; the former is coded as 1 if the CEO is also the Chairperson of the board, while the latter is measured as the proportion of outside directors over the total number of directors (Krause, Semadeni, & Cannella, 2014; Thams et al., 2018).

We include several firm and industry control variables. The variable *industrial diversification* accounts for the number of industry sectors in which the company is active and is measured by counting the number of NACE Rev.2 four-digit industry codes (Ruigrok, Georgakakis, & Greve, 2013; Van Essen, Otten, & Carberry, 2015). The variable *Foreign countries* counts the number of foreign countries in which a sample firm operates. *Firm size* controls for firm size differences by employing the log number of employees.

Furthermore, we control for *firm declining performance*, computed by averaging return on assets (ROA) in the 3 years prior to the executive appointment multiplied by −1. We chose a 3-year period to ensure that small yearly variations would not bias our results (Georgakakis & Ruigrok, 2017). *Industry declining performance* is calculated by reversing the industry munificence measure, which is computed for each industry[7] as the regression coefficient of time on the annual average sales in a 3-year moving period (e.g., from 2005–2007, 2006–2008, and so on) divided by the average sales of the industry in the same period (Nielsen, 2009).

We also include other additional industry environment controls. *Industry dynamism* measures the instability of sales growth in a specific industry, thus, reflecting the amount of uncertainty faced by the company in its industry environment (as for industry munificence, we consider the first two primary digits of the NACE Rev 2. industry code of the company) (Hambrick & Cannella, 2004). Consistent with prior literature, industry dynamism is estimated as the standard error of the regression slope coefficient of industry sales divided by the average value of sales over a 3-year period (Nielsen, 2009; Ruigrok et al., 2013). *Average industry internationalization* captures the level of internationalization of the industry, that is, the extent to which companies in an industry sell their products abroad rather than in their domestic market. We aggregate the ratio of foreign sales over total sales for all the companies[8] operating within the same first two digits NACE Rev 2. industry code (Kunisch et al., 2019). Furthermore, we control for *industry technology intensity* of the sector in which the firm primarily operates. This is an ordinal variable based on the Eurostat classification[9] of technology intensity of manufacturing sectors and ranging from 1 to 4 (low technology = 1, medium/low technology = 2, medium/high technology = 3, high technology = 4). Finally, we control for *country market growth* measured as the GDP growth of a subsidiary country (Brouthers & Brouthers, 2000), and include *year dummies* for each year of the study period.

5 | RESULTS

Table 1 reports the correlation matrix and the descriptive statistics of all variables included in our models. Pairwise correlation coefficients are relatively small with the exception of two control variables: *Average industry internationalization* and *industry technology intensity*. The two variables are highly positively correlated (0.83), suggesting that high-tech manufacturing sectors are the most internationalized. Given the high correlation, we tested for multicollinearity and inspected the values of variance inflation factors VIFs. We find that all values are well below the maximum threshold of 10 (Belsley, Kuh, & Welsch, 1980).

We tested our hypotheses using a Tobit model due to the nature of our dependent variable, which is censored with a minimum value of 0 and a theoretical upper limit of 3 (Amore & Murtinu, 2021). We test the same model specification with an OLS estimator and find no substantial differences between the two models.[10] Given the structure of our dataset, which involves repeated firm-level observations (i.e., in the case of multiple firm executives' appointments within the same year or in different years), we cluster standard errors at the company-year level.

As companies need time to adjust to complex environments and understand the organizational and environmental requirements that influence executive job demands, we lag all our independent variables by one year with respect to our dependent variable, except the time-invariant variables that are specific to the executive appointment and the characteristics of the new executive (i.e., executive age, executive gender, executive insider, executive dissimilarity, functional role dummies). The lagging strategy also helps to alleviate concerns of reverse causality, that is, that managers' backgrounds are also likely to influence internationalization decisions (Lee & Park, 2008; Pisani, Muller, & Bogăţan, 2018; Thams et al., 2018). In this study, reverse causality concerns are also mitigated by the fact that we are studying the impact of subsidiary locations, which are the result of prior firm investments.

Our main results are presented in Table 2 with standard errors reported in brackets. The first column reports the results of our analyses using the first set of dummy variables (*high*

TABLE 1 Correlation matrix and descriptive statistics of variables employed in our model

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(1)	Executive generalist	1.00																				
(2)	Executive age	0.16	1.00																			
(3)	Executive gender	0.12	0.07	1.00																		
(4)	Executive insider	−0.19	−0.07	−0.04	1.00																	
(5)	Executive dissimilarity	−0.13	−0.19	−0.69	0.12	1.00																
(6)	CEO function	0.25	0.18	0.17	−0.13	−0.22	1.00															
(7)	Throughput function	−0.16	−0.18	−0.17	−0.06	0.13	−0.63	1.00														
(8)	Output function	−0.01	−0.08	0.01	0.14	0.07	−0.23	−0.30	1.00													
(9)	Regional responsibility	0.12	0.07	0.04	0.16	0.00	−0.08	−0.11	−0.05	1.00												
(10)	TMT tenure diversity	−0.19	−0.04	−0.12	0.23	0.27	−0.17	−0.03	0.14	0.14	1.00											
(11)	TMT demographic diversity	0.20	−0.04	0.10	−0.06	0.00	−0.02	0.07	−0.03	0.03	0.19	1.00										
(12)	TMT work experience diversity	0.23	0.13	0.13	−0.19	−0.20	0.14	0.08	−0.15	−0.07	−0.26	0.44	1.00									
(13)	CEO career variety	0.08	0.19	0.06	−0.10	−0.18	0.09	0.05	−0.11	−0.05	−0.18	0.03	0.43	1.00								
(14)	CEO tenure	−0.17	−0.07	−0.03	0.14	0.19	−0.17	−0.05	0.15	0.05	0.47	0.12	−0.33	−0.17	1.00							
(15)	CEO duality	−0.01	−0.06	−0.04	0.00	0.07	−0.05	−0.06	0.03	0.05	0.03	0.04	−0.18	−0.23	0.26	1.00						
(16)	Board independence	0.21	0.20	0.06	−0.14	−0.19	0.20	0.06	−0.24	−0.04	−0.57	−0.25	0.21	0.26	−0.28	−0.09	1.00					
(17)	Foreign countries	0.20	0.15	0.00	0.01	0.03	0.08	0.06	−0.06	−0.05	0.02	0.19	0.17	0.11	−0.04	0.02	0.15	1.00				
(18)	Firm size	0.01	0.09	−0.03	0.01	0.03	−0.02	0.05	−0.05	−0.04	0.14	0.04	0.00	−0.04	0.05	0.03	0.04	0.50	1.00			
(19)	Firm declining performance	0.09	−0.02	0.03	−0.06	−0.04	0.14	−0.06	−0.02	−0.05	−0.28	−0.10	0.10	0.06	−0.33	−0.14	0.14	−0.18	−0.47	1.00		
(20)	Industrial diversification	0.05	−0.01	−0.08	−0.02	0.11	−0.08	0.06	−0.05	0.14	0.05	−0.11	−0.16	0.01	0.09	0.02	0.08	0.05	0.10	−0.07	1.00	
(21)	Industry dynamism	−0.10	−0.09	−0.01	0.11	0.06	0.05	−0.05	0.00	−0.04	0.14	0.01	−0.12	−0.12	−0.11	−0.04	−0.15	−0.02	−0.11	0.07	0.07	1.00
(22)	Industry declining performance	−0.09	−0.10	−0.05	−0.09	−0.01	−0.13	0.07	0.05	0.06	0.03	0.01	−0.13	0.02	0.27	0.09	0.00	−0.11	0.09	−0.08	0.08	−0.16
(23)	Average industry internationalization	0.22	0.09	0.09	−0.13	−0.14	0.08	0.06	−0.06	−0.06	−0.34	−0.04	0.18	0.07	−0.24	0.10	0.20	0.23	0.07	0.10	−0.05	−0.15
(24)	Industry technology intensity	0.17	0.10	0.07	−0.12	−0.11	−0.02	0.11	−0.03	−0.04	−0.27	−0.04	0.11	0.02	−0.13	0.10	0.14	0.24	0.03	0.08	−0.06	−0.18
(25)	Country market growth	−0.06	−0.02	0.01	0.05	−0.01	−0.06	0.04	0.04	0.01	0.07	0.01	−0.08	−0.01	0.14	0.02	−0.02	0.04	0.05	−0.08	0.00	0.00

TABLE 1 (Continued)

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
(26)	High complexity from economic sophistication	−0.03	0.03	0.04	−0.08	−0.06	−0.08	0.03	0.05	0.01	0.02	0.04	−0.03	−0.04	0.10	0.05	0.00	−0.02	−0.03	−0.06	0.08	−0.10
(27)	High complexity from institutional ambiguity	−0.01	−0.02	0.01	0.10	0.00	0.02	−0.03	0.01	0.00	0.10	−0.03	−0.07	0.02	0.02	−0.04	−0.06	0.15	0.10	−0.07	−0.03	0.06
	Observations (no.)	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622	1,622
	Mean	1.13	48.80	0.92	0.34	0.20	0.28	0.50	0.12	0.02	4.11	0.76	1.36	0.65	9.90	0.15	0.53	6.42	6.01	0.02	1.55	0.06
	SD.	0.57	8.03	0.27	0.47	0.13	0.45	0.50	0.33	0.13	3.84	0.44	0.43	0.42	8.23	0.36	0.16	5.38	1.32	0.25	0.78	0.06
	Min	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.39	−0.29	1.00	0.00
	Max	2.32	72.00	1.00	1.00	0.82	1.00	1.00	1.00	1.00	24.28	1.95	2.11	1.75	55.00	1.00	0.83	22.00	8.35	2.36	5.00	0.51

	Variables	(22)	(23)	(24)	(25)	(26)	(27)
(22)	Industry declining performance	1.00					
(23)	Average industry DOI	−0.05	1.00				
(24)	Industry technology intensity	−0.08	0.83	1.00			
(25)	Country market growth	0.25	0.01	0.01	1.00		
(26)	High economic complexity	0.10	0.04	0.10	−0.09	1.00	
(27)	High institutional complexity	−0.02	0.00	−0.01	0.45	−0.20	1.00
	Observations (no.)	1,622	1,622	1,622	1,622	1,622	1,622
	Mean	−0.05	0.42	2.66	2.11	0.95	0.19
	SD	0.10	0.11	1.14	3.12	0.22	0.39
	Min	−0.61	0.03	1.00	−7.82	0.00	0.00
	Max	0.31	0.60	4.00	25.56	1.00	1.00

TABLE 2 High complexity from institutional ambiguity and economic sophistication as antecedent of executive generalist appointment, baseline specification, Tobit regression analyses on executives' appointments occurring between 2009 and 2018

	(1) high complexity from economic sophistication		(2) high complexity from institutional ambiguity		(3) high complexity from economic sophistication & high complexity from institutional ambiguity		(4) international environmental complexity dummy matrix	
Variables	**Est**	***p*-value**	**Est**	***p*-value**	**Est**	***p*-value**	**Est**	***p*-value**
Executive age	0.006 (0.005)	.166	0.006 (0.005)	.164	0.006 (0.005)	.159	0.006 (0.005)	.158
Executive gender	0.024 (0.132)	.857	0.027 (0.132)	.839	0.025 (0.132)	.849	0.024 (0.132)	.854
Executive insider	−0.166** (0.071)	.019	−0.164** (0.071)	.021	−0.169** (0.071)	.017	−0.169** (0.071)	.017
Executive dissimilarity	0.024 (0.334)	.943	0.044 (0.338)	.897	0.023 (0.335)	.946	0.023 (0.334)	.945
CEO function	0.204* (0.117)	.082	0.208* (0.118)	.079	0.204* (0.118)	.083	0.203* (0.118)	.084
Throughput function	−0.061 (0.110)	.577	−0.055 (0.111)	.620	−0.060 (0.110)	.587	−0.061 (0.110)	.579
Output function	0.186 (0.122)	.128	0.186 (0.123)	.131	0.187 (0.122)	.127	0.187 (0.122)	.126
Regional responsibility	0.762*** (0.199)	.000	0.769*** (0.201)	.000	0.761*** (0.199)	.000	0.758*** (0.198)	.000
TMT tenure diversity	−0.007 (0.012)	.564	−0.008 (0.012)	.534	−0.007 (0.012)	.565	−0.007 (0.012)	.570
TMT demographic diversity	0.383*** (0.098)	.000	0.382*** (0.099)	.000	0.387*** (0.098)	.000	0.388*** (0.098)	.000
TMT work experience diversity	−0.015 (0.128)	.910	−0.014 (0.129)	.911	−0.017 (0.129)	.892	−0.017 (0.128)	.897
CEO career variety	−0.072 (0.089)	.420	−0.071 (0.089)	.428	−0.074 (0.089)	.406	−0.077 (0.089)	.391
CEO tenure	−0.008 (0.005)	.154	−0.008 (0.005)	.148	−0.008 (0.005)	.151	−0.008 (0.005)	.152
CEO duality	−0.021 (0.084)	.806	−0.019 (0.085)	0.821	−0.021 (0.084)	.807	−0.022 (0.084)	.798
Board Independence	0.595** (0.233)	.011	0.587** (0.234)	0.012	0.600** (0.233)	.010	0.600** (0.233)	.010
Foreign countries	0.006 (0.008)	.467	0.005 (0.008)	.499	0.005 (0.008)	.496	0.005 (0.008)	.473
Firm size	−0.018 (0.026)	.477	−0.017 (0.026)	.515	−0.019 (0.026)	.457	−0.020 (0.026)	.449
Firm declining performance	0.048 (0.092)	.602	0.050 (0.096)	.601	0.039 (0.092)	.671	0.036 (0.091)	.693
Industrial diversification	0.089** (0.037)	.017	0.086** (0.038)	.023	0.090** (0.037)	.017	0.089** (0.037)	.017

TABLE 2 (Continued)

	(1) high complexity from economic sophistication		(2) high complexity from institutional ambiguity		(3) high complexity from economic sophistication & high complexity from institutional ambiguity		(4) international environmental complexity dummy matrix	
Variables	**Est**	***p*-value**	**Est**	***p*-value**	**Est**	***p*-value**	**Est**	***p*-value**
Industry dynamism	−0.134 (0.660)	.840	−0.100 (0.668)	.881	−0.146 (0.663)	.825	−0.150 (0.662)	.820
Industry declining performance	−0.286 (0.401)	.475	−0.328 (0.406)	.418	−0.305 (0.403)	.450	−0.299 (0.403)	.458
Average industry internationalization	0.707 (0.498)	.156	0.724 (0.504)	.151	0.701 (0.503)	.164	0.702 (0.503)	.163
Industry technology intensity	−0.001 (0.044)	.982	−0.006 (0.045)	.898	−0.000 (0.045)	.992	−0.001 (0.045)	.989
Country market growth	−0.005 (0.004)	.270	−0.007 (0.004)	.113	−0.008* (0.004)	.087	−0.007* (0.004)	.091
High complexity from economic sophistication	−0.182*** (0.057)	.002			−0.162*** (0.056)	0.004		
High complexity from institutional ambiguity			0.050* (0.027)	0.065	0.035 (0.026)	0.175		
High complexity from economic sophistication and low complexity from institutional ambiguity							−0.098* (0.052)	.060
High complexity from institutional ambiguity and low complexity from economic sophistication							0.154** (0.068)	.024

(Continues)

TABLE 2 (Continued)

Variables	(1) high complexity from economic sophistication		(2) high complexity from institutional ambiguity		(3) high complexity from economic sophistication & high complexity from institutional ambiguity		(4) international environmental complexity dummy matrix	
	Est	*p*-value	Est	*p*-value	Est	*p*-value	Est	*p*-value
High complexity from economic sophistication and high complexity from institutional ambiguity							−0.074 (0.059)	.212
Year dummies	**Yes**		**Yes**		**Yes**		**Yes**	
Constant	−0.047 (0.525)		−0.233 (0.522)		−0.065 (0.524)		−0.125 (0.520)	
Observations	1,622		1,622		1,622		1,622	
Prob > χ^2	0.000		0.000		0.000		0.000	
Pseudo R^2	0.207		0.203		0.207		0.207	

Note: Robust standard errors in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

complexity from institutional ambiguity and *high complexity from economic sophistication*), while the second column provides the results based on the second set of dummy variables reflecting the matrix combinations in Figure 3 (using *low complexity from institutional ambiguity and low complexity from economic sophistication* as the base case). Results show that the dummy *high complexity from economic sophistication* is negatively and significantly correlated with the dependent variable ($p < .01$). This provides support for our second hypothesis, that is, that firms tend to hire executives with specialist backgrounds when operating in economically sophisticated environments. The variable *high complexity from institutional ambiguity* exhibits a positive and significant coefficient ($p < .1$) in the second column only. This means that we find mixed support for our first hypothesis, as the institutional ambiguity variable is no longer significant when we add the economic sophistication term to the model specification.

Our hypotheses receive further support when we conduct the analyses using the matrix-based dummy specification of the independent variable (see the fourth column of Table 2). We find that companies facing high complexity from institutional ambiguity and low complexity from economic sophistication tend to appoint generalist executives ($p < .05$), thus, corroborating our first hypothesis. Companies facing high complexity from economic sophistication and low complexity from institutional ambiguity increase the likelihood of appointing a specialist executive ($p < .10$), thus, adding support for our second hypothesis. Finally, companies facing high complexity from both institutional ambiguity and economic sophistication exhibit a negative albeit non-significant coefficient, suggesting that there is no dominant preference for generalists or specialists under conditions of high overall complexity.

Among our control variables, we find that the probability of appointing a generalist is lower when appointing an internal executive ($p < .05$) and higher when the appointment involves a CEO ($p < .1$) or a regional responsibility function ($p < .01$). More demographically diverse executive teams are more likely to appoint executive generalists ($p < .01$). Board independence is positively associated with the appointment of a generalist ($p < .05$) and companies that are more industrially diversified ($p < .05$) are more likely to appoint generalist executives.

5.1 | Additional evidence and robustness checks

We performed several robustness checks and additional analyses to corroborate our results. First, to gain more insights into the environments exhibiting both types of complexity, we interacted the dummies *high complexity from institutional ambiguity* and *high complexity from economic sophistication*. In addition, we employed the continuous variables instead of dummies to capture the two sources of complexity. The results in the first column of Table 3 provide evidence for a negative interaction effect ($p < .05$) between the two sources of complexity, suggesting that executive job demands stemming from economically sophisticated environments may prevail over the influence of institutionally ambiguous contexts, as firms are more likely to prefer a specialist over a generalist executive when both sources of complexity are high. The second and third columns of Table 3, which introduce the continuous variables reflecting the two sources of complexity, provide further support for the first and second hypotheses. However, when the two continuous variables are introduced in the same model (see column 4), only the second hypothesis remains supported.

Furthermore, we performed the interaction between the two continuous variables in the fifth column of Table 3, resulting in a negative coefficient ($p < .1$). This further corroborates the predominance of the information-processing demands arising from economic sophistication over

TABLE 3 Complexity from economic sophistication and complexity from institutional ambiguity as antecedent of executive generalist appointment, baseline specification, Tobit regression analyses on executives' appointments occurring between 2009 and 2018

	(2) interaction between high complexity from economic sophistication and high complexity from institutional ambiguity		(2) complexity from economic sophistication		(3) complexity from institutional ambiguity		(4) complexity from economic sophistication and complexity from institutional ambiguity		(5) interaction between complexity from economic sophistication and complexity from institutional ambiguity	
Variables	**Est**	***p*-value**	**Est**	***p*-value**	**Est**	***p*-value**	**Est**	***p*-value**	**Est**	***p*-value**
Executive age	0.006	.158	0.007	.148	0.006	.165	0.007	.147	0.007	.149
	(0.005)		(0.005)		(0.005)		(0.005)		(0.005)	
Executive gender	0.024	.854	0.026	.846	0.026	.842	0.026	.844	0.025	.852
	(0.132)		(0.132)		(0.132)		(0.132)		(0.132)	
Executive insider	−0.169**	.017	−0.164**	.020	−0.164**	.022	−0.166**	.019	−0.168**	.018
	(0.071)		(0.070)		(0.071)		(0.071)		(0.071)	
Executive dissimilarity	0.023	.945	0.044	.896	0.043	.900	0.039	.909	0.034	.919
	(0.334)		(0.336)		(0.338)		(0.336)		(0.335)	
CEO function	0.203*	.084	0.208*	.078	0.208*	.079	0.207*	.079	0.205*	.081
	(0.118)		(0.118)		(0.118)		(0.118)		(0.118)	
Throughput function	−0.061	.579	−0.059	.593	−0.055	.617	−0.058	.599	−0.059	.592
	(0.110)		(0.110)		(0.111)		(0.110)		(0.110)	
Output function	0.187	.126	0.187	.126	0.185	.132	0.187	.125	0.187	.125
	(0.122)		(0.122)		(0.123)		(0.122)		(0.122)	
Regional responsibility	0.758***	.000	0.760***	.000	0.773***	.000	0.762***	.000	0.759***	.000
	(0.198)		(0.197)		(0.201)		(0.197)		(0.197)	
TMT tenure diversity	−0.007	.570	−0.007	.576	−0.008	.527	−0.007	.568	−0.007	.589
	(0.012)		(0.012)		(0.012)		(0.012)		(0.012)	

TABLE 3 (Continued)

Variables	(2) interaction between high complexity from economic sophistication and high complexity from institutional ambiguity		(2) complexity from economic sophistication		(3) complexity from institutional ambiguity		(4) complexity from economic sophistication and complexity from institutional ambiguity		(5) interaction between complexity from economic sophistication and complexity from institutional ambiguity	
	Est	*p*-value	Est	*p*-value	Est	*p*-value	Est	*p*-value	Est	*p*-value
TMT demographic diversity	0.388*** (0.098)	.000	0.381*** (0.098)	.000	0.382*** (0.099)	.000	0.384*** (0.098)	.000	0.385*** (0.098)	.000
TMT work experience diversity	−0.017 (0.128)	.897	−0.008 (0.129)	.953	−0.012 (0.129)	.923	−0.010 (0.129)	.938	−0.012 (0.128)	.927
CEO career variety	−0.077 (0.089)	.391	−0.072 (0.089)	.420	−0.073 (0.089)	.415	−0.075 (0.089)	.401	−0.076 (0.089)	.395
CEO tenure	−0.008 (0.005)	.152	−0.008 (0.005)	.157	−0.008 (0.005)	.149	−0.008 (0.005)	.154	−0.008 (0.005)	.154
CEO duality	−0.022 (0.084)	.798	−0.026 (0.085)	.763	−0.020 (0.085)	.812	−0.025 (0.084)	.766	−0.026 (0.084)	.754
Board independence	0.600** (0.233)	.010	0.604** (0.234)	.010	0.582** (0.233)	.013	0.601** (0.234)	.010	0.611*** (0.235)	.009
Foreign countries	0.005 (0.008)	.473	0.004 (0.008)	.554	0.005 (0.008)	.479	0.005 (0.008)	.551	0.005 (0.008)	.511
Firm size	−0.020 (0.026)	.449	−0.017 (0.026)	.506	−0.018 (0.026)	.493	−0.019 (0.026)	.471	−0.020 (0.026)	.444
Firm declining performance	0.036 (0.091)	.693	0.051 (0.093)	.583	0.050 (0.096)	.600	0.042 (0.093)	.651	0.037 (0.092)	.687
Industrial diversification	0.089** (0.037)	.017	0.086** (0.037)	.021	0.086** (0.038)	.023	0.087** (0.037)	.020	0.087** (0.037)	.020

(Continues)

TABLE 3 (Continued)

Variables	(2) interaction between high complexity from economic sophistication and high complexity from institutional ambiguity		(2) complexity from economic sophistication		(3) complexity from institutional ambiguity		(4) complexity from economic sophistication and complexity from institutional ambiguity		(5) interaction between complexity from economic sophistication and complexity from institutional ambiguity	
	Est	*p*-value	Est	*p*-value	Est	*p*-value	Est	*p*-value	Est	*p*-value
Industry dynamism	−0.150 (0.662)	.820	−0.146 (0.666)	.827	−0.107 (0.668)	.872	−0.156 (0.667)	.816	−0.161 (0.666)	.809
Industry declining performance	−0.299 (0.403)	.458	−0.309 (0.403)	.443	−0.333 (0.405)	.411	−0.329 (0.405)	.417	−0.326 (0.404)	.421
Average industry internationalization	0.702 (0.503)	.163	0.706 (0.498)	.156	0.726 (0.504)	.150	0.702 (0.503)	.163	0.704 (0.503)	.162
Industry technology intensity	−0.001 (0.045)	.989	−0.002 (0.044)	.972	−0.006 (0.045)	.886	−0.002 (0.045)	.971	−0.002 (0.045)	.966
Country market growth	−0.007* (0.004)	.091	−0.007 (0.005)	.101	−0.008* (0.005)	.069	−0.011** (0.005)	.032	−0.011** (0.005)	.028
High complexity from economic sophistication	−0.098* (0.052)	.060								
High complexity from institutional ambiguity	0.154** (0.068)	.024								
High complexity from economic sophistication and high complexity from institutional ambiguity	−0.130** (0.066)	.049								
				.004				.022		.260

TABLE 3 (Continued)

Variables	(2) interaction between high complexity from economic sophistication and high complexity from institutional ambiguity		(2) complexity from economic sophistication		(3) complexity from institutional ambiguity		(4) complexity from economic sophistication and complexity from institutional ambiguity		(5) interaction between complexity from economic sophistication and complexity from institutional ambiguity	
	Est	*p*-value	Est	*p*-value	Est	*p*-value	Est	*p*-value	Est	*p*-value
Complexity from economic sophistication			−0.328*** (0.114)				−0.268** (0.117)		−0.127 (0.113)	
Complexity from institutional ambiguity					0.108** (0.054)	.046	0.070 (0.057)	.220	0.486** (0.226)	.031
Complexity from economic sophistication * complexity from institutional ambiguity									−0.573* (0.302)	.058
Year dummies	**Yes**		**Yes**		**Yes**		**Yes**		**Yes**	
Constant	−0.125 (0.520)		0.013 (0.531)		−0.234 (0.521)		−0.029 (0.529)		−0.133 (0.526)	
Observations	1,622		1,622		1,622		1,622		1,622	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000	
Pseudo R^2	0.207		0.206		0.203		0.206		0.207	

Note: Robust standard errors in parentheses; ***$p < .01$, **$p < .05$, *$p < .1$.

those arising from institutional ambiguity, as the latter appears to result in a preference for generalist executives only when there is limited complexity arising from economic sophistication.

Next, we checked whether our empirical analyses are robust across alternative sources of environmental complexity (see Figure 1). Specifically—as an alternative to institutional ambiguity—we introduced the notion of institutional quality, measured using the Index of Economic Freedom by the Heritage Foundation.[11] The index accounts for 12 different institutional factors grouped into four broad categories: rule of law, government size, regulatory efficiency, and open markets.[12] Given that the index ranges from 0 to 100, where higher scores correspond to a higher degree of institutional freedom, we reversed the index to obtain a measure of low institutional quality and rescaled the values from 0 to 1, where higher values reflect higher institutional complexity. Like the GEI indicator, the economic freedom index builds on the North (1990) tradition of institutional theory, that is, new institutional economics. Using median values, we constructed the two dummies *high complexity from economic sophistication* and *high complexity from institutional quality*, and the four dummies *high complexity from economic sophistication and low complexity from institutional quality*; *high complexity from institutional quality and low complexity from economic sophistication*; *high complexity from economic sophistication and high complexity from institutional quality*; and *low complexity from institutional quality and low complexity from economic sophistication*. Results, which are displayed in the first two columns of Table 4, show that only our second hypothesis is supported when considering the two separate dummies, whereas the first hypothesis is only supported with a combination of high complexity from institutional quality and low complexity from economic sophistication. Results also confirm the prevalence of complexity deriving from economic sophistication over the complexity stemming from institutional quality, given that when both are high firms appear to prefer a specialist executive.

We also extend our robustness checks to consider the two remaining dimensions of environmental complexity, that is, the degree of distance (or differences) between the home and host country institutions and economic sophistication, and the number of institutionally and economically complex country environments in which MNEs operate. With regard to the distance dimension (corresponding to the second dimension in Figure 1), we constructed two institutional distance and economic sophistication distance variables. The institutional distance variable derives from Kaufmann, Kraay, and Mastruzzi's (2005) six governance indicators and is measured through the Euclidean distance between the home and the subsidiary host country (Beugelsdijk, Ambos, & Nell, 2020; Dikova, 2012).[13] Again, using the median values, we built the two dummies *high economic distance* and *high institutional distance*, as well as the four dummies *high economic distance and low institutional distance*; *high institutional distance and low economic distance*; *high economic distance and high institutional distance*; and *low economic distance and low institutional distance*. Results of this robustness check are reported in Table 5, where we find that both the first and second hypotheses are supported by our analysis. However, the interaction effect between high economic distance and high institutional distance is not significant. We also tested the economic and institutional distance variables in their continuous form (which we do not report here for the sake of space). Once again the second hypothesis is supported, while the first hypothesis receives limited support, i.e. only when the institutional distance is high and the economic distance is low. Using the continuous distance variables, the interaction is negative and significant ($p < .1$).

Finally, we investigated the number of countries in which the MNE operates as a source of environmental complexity (corresponding to the first dimension in Figure 1). The number of foreign countries in which the MNE operates corresponds to the *foreign countries* variable, which is a control variable in all of our models. We find that this variable is non-significant, even if we remove our main independent variables. We also count the number of countries with

TABLE 4 High complexity from economic sophistication and high complexity from (low) institutional quality as antecedent of executive generalist appointment, robustness check, Tobit regression analyses on Executives' appointments occurring between 2009 and 2018

	(1) high complexity from economic sophistication	(2) high complexity from institutional quality		(3) both high complexity from economic sophistication and high complexity from institutional quality		(4) interaction between high complexity from economic sophistication and high complexity from institutional quality		(5) international environment complexity dummy matrix	
Variables	**Est**	***p*-Value**	**Est**	***p*-Value**	**Est**	***p*-Value**	**Est**	***p*-Value**	**Est**	***p*-Value**
Executive age	0.006 (0.005)	.166	0.006 (0.005)	.175	0.006 (0.005)	.164	0.006 (0.005)	.164	0.006 (0.005)	.164
Executive gender	0.024 (0.132)	.857	0.026 (0.133)	.844	0.024 (0.132)	.854	0.022 (0.132)	.870	0.022 (0.132)	.870
Executive insider	−0.166** (0.071)	.019	−0.161** (0.071)	.024	−0.166** (0.071)	.019	−0.167** (0.071)	.018	−0.167** (0.071)	.018
Executive dissimilarity	0.024 (0.334)	.943	0.051 (0.338)	.879	0.025 (0.334)	.940	0.020 (0.334)	.953	0.020 (0.334)	.953
CEO function	0.204* (0.117)	.082	0.212* (0.118)	.073	0.204* (0.117)	.082	0.204* (0.117)	.083	0.204* (0.117)	.083
Throughput function	−0.061 (0.110)	.577	−0.057 (0.110)	.606	−0.061 (0.109)	.579	−0.062 (0.110)	.571	−0.062 (0.110)	.571
Output function	0.186 (0.122)	.128	0.185 (0.123)	.133	0.186 (0.122)	.127	0.187 (0.122)	.127	0.187 (0.122)	.127
Regional responsibility	0.762*** (0.199)	.000	0.776*** (0.203)	.000	0.763*** (0.200)	.000	0.765*** (0.200)	.000	0.765*** (0.200)	.000
TMT tenure diversity	−0.007 (0.012)	.564	−0.008 (0.012)	.530	−0.007 (0.012)	.563	−0.007 (0.012)	.563	−0.007 (0.012)	.563

(Continues)

TABLE 4 (Continued)

Variables	(1) high complexity from economic sophistication	(2) high complexity from institutional quality		(3) both high complexity from economic sophistication and high complexity from institutional quality		(4) interaction between high complexity from economic sophistication and high complexity from institutional quality		(5) international environment complexity dummy matrix	
	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value
TMT demographic diversity	0.383*** (0.098)	.000	0.377*** (0.099)	.000	0.383*** (0.098)	.000	0.384*** (0.098)	.000	0.384*** (0.098)	.000
TMT work experience diversity	−0.015 (0.128)	.910	−0.011 (0.129)	.929	−0.015 (0.128)	.908	−0.014 (0.128)	.915	−0.014 (0.128)	.915
CEO career variety	−0.072 (0.089)	.420	−0.067 (0.090)	.454	−0.072 (0.089)	.418	−0.074 (0.089)	.406	−0.074 (0.089)	.406
CEO tenure	−0.008 (0.005)	.154	−0.008 (0.005)	.156	−0.008 (0.005)	.155	−0.008 (0.005)	.156	−0.008 (0.005)	.156
CEO duality	−0.021 (0.084)	.806	−0.019 (0.085)	.826	−0.020 (0.084)	.811	−0.022 (0.084)	.797	−0.022 (0.084)	.797
Board Independence	0.595** (0.233)	.011	0.584** (0.234)	.013	0.596** (0.233)	.011	0.596** (0.233)	.011	0.596** (0.233)	.011
Foreign countries	0.006 (0.008)	.467	0.005 (0.008)	.475	0.005 (0.008)	.472	0.006 (0.008)	.454	0.006 (0.008)	.454
Firm size	−0.018 (0.026)	.477	−0.016 (0.026)	.547	−0.019 (0.026)	.469	−0.019 (0.026)	.459	−0.019 (0.026)	.459
Firm declining performance	0.048 (0.092)	.602	0.063 (0.098)	.516	0.048 (0.092)	.602	0.041 (0.091)	.650	0.041 (0.091)	.650
Industrial diversification	0.089** (0.037)	.017	0.085** (0.038)	.025	0.089** (0.037)	.017	0.089** (0.037)	.018	0.089** (0.037)	.018

TABLE 4 (Continued)

Variables	(1) high complexity from economic sophistication		(2) high complexity from institutional quality		(3) both high complexity from economic sophistication and high complexity from institutional quality		(4) interaction between high complexity from economic sophistication and high complexity from institutional quality		(5) international environment complexity dummy matrix	
	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value
Industry dynamism	−0.134 (0.660)	.840	−0.075 (0.666)	.910	−0.134 (0.660)	.840	−0.135 (0.660)	.838	−0.135 (0.660)	.838
Industry declining performance	−0.286 (0.401)	.475	−0.313 (0.404)	.439	−0.288 (0.401)	.473	−0.286 (0.401)	.475	−0.286 (0.401)	.475
Average industry internationalization	0.707 (0.498)	.156	0.738 (0.499)	.139	0.705 (0.498)	.157	0.701 (0.499)	.160	0.701 (0.499)	.160
Industry technology intensity	−0.001 (0.044)	.982	−0.007 (0.044)	.873	−0.001 (0.044)	.986	−0.000 (0.044)	.993	−0.000 (0.044)	.993
Country market growth	−0.005 (0.004)	.270	−0.005 (0.005)	.291	−0.006 (0.005)	.203	−0.006 (0.005)	.207	−0.006 (0.005)	.207
High complexity from economic sophistication	−0.182*** (0.057)	.002			−0.177*** (0.057)	.002	−0.117** (0.049)	.017		
High complexity from institutional quality	—		0.042 (0.032)	.178	0.021 (0.030)	.485	0.139** (0.064)	.030		
High complexity from economic sophistication * high complexity from institutional quality							−0.135** (0.067)	.044		

(Continues)

TABLE 4 (Continued)

Variables	(1) high complexity from economic sophistication	(2) high complexity from institutional quality		(3) both high complexity from economic sophistication and high complexity from institutional quality		(4) interaction between high complexity from economic sophistication and high complexity from institutional quality		(5) international environment complexity dummy matrix	
	Est	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value
High complexity from economic sophistication and low complexity from institutional quality								−0.117** (0.049)	.017
High complexity from institutional quality and low complexity from economic sophistication								0.139** (0.064)	.030
High complexity from economic sophistication and high complexity from institutional quality								−0.113** (0.056)	.045
Year dummies	**Yes**	**Yes**		**Yes**		**Yes**		**Yes**	
Constant	−0.047 (0.525)	−0.239 (0.520)		−0.053 (0.525)		−0.105 (0.520)		−0.105 (0.520)	
Observations	1,628	1,628		1,628		1,628		1,628	
Prob > χ^2	0.000	0.000		0.000		0,000		0.000	
Pseudo R^2	0.207	0.204		0.207		0.207		0.207	

Note: Robust standard errors in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

TABLE 5 – High economic distance and high institutional distance as antecedent of executive generalist appointment, baseline specification, Tobit regression analyses on Executives' appointments occurring between 2009 and 2018

	(1) international environment complexity dummy matrix		(2) high economic distance		(3) high institutional distance		(4) high economic distance & high institutional distance		(5) interaction between high economic distance and high institutional distance	
Variables	**Est**	***p*-Value**	**Est**	***p*-Value**	**Est**	***p*-Value**	**Est**	***p*-Value**	**Est**	***p*-Value**
Executive age	0.006 (0.005)	.157	0.006 (0.005)	.166	0.006 (0.005)	.166	0.006 (0.005)	.159	0.006 (0.005)	
Executive gender	0.022 (0.132)	.868	0.024 (0.132)	.857	0.024 (0.132)	.859	0.023 (0.132)	.863	0.022 (0.132)	.868
Executive insider	−0.166** (0.071)	.019	−0.166** (0.071)	.019	−0.160** (0.071)	.024	−0.165** (0.071)	.019	−0.166** (0.071)	.019
Executive dissimilarity	0.022 (0.333)	.948	0.024 (0.334)	.943	0.043 (0.337)	.898	0.023 (0.333)	.946	0.022 (0.333)	.948
CEO function	0.204* (0.117)	.083	0.204* (0.117)	.082	0.211* (0.118)	.074	0.204* (0.117)	.082	0.204* (0.117)	.083
Throughput function	−0.060 (0.109)	.583	−0.061 (0.110)	.577	−0.055 (0.110)	.616	−0.059 (0.110)	.589	−0.060 (0.109)	.583
Output function	0.188 (0.122)	.124	0.186 (0.122)	.128	0.187 (0.123)	.129	0.188 (0.122)	.124	0.188 (0.122)	.124
Regional responsibility	0.760*** (0.198)	.000	0.762*** (0.199)	.000	0.774*** (0.202)	.000	0.764*** (0.199)	.000	0.760*** (0.198)	.000
TMT tenure diversity	−0.007 (0.012)	.559	−0.007 (0.012)	.564	−0.008 (0.012)	.526	−0.007 (0.012)	.557	−0.007 (0.012)	.559
TMT demographic diversity	0.385*** (0.098)	.000	0.383*** (0.098)	.000	0.380*** (0.098)	.000	0.385*** (0.098)	.000	0.385*** (0.098)	.000
TMT work experience diversity	−0.014 (0.128)	.914	−0.015 (0.128)	.910	−0.011 (0.129)	.932	−0.014 (0.128)	.911	−0.014 (0.128)	.914
CEO career variety		.394		.420		.426		.402		.394

(Continues)

TABLE 5 (Continued)

Variables	(1) international environment complexity dummy matrix		(2) high economic distance		(3) high institutional distance		(4) high economic distance & high institutional distance		(5) interaction between high economic distance and high institutional distance	
	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value
	−0.076 (0.089)		−0.072 (0.089)		−0.071 (0.089)		−0.075 (0.089)		−0.076 (0.089)	
CEO tenure	−0.008 (0.005)	.151	−0.008 (0.005)	.154	−0.008 (0.005)	.150	−0.008 (0.005)	.151	−0.008 (0.005)	.151
CEO duality	−0.021 (0.084)	.803	−0.021 (0.084)	.806	−0.019 (0.085)	.819	−0.020 (0.084)	.809	−0.021 (0.084)	.803
Board Independence	0.597** (0.232)	.010	0.595** (0.233)	.011	0.586** (0.233)	.012	0.597** (0.232)	.010	0.597** (0.232)	.010
Foreign countries	0.006 (0.008)	.460	0.006 (0.008)	.467	0.005 (0.008)	.477	0.005 (0.008)	.475	0.006 (0.008)	.460
Firm size	−0.021 (0.026)	.428	−0.018 (0.026)	.477	−0.018 (0.026)	.495	−0.020 (0.026)	.439	−0.021 (0.026)	.428
Firm declining performance	0.043 (0.091)	.636	0.048 (0.092)	.602	0.058 (0.096)	.544	0.046 (0.091)	.618	0.043 (0.091)	.636
Industrial diversification	0.090** (0.037)	.016	0.089** (0.037)	.017	0.086** (0.038)	.023	0.090** (0.037)	.017	0.090** (0.037)	.016
Industry dynamism	−0.146 (0.659)	.825	−0.134 (0.660)	.840μ	−0.094 (0.664)	.888	−0.142 (0.659)	.830	−0.146 (0.659)	.825
Industry declining performance	−0.288 (0.400)	.472	−0.286 (0.401)	.475	−0.316 (0.402)	.432	−0.292 (0.399)	.464	−0.288 (0.400)	.472
Average industry internationalization	0.703 (0.498)	.158	0.707 (0.498)	.156	0.737 (0.497)	.139	0.707 (0.498)	.156	0.703 (0.498)	.158

TABLE 5 (Continued)

Variables	(1) international environment complexity dummy matrix		(2) high economic distance		(3) high institutional distance		(4) high economic distance & high institutional distance		(5) interaction between high economic distance and high institutional distance	
	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value	Est	*p*-Value
Industry technology intensity	−0.001 (0.044)	.987	−0.001 (0.044)	.982	−0.007 (0.044)	.881	−0.001 (0.044)	.983	−0.001 (0.044)	.987
Country market growth	−0.009** (0.004)	.046	−0.005 (0.004)	.270	−0.009** (0.004)	.047	−0.009** (0.004)	.042	−0.009** (0.004)	.046
High economic distance and low institutional distance	−0.119** (0.051)	.020								
High institutional distance and low economic distance	0.153** (0.071)	.031								
High economic distance and high institutional distance	−0.057 (0.065)	.380								
High economic distance			−0.182*** (0.057)	.002			−0.159*** (0.057)	.005	0.153** (0.071)	.031
High institutional distance					0.107*** (0.036)	0.003	0.076** (0.034)	.026	−0.119** (0.051)	.020
High economic distance × high institutional distance									−0.091 (0.073)	.213
Year dummies	**Yes**		**Yes**		**Yes**		**Yes**		**Yes**	
Constant	−0.101 (0.518)		−0.047 (0.525)		−0.231 (0.518)		−0.066 (0.523)		−0.101 (0.518)	
Observations	1,628		1,628		1,628		1,628		1,628	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000	
Pseudo R^2	0.208		0.207		0.205		0.208		0.208	

Note: Robust standard errors in parentheses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

high institutional or economic complexity where MNEs have subsidiary operations, as well as measuring the institutional and economic complexity of the MNE portfolio as a weighted average of the operating countries of the firm (Wu & Park, 2019). The weight assigned to each country is based on the ratio of subsidiaries located in that country over the total number of MNE subsidiaries. Results of these tests show that MNE portfolio-level institutional and economic complexity measures do not produce statistically significant results.

6 | DISCUSSION AND CONCLUSIONS

In this study, we investigate two central aspects of international business complexity—that is the institutional and economic environments in which firms compete and operate—and suggest how firms can respond effectively to different types of country environment complexity. We contend that one of the fundamental organizational mechanisms that companies leverage to address the challenges and demands of their external environment is by acting on their managerial resources to enhance information-processing and decision-making capacity (Keck, 1997; Keck & Tushman, 1993). Thus, we build on the concept of executive job demands to understand how different sources of environmental complexity produce distinct pressures and unique task and performance demands, which companies are likely to match by recalibrating the experience profile of their top leadership team (Hambrick et al., 2005). Our empirical results confirm our expectation that executives with a specialist background will be preferred over generalists when firms are dealing with national environments characterized by high complexity deriving from economic sophistication. Top managers with more specialized knowledge, dense industry networks, and country-specific experience are more likely to possess the required knowledge-depth to effectively navigate economically sophisticated and specialized environments, and to design suitable strategies to survive and thrive in more economically advanced, competitive, and innovative national contexts. We find some (albeit weaker) support for our hypothesis that generalists are preferred by firms facing high environmental complexity stemming from institutional ambiguity. This finding suggests that the knowledge-breadth and diverse information-processing capabilities of generalist executives will be valued by firms facing high levels of complexity deriving from institutional ambiguity, and that this is particularly the case when firms simultaneously operate in less economically advanced environments.

Our further analysis shows the need to hire a specialist executive in the presence of both complexity sources. This finding is in line with the literature suggesting that complexity, in general, affects the hiring of new executives by opening up the process to a wider range of candidates whose profiles are different from incumbents (Georgakakis et al., 2021) and increases the need for advanced specialists to handle non-routine problem-solving and decision-making (Child, 1973; Smith & White, 1987), Indeed, when a firm faces an economically sophisticated environment in an institutionally ambiguous national context, the need for generalist capabilities is likely to arise only if the ambiguous institutional environment hinders exploitation of the specific knowledge domains in which the MNE is focusing its investment. In such cases, the institutional demands stemming from business networks and private connections are also likely to be more specific and reflect the economic specialization of the host country, thus further reinforcing the need for a specialist executive to manage not only the advanced economic environment, but also the institutional ambiguities associated with specific knowledge domains. Hence, while acknowledging that generalists are likely to be effective bridge-builders and consolidators under conditions of high institutional ambiguity, our findings overall suggest that this

is most likely to hold if the environment is not simultaneously characterized by a high degree of economic sophistication, which rather requires specialist expertise to effectively navigate high levels of knowledge- and technology-intensity.

6.1 | Theoretical contributions

Our research contributes to the IB and strategic leadership literature in a few important ways. First, we provide an overarching framework of complexity that combines organizational and IB perspectives. By studying institutional ambiguity and economic sophistication as complementary and interacting sources of environmental complexity, and by extensively examining alternative operationalizations of the other dimensions and sources of institutional and economic complexity in our additional analysis, we take a step towards a more comprehensive understanding of how environmental complexity affects executive job demands at MNEs.

Second, we highlight how the appointment of generalist and specialist top managers materializes in response to the country-level complexity faced by multinational firms in their subsidiary locations. In other words, in line with the recent stream of literature emphasizing the need to understand the micro-foundations of firms' global strategies (Contractor et al., 2018; Elia et al., 2021), and building on the study by Kunisch et al. (2019), we highlight the central role of CEOs and top managers as key MNE decision-makers, by stressing the importance of matching their backgrounds (in terms of international, functional and industry experience) to the type of challenges that arise from international business operations, such as those posed by institutional and economic sources of complexity.

With regard to the strategic leadership literature, our contribution is twofold. First, we add further nuances to our understanding of how generalist and specialist executive backgrounds are related to organizational phenomena. While existing literature has largely focused on the relationship between executive generalist backgrounds and compensation or the performance implications of companies headed by generalists (Custódio et al., 2013; Custódio, Ferreira, & Matos, 2019; Li & Patel, 2019; Mueller et al., 2021), our study explores the antecedents of executive generalist appointments. While it is beyond the scope of this study to debate the pros and cons of generalist and specialist backgrounds, our study shows the importance of understanding the company context to determine which type of executive profile is more likely to be valued and, hence, appointed to the executive management team.

Second, this research contributes to the executive appointment literature by uncovering the strength of environmental forces in the executive selection process. While extant research has investigated the role of environmental complexity as an antecedent of executive selection (Greve et al., 2015; Nielsen, 2010), most of the executive appointment literature has focused on firm-level characteristics and, especially, on the team and individual-level factors that intervene in the executive selection process (Boone et al., 2004; Doms & Zu Knyphausen-Aufseß, 2014; Georgakakis et al., 2021; Zhu, Shen, & Hillman, 2014). Along the same lines, the executive job demands perspective outlines how macro-level factors (e.g., country-level phenomena) can affect micro-level processes (e.g. executive selection at individual- and team-level). In line with this approach, our research considers the characteristics of country environments among the antecedents of executive job demands, extending the work of Kunisch et al. (2019) by shifting the attention from the internal to the external sources of complexity influencing executives' job demands and, thus, the appointment of new executives.

6.2 | Managerial implications

Our study suggests the importance of finding the right match between executive backgrounds and the company's external environment. Although we do not study the performance implications of the examined relationships, we show that firms display a preference for different types of executive profiles depending on the characteristics of the external environment. Overall, our findings can be valuable both for aspiring executives as well as for companies' career development activities. Individuals who aspire to become executives should thoroughly examine the characteristics of the specific companies and industries in which they aim to advance their careers and gain experience aligned to the executive job demands associated with those environments. On the other hand, companies may use the insights provided by our research to design career development activities for promising individuals within their organization that are consistent with the long-term strategic plans of the firm and its external environment. At companies that are likely to require generalist executives, this means sending employees on international assignments, encouraging job rotation across functional areas and industries, and other development activities aimed to increase the breadth of the managers' experience. Conversely, firms that are more likely to need specialist executives must focus on retaining their employees, developing their firm and industry-specific experience, and providing them with additional training activities focused on developing specialized knowledge. In this case, the managers' knowledge-depth and specialized expertise are likely to matter more than their knowledge and experience variety.

6.3 | Future research

Future research may consider other aspects of firm internationalization as potential antecedents of executive appointments. It could be fruitful to discern how distinct sources of international business complexity affect the job requirements of a new appointee. Future research may consider other internal (e.g. firm-level performance) and external (e.g., industry-level performance) contingencies as additional potential sources of complexity influencing executive selection.

Future research could also thrive on investigating how micro-level mechanisms underpinning executive selection (e.g., social categorization, attraction-selection-attrition, homophily) may interact with executive job demands. Scholars still need to disentangle the conflicting forces that shape executive selection decisions. On the one hand, increasingly complex environments demand that companies hire executives who can adequately meet complex task demands and effectively support the other top management team members in strategic decision-making activities. On the other hand, theories of homosocial reproduction suggest that management teams are more likely to favor candidates with similar characteristics to themselves (Schneider, 1987). Future studies need to further disentangle these multi-level countervailing forces that affect executive appointment decisions.

Future research should also consider the role of power dynamics and governance. Personal preferences of powerful individuals within the decision-making team can become pronounced when monitoring and control mechanisms are weak (e.g., CEO duality, lack of board independence, extensive CEO tenure) (Arthur, 2001; Berns & Klarner, 2017; Li & Jones, 2019). Another fruitful direction may be to study whether newly appointed executives are replacing dismissed or retiring managers, or whether they are additions to the incumbent management team. In the case of replacement and dismissal, future studies can assess the degree of background similarity between incoming and outgoing executives and ascertain how convergent and divergent forces shape executive team composition over time in response to macro-, meso- and micro-level influences.

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ENDNOTES

[1] Note that we consider the other two dimensions of environmental complexity in the additional evidence section.

[2] We used two versions of the GEI indicator, one including and the other excluding "The level of general trust" item retrieved from the World Value Survey. Results are consistent across the two operationalizations of the GEI indicator, and this is not surprising given that the correlation between the two indicators is close to 1. In Table 5, however, we have reported only the results that leverage the GEI indicator excluding "The level of general trust" item, as the World Value Survey obtained responses for less than half of our subsidiary host countries; hence, if this item were to be included would lead to a severe drop of our observations and potentially confuse the reader.

[3] For instance, in 2008 ECI country values ranged from 2.257 (i.e. Japan) to −2.608 (i.e. Chad).

[4] The 436 appointments are distributed as follows among the different functional areas: Output functions (13%), Throughput functions (48%), Regional responsibility (2%), CEO function (27%) and remaining ones fall into other general management positions.

[5] We have identified the following educational levels: high school diploma or its equivalent (1), vocational qualification (2), executive program (3), bachelor level (4), graduate master level (5), postgraduate master level (6) and finally, doctoral level (7). For each executive we consider only their highest educational level.

[6] *TMT demographic diversity*, *TMT work experience diversity* and *CEO career variety* measures were aggregated summing up the different components.

[7] In this computation we classify industries by their first 2 digits of NACE Rev. 2 (Georgakakis & Ruigrok, 2017).

[8] We clarify that to construct *Industry declining performance*, *Industry dynamism* and *Average industry DOI* variables, we have collected the information required for a bigger sample of firms than those of our sample. The data were acquired from Fame database, inserting the following criteria: UK-based companies, 50–2,000 employees and NACE Rev ranging from 10–32.

[9] Classification is based on NACE Rev.2 2-digit Sic Codes. Specifically, 21 and 26 are classified as High-Technology; 20, 27, 28, 29, 30 Medium-High-Technology; 19, 22, 23, 24, 25, 33 Medium-Low-Technology; 10, 11, 12, 13, 14, 15, 16, 17, 18, 31, 32 Low-Technology.

[10] Results of OLS regression analyses will be made available by the authors upon request.

[11] More specifically, we rely on the compound Index of Economic Freedom, which captures the extent to which the economy of a country is free from restrictions and supported by highly functioning institutions and transparent rules (Bjornskov & Foss, 2016; Gwartney & Lawson, 2003).

[12] The institutional indicators are the following: Rule of Law (i.e. property rights, government integrity, judicial effectiveness), Government Size (i.e. government spending, tax burden, fiscal health), Regulatory Efficiency (i.e. business freedom, labor freedom, monetary freedom) and Open Markets (i.e. trade freedom, investment freedom and financial freedom).

[13] These variables have been computed to reflect both absolute and actual distances. The latter operationalizations provides an additional piece of information that concerns the direction of the distance. However, as the results do

not differ across the two operationalization, we only report the results of the empirical testing concerning the actual value of distance for the sake of space. The scant difference between the two operationalizations of economic specialization and institutional distance are explained by two factors: all the sample companies are headquartered in the same home country and in the sample period the United Kingdom is steadily in the top decile for both the Economic Complexity and Institutional Advancement dimension (which is operationalized through the same dimensions utilized to compute the institutional distance between the home and host country). In this sense, the UK being almost at the extremes of both rankings, absolute distances are highly correlated with their corresponding actual distance values, as FDIs in countries that are more institutionally advanced or more economically specialized than the United Kingdom (e.g. Japan, Singapore, United States, Switzerland) will produce very small numbers, close to zero in most cases.

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