

The micro-foundations of industrial diversification through foreign acquisitions: the multifaceted role of CEO experience

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The microfoundations of industrial diversification through foreign acquisitions: the multifaceted role of CEO experience

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Abstract

This paper examines the micro-foundations of cross-border industrial diversification strategies. We examine the impact of observable CEO experience attributes on the propensity to acquire foreign target firms in unrelated (versus related) industries. We test our hypotheses on a sample of UK-based firms that engaged in cross-border acquisitions between 2010 and 2016. Our findings support an inverted U-shaped relationship between *life experience* of the CEO and the likelihood of engaging in unrelated foreign acquisitions. Further, we find that CEOs' broad-based *work experience*, across countries or industries, is associated with a higher propensity to engage in unrelated foreign acquisitions. Finally, CEOs' *education experience* in MBA-type qualifications is associated with a preference for related foreign acquisitions. We discuss the theoretical implications of these findings and outline directions for future research in the context of micro-foundations in international business, strategic leadership, and upper echelons theory.

Keywords: micro-foundations, foreign acquisition, diversification, CEO, international experience, strategic leadership, upper echelons

1. Introduction

While many firms have been successful in implementing industrial diversification strategies, others have faced costly failures. The strategic management literature, which has emphasized the distinction between related and unrelated acquisitions (e.g. Chakrabarti & Mitchell, 2016; Halebian et al., 2017), has found contrasting results with regard to the implications of industrial diversification strategies. Indeed, although related acquisitions have been shown to enhance operational synergies (e.g. King et al., 2008; Halebian & Finkelstein, 1999; Kusewitt, 1985; Morck et al., 1990; Singh & Montgomery, 1987; Seth, 1990), there is still mixed evidence on the antecedents and implications of different acquisition and diversification strategies (King et al., 2004; Zollo & Singh, 2004). One possible explanation for the lack of conclusive findings may be that most prior studies of the motivations underlying acquisition-based diversification strategies have insufficiently considered the influence of individual decision-makers at the apex of the firm. Recent research has started to close this gap by providing evidence that individual-level factors – and CEOs' human capital in particular – are more relevant than firm-level factors in determining the strategic acquisition behaviour of firms and their subsequent performance (Meyer-Doyle et al., 2019).

Individual factors become arguably even more crucial when industrial diversification overlaps with geographical diversification, considering the challenges that firms may face in high-risk-high-reward cross-border acquisition strategies (Markides, 1997). Indeed, when tasks are complex and demands are high, strategic decisions are more likely to be influenced by the individual characteristics, experiences and motivations of key decision-makers (Hambrick et al., 2005). Studying the managerial determinants underlying the choice of diversification in cross-border acquisitions is an important contribution to the ongoing debate probing into the impact of top managers' experience and cognitions on internationalization outcomes (e.g. Aharoni et al., 2011; Brouthers & Hennart, 2007; Buckley et al., 2007; Buckley et al., 2016; Kano & Verbeke, 2019). While some relationships between top manager characteristics and international business (IB) outcomes are already well-established (for a review see Kirca et al., 2012) and recent research has shown that top managers' cognition and experience significantly impact the internationalization process (e.g. Li & Cui, 2018; Maitland & Sammartino, 2015), there is still limited theorizing and empirical evidence on how specific managerial attributes and inclinations, such as the risk-taking propensity, influence foreign direct investment

(FDI) decisions (Buckley et al., 2016). Indeed, as with industrial diversification, extant research on international acquisition strategies has mainly focused on firm-level, industry-level, and country-level explanations, while largely neglecting the micro-level dimension. This is an important research gap in view of the considerable literature examining the influence of CEOs and top managers on organizational outcomes (e.g. Carpenter et al., 2004; Finkelstein et al., 2009; Escribá-Esteve et al., 2009; Wang et al., 2016).

We examine this line of enquiry by focusing on CEO experience. We develop and test a set of hypotheses focusing on how different categories of CEOs' experience affect industrial diversification decisions in international acquisitions. This follows recent studies highlighting the critical importance of CEO-level factors as determinants of acquisition behavior (Meyer-Doyle et al., 2019) and emphasizing the need for more research linking CEO attributes, risk propensity, and non-performance acquisition outcomes (Devers, et al., forthcoming). In our study we adopt a managerial risk-taking perspective (Hoskisson et al., 2017), purporting that, in line with the Upper Echelons (UE) approach (Hambrick & Mason, 1984), strategic choices associated with uncertain organizational outcomes are the result of CEOs' risk-taking propensities. More specifically, we first distinguish between *related* and *unrelated acquisitions*, whereby the former are mainly exploitative in nature and, hence, are more likely to be adopted by risk-averse CEOs, while the latter tend to be more explorative in nature, and as such they are associated with a higher CEO risk propensity (Rabbiosi et al., 2012). Subsequently, building on Hoskisson et al. (2017), we develop hypotheses on the role of three different categories of CEO observable experience attributes affecting managerial risk-taking: (a) *life experience*; (b) *work experience*; and (c) *educational experience*. Our hypotheses are then tested on acquisitions of foreign companies undertaken by a sample of UK firms between 2010 and 2016. Our results suggest that different types of CEO experience are differently associated with the propensity to engage in unrelated cross-border acquisitions. In particular, (a) life experience, as measured by CEO age, has an inverted-U shaped relation; (b) broad-based work experience across countries and industries has a positive relation; (c) CEOs' education experience in MBA-type qualifications is associated with a preference for related foreign acquisitions.

The contribution of this study is twofold. First, our study adds to the literature on strategic decision-making in international business (e.g. Aharoni et al., 2011; Brouthers & Hennart, 2007) by showing that observable CEO experience characteristics matter in complex decision-making pertaining to international diversification strategies. We contribute to this debate by developing and testing a model of the ‘managerial micro-foundations’ of firm risk-taking behavior in the context of cross-border acquisitions. Thus, we help to build a more nuanced view of managerial influence in FDI decision-making, by showing how CEO experience is associated with the decision to engage in unrelated diversification in cross-border acquisitions. Based on our findings, we outline how an understanding of the micro-level determinants of risk-taking in foreign acquisitions complements other higher-level explanations of international diversification strategies.

Second, we make a contribution to the UE and strategic leadership literature from a managerial risk-taking perspective by answering Hoskisson et al.’s (2017) call to better understand the firm-level outcomes (rather than the antecedents) of managerial risk-taking. More specifically, we show how different categories of observable experiences – i.e. life, work and education experience - are distinctly associated with managerial risk-taking in the form of cross-border diversification choice.

2. Theoretical background

2.1 CEO influence on strategic outcomes

The impact of CEOs on firm-level strategic outcomes has been widely documented in the strategic leadership literature (Samimi et al., 2020). Drawing primarily on the upper echelons perspective (Hambrick & Mason, 1984), strategic leadership research has contributed to a comprehensive understanding of how the characteristics of CEOs and strategic leaders shape organizational outcomes (Finkelstein et al., 2009). In the specific context of IB outcomes, several studies have identified a positive relationship between top management characteristics and the degree of firms’ internationalization (Sambharya, 1996; Reuber & Fischer, 1997; Buckley & Ghauri, 1999; Tihanyi et al, 2000; Carpenter & Fredrickson, 2001; Athanassiou & Nigh, 2002; Mohr & Batsakis, 2018; Vallone et al., 2019; Békés et al., 2021). Other studies have shown the influence of CEOs and top managers on firms’ internationalization performance (Herrmann & Datta, 2005;

Nielsen & Nielsen, 2013; Hsu et al, 2013; Le & Kroll, 2017) and foreign market entry mode decisions (Herrmann and Datta, 2006). However, to our knowledge no prior studies have examined the industrial diversification decision in the context of cross-border acquisitions through a micro-level lens. This section sets out why this is an important gap in existing research.

A central question in strategic leadership research is whether the basic theoretical premise – i.e. that organizational outcomes are shaped by strategic leaders' characteristics – holds across different firm-, country-, and industry-level contingencies. Whilst a general consensus on the contextual nature of key relationships has yet to emerge, the importance of studying relationships that are aligned to the study context is widely recognised (Samimi et al., 2020). When designing this study, we observed some important differences in how strategic leaders' impact has been discussed and theorised in the context of smaller versus larger firms (e.g. Hambrick & Finkelstein, 1987; Li & Tang, 2010; Buyl et al., 2014). At larger firms, the impact of CEOs and top managers is primarily described as a hierarchical and politically based influence exercised through the establishment of a unified dominant coalition at the apex of the firm (Hambrick, 1995; 2007; Finkelstein et al., 2009). At smaller firms, on the other hand, CEOs are typically described as enjoying more centralised power (Boone et al., 1996) and their predispositions are therefore more likely to have a proximate and immediate impact that manifests itself directly in strategic choices and decision-making outcomes (Miller & Toulouse, 1986; Thong & Yap, 1995). Indeed, Miller and colleagues (1982) showed that CEOs are more likely to have a dominant influence in smaller firms.

Whilst the value of focusing on larger firms in the context of strategic leaders' general impact on strategic choices and IB outcomes is not questioned, we argue that (un)relatedness in international acquisitions is a particular outcome that is likely to be influenced by micro-foundational components at the level of individual inclinations, experimentation, and risk-taking. These factors are at least equally – if not arguably more – valuable to study outside the large-firm context, as smaller-firm CEOs are likely to have more face-to-face contact at the 'coalface' – thus adding personal leverage and legitimacy to strategic decisions that have a major directional impact on the growth and development of the firm. By shifting the focus away from large firms only, we broaden our understanding of how CEOs affect strategic choices and outcomes in the context

of international acquisitions and diversification, which in turn are instrumental in shaping the long-term growth trajectories of smaller firms. In the following we first discuss industrial diversification strategies and the antecedents of unrelatedness in acquisitions, and subsequently introduce a framework of how prior experience shapes CEOs' propensity to engage in industrial diversification strategies.

2.2 Industrial diversification strategies

Different definitions have been advanced in the literature to define industrial diversification strategy. The resource-based view establishes that diversification is related if it enables to transfer functional skills and capabilities (Salter & Weinhold, 1979). An alternative categorization is proposed by Rumelt (1974), who advocates that two firms are related if they serve similar markets using similar distribution channels, production technologies or scientific research. The industrial organization literature defines relatedness by relying on the industry commonalities between the acquiring and target firms in industrial diversification strategy acquisition (Haunschild, 1994; Halebian & Finkelstein, 1999). Accordingly, acquisition relatedness is assessed comparing all the industry codes (i.e. the SIC codes) associated with the acquirer and the acquired firm. Based on this comparison, the literature distinguishes between four different types of acquisitions: horizontal, related, vertical and conglomerate.

A study by Rabbiosi et al. (2012) relied on the concepts of *exploitation* and *exploration* to view industrial diversification through the lens of organizational learning. As defined by March (1991), "exploitation includes such things as refinement, choice, production, efficiency" (p. 2). In other words, exploitation is the deployment and improvement of the existing organizational knowledge in order to create value for the firm (Grant & Baden-Fuller, 2004). Firms commit to exploitation to leverage their existing skills and capabilities and improve them further. Indeed, developing existing firm capabilities enables them to reach higher productivity, cost reductions and higher organizational reliability. On the other hand, exploration involves a sizable shift away from the firm's current knowledge and skills (Lavie et al., 2010). March (1991) defines exploration as organizational activities that entail "a search, variation, risk-taking, experimentation, play, flexibility, discovery, innovation" (p. 2). Exploration implies searching for new knowledge, capabilities,

and skills that are partially or completely unknown to the firm, depending on the extent of the exploration. Such knowledge can be related to new technical skills, market expertise, or external relationships. Indeed, exploration can be essential to the extent of a firm's survival as it enhances the firm's capacity to change and adapt to a dynamic and turbulent external environment.

A related acquisition can be seen as a strategic move that aims at improving and refining an organization's existing knowledge and capabilities as it exposes the firm to stimuli that are familiar to the organization's cognitive setting (Rabbiosi et al., 2012). Related investments allow to extend acquiring firms' activities to similar products and markets, enabling diverse opportunities such as economies of scale and scope or market positioning gains. Moreover, it is shown that the gains will increase when the overlap between the acquiring and the acquired firm is higher. For these reasons, related acquisitions are arguably associated with exploitation opportunities, which occur within the 'comfort zone' of the acquiring company. On the contrary, unrelated diversification can be interpreted as a more explorative move as it entails a higher degree of risk, experimentation and change. Furthermore, unrelated acquisitions open up to a vast set of opportunities that leverage products, markets or technology that are relatively new to the firm. Unrelated acquisitions imply a significant cognitive distance between the acquiring and the acquired firm, which fosters organizational learning (Rabbiosi et al., 2012). Firms are exposed to a new environment, where previous knowledge can be scarcely applied, and consequently, they must learn how to handle new situations and opportunities. Thus, the firm's knowledge base is challenged and forced to expand outside of the existing organization's boundaries.

Based on these arguments, we contend that an entry into a foreign country through a related acquisition falls within the category of exploitative moves, whereas an unrelated acquisition, which entails greater risk and novelty, represents a strategy of exploration. This distinction is fundamental in the development of our hypotheses, given that, in a context of internationalization which already entails its own complexities, risks and uncertainties, industrial relatedness affects managers' risk exposure (Hoskisson et al., 2017) such that unrelated diversification (i.e. exploration) is likely to be perceived as a riskier strategy than related diversification (i.e. exploitation) by the decision makers (i.e. CEOs).

2.3 Hypotheses Development

A diversification strategy by acquisition entails a choice between the discovery of existing opportunities and the creation of new opportunities (Kor et al., 2007). In this context, the interactions of CEOs with customers, technologies and other firms are an essential part of the discovery and value creation process. On the one hand, CEOs test their ideas in the market, which, in turn, provides feedback and enables experimentation with new opportunities. On the other hand, the market is constantly changing, exposing CEOs to new influences that enhance their experience and knowledge, thus increasing the likelihood of discovering valuable exploration opportunities (McGrath, 2001). However, different CEOs are likely to perceive business opportunities in different ways, particularly if an opportunity is multifaceted and complex. Various subjective factors will influence the decision-making process, including the CEO's risk perception, due to individual cognitive differences and value systems that affect the process of absorbing, selecting, and interpreting relevant information (Hambrick & Mason, 1984). CEOs engaging in complex decision-making are therefore likely to be influenced by their subjective knowledge, deriving from past experience, and this results in individual risk perceptions and decision-making preferences that influence strategic outcomes at the firm-level.

Given our focus on the micro-level determinants of cross-border diversification strategies, we rely on the UE and strategic leadership approach to managerial risk-taking in our paper. Within the UE literature, it has been highlighted how different sets of CEO observable experiences can be crucial in shaping cognitive models that influence risk-taking propensity and decision making, thus ultimately affecting firm-level decisions – such as the internationalization and diversification choices (Hoskisson et al., 2017). CEOs' subjective experiences open up a large number of possibilities for entrepreneurial choices and activities that translate into different firm level outcomes (Kor, et al., 2007). Indeed, the versatility and subjectivity of knowledge is a key source of firm-level heterogeneity in entrepreneurial activities. Hence, CEOs' entrepreneurial characteristics, such as risk propensity (Eliasson, 1990), are profoundly influenced by the personal experience and knowledge of CEOs. On this basis, CEOs' experiences orient their decisions either towards the discovery of existing opportunities (i.e. exploitation) or to the creation of new opportunities (i.e.

exploration), which respectively lead them to the decision of pursuing related or unrelated acquisitions. Based on the preceding discussion, we develop three hypotheses aligning to the three main types of CEOs' observable experiences that are most likely to influence their risk perception in complex strategic decision-making, namely *life experience*, *work experience*, and *education experience*.

2.2.1 CEO life experience

Prior theoretical works have delved into the association between the life experience of managers and firms' strategic decisions. We define life experience as the development that occurs in individuals through their natural life-span (Datan et al., 1987). In a managerial context, life experience is commonly associated with theories of ageing and career life-span (Kanfer & Ackerman, 2004).

The continuity theory of ageing posits that increasing age is associated with a growing preference for coherence and preservation (Atchley, 1989), i.e. a predisposition for using past experience to guide current behavior (internal continuity) and an attachment to known environments, relationships, and activities (external continuity). According to Atchley, older individuals “attempt to preserve and maintain existing internal and external structures and [...] prefer to accomplish this objective by [...] applying familiar strategies in familiar arenas of life” (1989: 183). Relatedly, a psychological view of ageing suggests that older individuals are “differently competent” (Datan et al., 1987: 166), arguing that the physical and cognitive decline often associated with older age (e.g. Child, 1974) is balanced out by an increase in *wisdom* – defined as the ability to combine “experiential richness and fluidity” with “logical cohesion and stability” (Labouvie-Vief, 1990: 53). A meta-analysis by Ng and Feldman (2008) corroborates the notion that age does not significantly affect overall work performance, however it is likely to shift the focus between different types of job performance outcomes.

The age-adaptive view on the impact of managerial life experience is complemented by studies on career life-span and retirement (e.g. DeChow & Sloan, 1991; Kim & Feldman, 2000). Matta and Beamish (2008) show that strategic decision-making and risk-taking behaviors over the life-span of a managerial career are influenced by managers' career horizon. This perspective emphasizes the importance of legacy conservation

and the decreasing returns to risk-taking behavior over the life-span of a managerial career. As time-to-retirement decreases, managers are naturally less motivated and incentivized to engage in long-term investments with more uncertain outcomes, unless their perceived diminishing returns to such decisions are balanced out by monetary or other incentives (DeChow & Sloan, 1991).

Past research confirms that CEO and top manager age influences strategic decision-making and risk-taking outcomes in organizations (Wiersema & Bantel, 1992; Tihanyi et al, 2000; Herrmann & Datta, 2005; 2006). Studies have found that older executives may have less physical and mental stamina (Child, 1974), which negatively affects their ability to rapidly process information and their propensity to develop new opportunities (Taylor, 1975). As they move toward the end of their careers, older executives tend to avoid risk-taking behaviours, including “unrelated diversification, product innovation, and financial leverage” (Hambrick & Mason 1984, p. 8) that may jeopardize their legacy. Meanwhile, younger managers are more willing to accept risks, driven by their ambitions and by the potential economic and social rewards. On this basis alone, it would seem plausible to conclude that CEO age is negatively related to the risks associated with strategic decisions (Zwiebel, 1995; Holmstrom, 1999). However, the inexperience and limited track record of younger CEOs make their positions more uncertain and volatile. Additionally, younger CEOs, who still have to build up their reputation and experience, may lack the confidence to stake their future on riskier decisions with uncertain outcomes (Yim, 2013; Serfling, 2014). Taken together, these perspectives suggest that the age-adaptive processes associated with increasing age do not necessarily occur in a linear substitutive fashion (Datan et al., 1987), meaning that it is important to consider the potential non-linearity of relationships between life experience and strategic outcomes. Overall, these perspectives suggest that we are likely to find a strong behavioural element in the relationship between CEO life experience and strategic outcomes.

Based on the notion that the advantages and disadvantages of increasing age do not perfectly substitute each other over the career life-span of a CEO, we propose a mid-range perspective linking CEO age and strategic risk-taking behavior. At a mid-level age, CEOs may have acquired some of the learning, experience, and wisdom associated with older executives, while also retaining a relatively long career horizon and the energy, curiosity, and information-processing speed of their younger counterparts. For example, Agarwal et

al. (2007) suggest that these managers make the highest quality decisions as they benefit from previously acquired experience without suffering cognitive decline. Thus, we posit that mid-level aged CEOs are more inclined to commit their firms to more explorative and uncertain investments such as unrelated cross-border acquisitions. Meanwhile, younger and older CEOs, given the lack of assuredness and experience of the former and the diminishing career horizon and increasing importance of legacy conservation of the latter, may prefer to undertake less risky and complex strategic decisions, i.e. related acquisitions. Thus, we propose the following hypothesis:

Hypothesis 1: There is an inverted U-shape relationship between CEOs' age and the probability to undertake unrelated foreign acquisitions.

2.2.2 CEO Work Experience

A basic tenet of the UE literature is that past experiences shape the cognitions and biases of top executives, which in turn affect strategic decision-making and organizational outcomes. Managerial work experience is commonly associated with the concept of career capital, encompassing the accumulation of knowledge, skills, and expertise, as well as the development of relationships, networks, sense of purpose, and motivation (DeFilippi & Arthur, 1994; Dickmann & Harris, 2005). Studies have found that a broad-based career capital portfolio has a considerable impact on managers' cognitive orientation (Hsu et al., 2013) and provides managers with a number of potential advantages, such as increased self-awareness, confidence, and identity, in addition to a deep understanding of the manager's own competencies and limitations (Suutari & Makela, 2007).

Studies of variety in CEO career backgrounds have shown that CEOs with a broad range of work experiences are more inclined to pursue novel and dynamic strategies (Crossland et al., 2014; Le & Kroll, 2017). For example, numerous studies have found that internationally experienced top managers are associated with firms' degree of internationalization, internationalization performance, and foreign market entry

strategies (e.g. Sambharya, 1996; Reuber & Fischer, 1997; Carpenter & Fredrickson, 2001; Athanassiou & Nigh, 2002; Herrmann & Datta, 2005; Greve et al., 2009; Piaskowska & Trojanowski, 2014; Mohr & Batsakis, 2018). Moreover, CEOs and top managers with greater international work experience, given their enhanced ability in dealing with international operations, are likely to prefer full-control entry modes such as greenfield investments or acquisitions over shared control entry modes such as joint ventures (Herrmann & Datta, 2006; Nielsen & Nielsen, 2011). Top managers with outside industry experience have also been shown to positively impact firm internationalization strategies (Lee & Park, 2006).

Overall, a broad career background spanning multiple different environments is likely to affect a CEO's frame of reference, providing the CEO with, *inter alia*, a wider range of knowledge and perspectives, greater access to external resources, an extensive network of contacts, and more openness to new experiences, thus increasing the CEO's risk propensity (Crossland et al., 2014). For example, international work experience provides managers with greater confidence and ability to accurately assess risks and returns related to foreign investments (e.g. acquisitions) and to be more aggressive in their international expansion strategies (Tung & Miller, 1990). Conversely, CEOs with narrow career backgrounds are more likely to be risk-averse and display a preference for staying within known domains in their growth and expansion strategies (Custodio & Metzger, 2013).

Hence, managers with a more broad-based work experience background are likely to perceive a lower risk in undertaking and committing resources in international ventures. On the other hand, managers with a more limited and narrow work experience background are likely to lack the same confidence and this may contribute to an inflated risk perception and a tendency to underestimate the potential returns associated with international diversification. Owing to the higher uncertainty, risk and complexity that characterize unrelated acquisitions, we propose the following hypothesis:

Hypothesis 2: CEOs with broad-based prior work experience are more likely to undertake unrelated foreign acquisitions

2.2.3. CEO Education Experience

Professional management education is another relevant dimension that helps to shape individuals' cognitive base. Past research has found that educational background has a crucial impact on the cognitive style and personality of top managers (Holland, 1973). Hitt and Tyler (1991) found that certain academic degrees influence an executive's strategic decision-making. Other studies have found that the level of formal education attained by managers may be linked with greater innovation, knowledge and openness to change (Becker, 1970; Kimberly & Evanisko, 1981; Wiersema & Bantel, 1992). In addition, top management's education level has also been positively related to the extent of firm internationalization (Tihanyi et al, 2000; Herrmann & Datta, 2005).

However, very few scholars have investigated the effects of formal professional management education on the firm's strategic choices and performance. Some criticisms have been raised against MBAs and similar types of education, asserting that it may lead to the pursuit of short-term performance goals rather than predominantly longer-term investments in innovation and diversification (Hambrick & Mason, 1984). A similar view is set out by Collins and Moore (1970), who assert that MBA candidates, by their nature, may be less innovative and more risk-averse than 'self-made' executives. The analytical techniques taught at business schools may promote the development of rationality-based cognitive skills that reduce individuals' risk propensity by encouraging them to avoid potential losses and mistakes (Hambrick & Mason, 1984).

Therefore, although MBA and Executive Programs in management benefit early or mature professionals in many different ways (e.g. enhancing management skills, credibility, networking, etc.), we argue that they may also lead to a higher degree of moderation in their approach to investment decisions. Specifically, CEOs who received a professional degree in management, compared to those who did not, may be more rational and calculating individuals as they are more aware of the risks and uncertainties related to each firm's decision. Conversely, CEOs who did not complete MBAs or similar degrees may lack a comprehensive understanding of the implications of highly complex decisions, thus making such CEOs less uncertainty avoiding and more

inclined to undertake riskier entrepreneurial activities. Consistent with this reasoning, we propose the following hypothesis:

Hypothesis 3: CEOs with professional management education degrees are less likely to undertake unrelated foreign acquisitions

3. Data and variables

3.1 Data collection

Our sample consists of detailed data on acquisition deals, company financials and CEOs' characteristics. Considering the lengthy and labour-intensive process of acquiring information on CEOs, the sample size had to be kept manageable. To this end, we chose to identify a subset of the overall population of firms. The first step in our data collection process was to compile information about acquisition deals and company financials from the merger and acquisition (M&A) database Zephyr. Acquisition deals were selected based on the following criteria: the acquiring firms had to be based in the United Kingdom. They could not be owned or controlled by other entities, neither locally nor internationally, i.e. the acquiring firm had to be the global ultimate owner. The focus on acquiring firms that are global ultimate owners ensured that the CEOs in our study are likely to be in charge of the firms' major strategic decisions (i.e. acquisition and diversification strategies), as opposed to merely executing acquisitions on behalf of higher-level owner firms within a larger group structure.

Furthermore, we selected acquiring firms with less than 1,000 employees¹. This decision follows previous studies in the strategic leadership and IB microfoundations literature focusing on smaller or medium-

¹ We excluded firms with less than 50 employees, as such firms rarely engage in international M&As.

sized firms² (Hsu et al., 2013; Xie, 2014; Laufs et al., 2016; Villagrasa et al., 2018). It also highlights the notion that smaller firms offer a valuable complementary lens on how CEOs and strategic leaders affect organizational outcomes (Thong & Yap, 1995; Boone et al., 1996; Jansen et al., 2011; Buyl et al., 2014), as the impact of strategic leaders may indeed vary significantly across smaller and larger firms (Finkelstein and Hambrick, 1990; Hambrick and Finkelstein, 1987; Li and Tang, 2010).

Other two additional selection criteria were that acquired companies had to be based in foreign countries (i.e. other countries than UK) and acquisitions had to be majority stake (i.e. involving a change of ownership from the target to the acquirer firm). This decision relates to the fact that our theorizing focuses on strategic investments into new businesses, either related or unrelated to the existing ones. In our theoretical framework, entering unrelated business is a risky strategy, as it entails committing resources into a relatively less known industry. In minority acquisitions the motivation to diversify the financial portfolio of a firm's investments is likely to be more relevant. In this case, investing in unrelated business may be seen as less risky. Finally, our sample includes acquisitions completed in the period from 2010 to 2016.

In a second step, we integrated information on the relevant acquisition deals with data on CEO characteristics. We manually collected information on CEOs' key characteristics and experiences from corporate websites, annual reports, and other publicly available sources. After removing observations with incomplete data, the final sample includes 176 acquisitions performed by 121 CEOs employed in 116 different acquiring firms. Each firm completed an average of 1.5 international acquisition deals during the period of study.

It is worth noting the considerable geographical spread in our acquisition deals. Acquisitions span all five continents: Europe (41.47%), North America (41.47%), Asia (7.38%), Oceania (5.68%), South America (2.84%) and Africa (1.13%). The bulk of acquisitions took place in countries that are geographically, institutionally and culturally close to the UK.

² Although there is not a single dominant convention on sampling strategy and size thresholds in strategic leadership studies, it is not unusual to select a firm size range aiming to balance factors such as data availability, internal consistency, and alignment with the context and research objectives. In addition, our firm size range of 50 to 1,000 employees is broadly aligned to the sampling strategies of other studies with similar objectives. For example, Villagrasa et al. (2017) studied firms with 100-500 employees and Buyl et al. (2014) studied firms with 20-500 employees. Furthermore, in a recent study of strategic leadership in IB, Greve et al. (2015) defined large firms as firms having more than 1,000 employees.

Concerning CEOs' demographics, we observe that only 4 out of 121 CEOs are female. This is fairly consistent with official UK statistics examining the FTSE 250 index (Kollewe, 2015). Most CEOs are aged between 41 and 50 (58.0%) and between 51 and 60 (32.3%). As regards nationality, the vast majority of CEOs (76.8%) are British.

3.2 Dependent variable

As our research examines the influence of CEOs' experience on their industrial diversification choice in foreign acquisitions, our dependent variable is a dummy variable taking the value of 1 if the acquisition occurs in an unrelated industry and zero otherwise (we label it *unrelated acquisition*). In order to build our dependent variable, we categorized our sample acquisitions applying a well-established measure of acquirer-to-target relatedness (see among others, Haunschild, 1994; Capron, 1999; Haleblan & Finkelstein, 1999). Specifically, we considered all UK SIC 2007 codes attributed to the acquiring and target firms at the time of the acquisition. Building on Haunschild (1994) and Haleblan and Finkelstein (1999), we considered as related those acquisitions in which the acquiring and the target firm have at least one 2-digit SIC code in common. All other acquisitions were considered as unrelated. In robustness checks we adopt stricter definitions, limiting related acquisitions to the same 3-digits and 4-digits SIC code.

3.3 Independent variables

Our independent variables refer to CEOs' life, work, and education experiences in line with the hypothesis framework. The first independent variable, capturing the extent of CEO life experience, is *CEO age*, which is computed as the number of years from the CEO's date of birth to the year when the acquisition took place (Herrmann & Datta 2002, 2006; Hsu et al, 2013).

We use two distinct dimensions to capture broad-based prior work experience, i.e. CEO industry and international experience. Hambrick (2007) suggests that strategic leadership studies should carefully consider the manager's experience aspects that are more likely to influence his/ her own decision-making in respect to the focal strategic outcome. Hence, we adapt Georgakakis et al. (2017) construct of CEO experience variety

consistently with the outcome investigated in our study. We contend that CEO industry and international experience are the most relevant and critical aspects of work experience when contemplating international industrial diversification strategies.

CEO industry experience gauges a CEO's breadth and depth of industry experience (Lee & Park, 2006). For each CEO, we have identified the industries they have worked in. Based on the first two digits of the UK SIC 2007 code of each industry where the CEO has worked and the length of each of work spell, we have computed the Blau's (1977) heterogeneity index, which is a variation of the Herfindal-Hirschman index:

$$H = 1 - \sum_{i=1}^n p_i^2$$

In this formula, p_i represents length of a CEO's industry experience in the i_{th} sector as a share of their overall career, and n is the number of industries where the CEO has worked. The variable ranges between 0 and 1, being 0 for CEOs that have worked only in one industry throughout their career and taking higher values for CEOs with a more heterogeneous experience background. This index has been applied in previous studies to evaluate similar aspects of managerial experience such as functional and educational heterogeneity (Hambrick et al, 1996; Tihanyi et al, 2000; Musteen et al, 2006).

CEO international experience is designed to capture the overall international experience of CEOs, considering two factors: the number of countries where a CEO has worked, and the years spent in each of them. To operationalize this variable, we also apply Blau's (1977) heterogeneity index. Measuring CEO international experience adopting Blau's index formula, p_i represents the percentage in terms of length of a CEO's country experience in the i_{th} country, and n is the number of different countries where the CEO has worked. Again, values range from 0 to 1, with higher values representing a more heterogeneous experience background.

Finally, the variable *CEO MBA and Executive Education* accounts for *CEO education experience*, which is measured as a dummy variable taking the value of 1 when a CEO has obtained a formal professional management degree, and 0 otherwise.

3.4 Control variables

Our models include several control variables that we expect to account for a substantial proportion of the variance in the decision to pursue industrial diversification in foreign acquisitions.

First, we consider other individual-level variables that may affect executives' behaviour and potentially their risk propensity. *CEO cultural distance* is a proxy for the cultural distance between a CEO's nationality and the host country. The literature has widely advocated that cultural distance increases managers' perception of risk and uncertainty associated with foreign investments (Kogut & Singh, 1988). Indeed, our expectation is that significant national culture differences may lead managers to develop preferences for acquisition strategies, which *ceteris paribus* entail a lower degree of risk and complexity. To construct this variable, we considered Hofstede's cultural dimensions (Hofstede, 1980) for the CEO's country of origin (A) and the target firm host country (B), and calculated the combined Euclidean distance divided by the variance of each dimension as suggested by Morosini et al. (1998) operationalization. We focus on the four primary Hofstede's cultural dimensions (i.e. power distance, individualism, masculinity and uncertainty avoidance) as more countries are available for these dimensions. *CEO country-specific knowledge* is a measure of whether a CEO has previously worked in the country of the acquired firm. This was coded as a dummy variable taking the value of 1 when a CEO has previously worked in the target country, and 0 otherwise. *CEO acquisition experience* is operationalized as the number of acquisitions executed by the same CEO in the sample period. Finally, we consider *CEO tenure*, which is measured as the number of years served in the CEO position (Herrmann & Datta, 2002, 2006).

We then consider firm-level variables that may affect a firm's willingness to undertake unrelated (rather than related) acquisitions. *Acquirer size*, operationalized as the operating revenues of the acquiring company measured in the year prior to the acquisition (Hsu et al, 2013; Nielsen & Nielsen, 2011), is employed to capture the higher resistance to strategic change of larger firms (Tushman & Romanelli, 1985), which might favour related over unrelated acquisitions. *Acquirer age* counts the number of years starting from the firm incorporation date up to the year of acquisition. Firm age is believed to influence the degree of firms' internationalization affecting their propensity to expand internationally (Reuber & Fischer, 1997). Moreover,

Coad and Guenther (2013) found evidence that older firms are less inclined to pursue diversification strategies as they are less flexible and more tied to their existing businesses. *CEO duality* and *Outside directors* are two important corporate control variables. The former variable takes the value of 1 if the CEO is simultaneously chief executive and chairman of the board of directors (Kolev and McNamara, 2019). The latter variable counts the number of non-executive directors sitting on the board (Gales and Kesner, 1994). *Acquirer public company* is a dummy variable equal to 1 when the acquirer is a publicly held firm, and 0 when it is privately owned; it is intended to capture the larger availability of resources by public companies, which might reflect a higher propensity to explore new diversified businesses. *Acquirer performance*, measured as the Return on Assets (ROA) of the firm in the year before the acquisition, can reflect either the availability of greater financial slack to undertake explorative behaviours (Tabesh et al., 2019; Dutta et al. 2016), or a higher risk aversion triggered by the past performance above the managers' aspiration level, as suggested by prospect theory (Lu & Wong, 2018). *Acquirer industrial diversification*, which is measured by the number of distinct first-two digits UK SIC industry codes in which the firm is doing business (Barkema & Vermeulen, 1998), might result in either a higher capability of acquiring, integrating and coordinating different businesses, or a higher likelihood of entering or expanding into similar industries as the firm is already active in several different businesses. *Acquirer international experience* – measured as the number of countries in which the firm is operating at the end of the year prior to the deal (Barkema & Vermeulen, 1998; Hennart et al., 2015) - and *Acquirer country experience* – captured as a dummy variable equal to 1 when the firm is already running operations in the target country and 0 otherwise (Slangen, 2011; Meyer et al., 2009) - reflect the firm-level experience that may reduce the liability of foreignness and outsidership at the organization-level, thus favoring more risky investments. *Acquirer international acquisition experience* is the number of acquisitions undertaken by the acquirer in the ten years prior to the deal. This is employed to capture the specific routines and capabilities developed by firms with greater experience in performing acquisitions, which help them to identify suitable targets as well as integrating and coordinating their activities, even when these activities belong to unrelated businesses (Brouthers & Dikova, 2010). Finally, *Acquirer unrelated acquisition*

experience is measured as the acquirer's unrelated acquisition investments undertaken in the ten years prior to the deal, reflecting the path dependent behaviours that firms may develop over time.

In addition, we account for *geographical distance*, *host country political risk* and *EU country* as a set of additional controls at the level of the country where the target is located. *Geographical distance*, drawn from the CEPII database, may discourage firms from undertaking unrelated acquisitions owing to the increased perception of risk and uncertainty towards a more distant target country. Similar arguments can be advanced for the *Host country political risk* and *EU country* variables. The former is estimated by reversing the policy uncertainty scale retrieved from the POLCON database (Slangen, 2013), while the latter is a dummy variable which is equal to 1 if the home country of the acquired entity is part of the European economic area at the year of the acquisition, and 0 otherwise.

Finally, *Multiple acquisitions* is a variable that controls for the fact that firms may be engaged in multiple acquisitions within the time span considered in our sample. It is coded as a dummy variable taking the value of 1 if a firm completed more than two acquisition deals during the study period, and 0 otherwise. Our estimations also control for year and industry fixed effects through a vector of *year dummies* capturing possible time-specific effects which may render related acquisitions preferable to unrelated ones or vice versa, and a vector of *industry* fixed effects respectively equal to 1 following Eurostat's (2020) technological intensity classification of high, medium-high, medium-low and low-tech manufacturing industries as well as knowledge intensive and less knowledge intensive services of the acquiring firms.

4. Results

Table 1 provides the correlation matrix and the descriptive statistics of the dependent, independent and control variables. Pairwise correlation coefficients are relatively small, which suggests that our analysis does not suffer from major multicollinearity issues. This is also empirically strengthened by the VIF test that does not produce any notably high values (all values are well below the critical threshold of 10).

Given the dichotomous nature of the dependent variable we test our hypotheses by estimating a Probit econometric model. Table 2 reports the results of our Probit regression analyses by showing the coefficients

and p-values, based on standard errors clustered at the level of the acquiring company, as well as the marginal effects. Econometric estimates confirm the relevance of the relationships between CEOs' experience and the dependent variable.

Regression analyses support our hypotheses. Specifically, we find an inverted-U shaped relationship between *CEO life experience* and the unrelated diversification choice, as suggested by hypothesis 1. To corroborate the inverse U-shape non-linear relationship between CEO age and the propensity to engage in unrelated acquisitions, we carried out the three steps suggested by Haans et al. (2016) and performed Sasabuchi's test (1980) following Lind and Mehlum (2010). Both tests confirm the validity of the hypothesised non-linear relationship. The tipping point for the non-linear relationship between age and the probability of engaging in unrelated acquisitions is equal to 47.6 years. The turning point value (and its 95% confidence interval) is well within the data range and it is slightly below the average age of CEOs in our sample (49.7). Consistently with our argument, the very young CEOs (i.e. those in their thirties and early forties), who still have to build up their reputation and experience, may lack the confidence to stake their future on riskier decisions with uncertain outcomes (Yim, 2013; Serfling, 2014). Similarly, older CEOs are less likely to take on riskier diversification strategies due to their diminishing career horizon and the increasing importance of legacy conservation, thus preferring to undertake less risky and complex strategic decisions. On the other hand, mid-age CEOs (i.e. approximately in their late forties) are more inclined to commit their firms to explorative and uncertain investments such as unrelated cross-border acquisitions.

CEO industry experience and *CEO international experience* are both found to increase the likelihood that a CEO pursues an unrelated diversification strategy, thus providing support for hypothesis 2. Finally, consistent with hypothesis 3, we find a negative relationship between *CEO MBA and Executive Education* and the propensity to undertake unrelated acquisitions.

Among the control variables, we find evidence of the negative influence of CEO cultural distance on the likelihood of undertaking riskier and more uncertain foreign unrelated acquisitions. Similarly, CEO acquisition experience shows a modest negative relationship with our dependent variable. The positive sign associated with *CEO tenure* suggests that a long-lasting position at the apex of the firm increases a CEO's

confidence and capabilities in handling complex unrelated acquisition strategies. On the other hand, the CEO's knowledge of the target market is negatively associated with the probability of unrelated acquisitions. This could be explained by the fact that CEOs who have specific knowledge of the target country are more likely to be embedded in local industry networks and may therefore prefer to leverage the opportunities deriving from their existing networks in the target country, rather than using their target country connections as a springboard to explore new business opportunities in the same country. Indeed, CEOs' existing country-specific knowledge and networks could lead to myopia and a lack of objectivity in the assessment of entirely new opportunities (i.e. unrelated acquisitions), thus reducing their propensity to engage in unrelated foreign acquisitions.

Larger acquiring firms are more likely to undertake unrelated acquisitions. Although larger organizations may be more resistant to change (Tushman & Romanelli, 1985), they also possess greater financial and human resources which can be used to pursue unrelated diversification. Consistently with prospect theory, firms that perform better tend to be more risk averse. Likewise, highly diversified firms are less likely to diversify, which could be due to the increasing organizational complexity deriving from further unrelated diversification. Not surprisingly, acquiring firms with more experience in unrelated diversification are relatively more likely to pursue such strategies. At the same time, international acquisition experience is likely to rather capture prior experience in related acquisition, hence showing a negative association with the probability of engaging in unrelated acquisitions.

As our dependent variable is dichotomous, the magnitude of the coefficients reported in Table 2 cannot be immediately interpreted. Therefore, we estimated the average marginal effects (alongside standard errors and p-values) of our independent variables and results are shown in the columns next to the estimated coefficients (Hoetker, 2007). We observe that CEOs who have completed a professional management education are respectively 17.5% less likely to choose unrelated acquisitions over related ones. It is more difficult to interpret CEO industry experience and CEO international experience variables' coefficients as they are both heterogeneity indices. To facilitate our interpretation of the coefficients of these two variables, we have produced two additional tables (Table 3 and Table 4), reported in the Appendix, where we have estimated

the marginal effects of our independent variables with two additional and distinct approaches. In Table 3 we have expressed the marginal effects in terms of one standard deviation change in each independent variable³. We observe that increasing CEO industry experience and CEO international experience by one standard deviation causes respectively an increase of 0.169 and 0.170 in the standard deviation of our dependent variable. In Table 4 we have estimated the semi-elasticity of our independent variables so that a percentage point increase of each independent variable corresponds to a percentage increase in the probability of unrelated acquisitions. Accordingly, a 10% increase of CEO industry experience corresponds to a 2.12% increased probability that a CEO would undertake an unrelated acquisition, while a 10% increase in CEO international experience would lead to a 0.57% increase in the probability of undertaking unrelated acquisitions. Indeed, despite the international experience of the CEO being more statistically significant than CEO industry experience, the latter produces a greater effect on the acquisition unrelatedness diversification propensity. As a general concluding comment on the marginal effects tables (Tables 2, 3 and 4), we observe that the magnitude of the coefficients related to the CEO variables tend to be larger than the firm-, industry-, and country-level coefficients. This suggests that, in the context of unrelated diversification decisions, CEO characteristics are likely to matter more than firm- and industry-level factors, thus highlighting the importance of investigating the microfoundational antecedents of this decision.

Robustness checks and additional evidence

In order to further assess the robustness of our empirical results, we have carried out several robustness checks. First, we have tested two additional operationalizations of our dependent variable. Specifically, following Chakrabarti & Mitchell (2016), we have redefined industrial relatedness between the acquirer and the target firm by considering the first three and four common digits of the UK SIC industry codes in which the companies operate. Interestingly, this stricter definition of acquisition relatedness does not affect our

³ This means multiplying each independent variable beta coefficient, estimated by the average marginal effects as shown in Table 2, with its own standard deviation. In this way, we can estimate how much the dependent variable (i.e. the probability to undertake an unrelated acquisition) increases or decreases if the independent variable increases by one standard deviation.

results, which remain in line with those obtained based on the two-digit UK SIC industry codes measure. Results of these robustness checks are reported in Table 5 in the Appendix.

Furthermore, we decided to check for potential sample selection bias stemming from our focus on international deals only. We therefore extended our sample to include domestic deals and adopted a Heckman (1979) two-stage approach to control for potential endogeneity arising from self-selection bias following Elia et al. (2014). To implement this model, we collected information on the 117 domestic deals undertaken by the 116 firms of our sample over the 2010-2016 period and retrieved corresponding information on CEOs and company financials that were not already in our database. In the first stage, we estimated the probability of firms undertaking a foreign rather than a domestic acquisition. To this end, we needed to identify at least one variable that satisfies the exclusion restriction, i.e. a variable that explains the propensity to conduct an international (vs. domestic) acquisition, whilst being uncorrelated with the probability of the acquisition being in an unrelated (vs. related) industry. We chose the number of available domestic companies in the dominant two-digit UK SIC 2007 industry code of the acquired company at the year of the acquisition as our exclusion restriction. A greater pool of domestic firms should increase the likelihood of acquiring domestically rather than pursuing more perilous foreign deals, whereas there is no reason to expect that this should be correlated with the propensity of unrelated acquisitions. Data on the number of UK companies by industry sectors were retrieved from the UK Office for National statistics for all the years in our study.

Results of the first stage robust Probit regression analysis confirms our expectation and are presented in Table 6 in the Appendix. The number of domestic firms in the target industry code is significantly (and negatively) related to the international acquisition dummy⁴. Our tests also show that this variable does not statistically affect the choice between unrelated and related acquisitions, hence, it is a suitable exclusion restriction variable. The first stage model enabled us to compute the *inverse Mills ratio* to be used as a control in the second stage model. The second stage model is the same as our base model specification plus the inverse Mills ratio term. By examining the results of the second-stage Probit regression model, reported in Table 7 of the Appendix, we can conclude that there is no selection bias as the inverse Mills ratio is not statistically

⁴ The dependent variable of the first stage model is equal to 1 when the firm acquired is foreign and 0 when it is domestic.

significant and the results of our hypotheses remain largely unchanged. We only detect a slight change in the statistical significance of CEO age, which becomes somewhat less precisely estimated.

Finally, we carried out two robustness checks to account for any potential systematic variation between the smaller and larger firms in our sample. For this purpose, we constructed two dummy variables, i.e. *DummyAbove250* and *DummyAbove500*, which are equal to 1 when the firm size is greater than 250 employees and 500 employees, respectively, and 0 otherwise. Notably, the firms in our sample are about equally distributed around the threshold of 250 employees, with a median firm size of 262.5 employees, whilst less than a third of the sample firms have more than 500 employees. To establish the sensitivity of our results to the choice of threshold of firm size, we interact the firm size dummies with each of our independent variables (running separate models for *DummyAbove250* and *DummyAbove500*). The outcomes of this additional analysis suggest that our results are largely the same for smaller and larger firms⁵. Hence, we conclude that our hypotheses have general validity across firms of different size within our sampling range.

⁵ Plots of the marginal effects of all interactions reveal that the confidence interval for the largest and smallest firms in our sample overlap, thus supporting the lack of a statistical difference. Further detailed results of these robustness analyses are available upon request from the corresponding author.

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)	22)	23)	24)
1)	Unrelated acquisition	1.00																							
2)	CEO Age	-0.04	1.00																						
3)	CEO MBA and Executive education	-0.10	-0.24	1.00																					
4)	CEO Industry experience	0.09	-0.06	0.01	1.00																				
5)	CEO International experience	0.07	0.03	0.08	0.11	1.00																			
6)	CEO country knowledge	0.06	-0.17	0.28	0.13	0.31	1.00																		
7)	CEO tenure	0.10	0.16	-0.14	-0.15	-0.16	-0.07	1.00																	
8)	CEO cultural distance	-0.19	-0.01	-0.10	-0.13	0.03	-0.35	0.00	1.00																
9)	CEO acquisition experience	-0.04	0.25	-0.12	0.15	-0.13	-0.10	0.19	-0.02	1.00															
10)	Acquirer size	-0.01	0.06	-0.03	-0.16	-0.08	0.12	-0.06	-0.02	0.01	1.00														
11)	Acquirer age	-0.10	0.10	-0.04	-0.13	-0.17	-0.02	0.09	0.01	-0.06	0.15	1.00													
12)	Geographical distance	0.09	-0.03	0.18	0.00	0.04	0.30	0.07	-0.26	0.05	0.05	-0.03	1.00												
13)	Multiple acquisitions	-0.01	0.07	0.05	0.01	-0.03	-0.02	-0.02	-0.09	0.40	0.17	0.06	0.01	1.00											
14)	CEO duality	0.00	-0.02	-0.10	-0.06	-0.07	-0.02	0.12	0.03	-0.10	-0.18	-0.07	-0.08	-0.17	1.00										
15)	Outside directors	0.06	0.09	0.03	-0.02	-0.07	0.01	-0.04	-0.04	0.22	0.19	0.09	0.12	0.25	-0.52	1.00									
16)	Acquirer Public Company	0.12	0.13	-0.01	0.06	-0.07	-0.02	-0.15	-0.04	0.21	0.15	0.08	0.06	0.35	-0.53	0.66	1.00								
17)	Firm ROA	-0.08	0.20	-0.05	-0.08	-0.19	-0.13	0.25	-0.08	0.10	0.12	0.13	0.04	0.03	-0.08	0.02	0.04	1.00							
18)	Acquirer Industry Diversification	-0.14	0.16	-0.06	0.01	0.01	-0.02	0.23	-0.02	0.12	-0.07	0.18	-0.01	0.07	0.13	-0.06	0.00	0.09	1.00						
19)	Acquirer international experience	0.00	0.05	-0.15	-0.13	0.03	-0.11	0.03	0.18	0.24	0.24	0.00	-0.03	0.34	-0.08	0.13	0.16	0.09	-0.07	1.00					
20)	Acquirer International Acquisition Experience	-0.11	0.01	-0.13	-0.18	-0.06	-0.07	-0.01	-0.01	0.39	0.22	0.10	0.01	0.37	-0.25	0.20	0.29	0.05	0.14	0.43	1.00				
21)	Acquirer Country Specific Experience	0.07	-0.09	0.00	0.04	0.02	0.35	0.11	-0.24	0.05	0.18	0.05	0.36	0.15	-0.11	0.10	0.09	0.04	-0.02	0.23	0.14	1.00			
22)	Acquirer Unrelated Acquisition Experience	0.14	0.02	-0.05	-0.20	-0.11	-0.10	0.07	-0.05	0.50	0.13	0.06	-0.01	0.36	-0.19	0.23	0.30	0.08	-0.01	0.35	0.60	0.03	1.00		
23)	Host Country Political Risk	0.07	-0.03	0.05	-0.08	0.00	0.08	0.15	-0.07	0.00	-0.10	-0.10	0.10	-0.12	0.06	-0.11	-0.17	-0.10	0.10	-0.11	-0.09	0.10	-0.01	1.00	
24)	EU Country	-0.17	0.15	-0.17	0.03	-0.01	-0.38	-0.21	0.30	-0.04	0.08	0.09	-0.73	0.02	0.04	-0.07	-0.06	0.03	-0.10	0.06	0.02	-0.45	-0.08	-0.46	1
Observations (No.)		176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176
Mean		0.30	49.67	0.28	0.51	0.18	0.25	7.35	1.01	2.39	82.04	19.35	4.48	0.56	0.27	3.26	0.74	-1.18	1.83	3.74	1.37	0.54	1.02	0.54	0.41

Std. Dev.	0.46	6.85	0.45	0.22	0.22	0.43	5.55	1.32	2.06	174.90	18.83	4.20	0.50	0.44	2.12	0.44	27.72	0.99	2.96	1.93	0.50	1.46	0.10	0.49
Min	0.00	35.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	2.00	0.32	0.00	0.00	0.00	0.00	-183.8	1.00	0.00	0.00	0.00	0.00	0.29	0.00
Max	1.00	78.00	1.00	0.83	0.76	1.00	31.00	8.56	11.00	1850.23	108.00	17.01	1.00	1.00	10.00	1.00	49.31	7.00	15.00	9.00	1.00	6.00	1.00	1.00

Table 2 – *Determinants of the Probability of Unrelated Acquisitions Baseline Specification, Probit Regression analyses on foreign acquisitions occurring between 2010 and 2016*

Variables	Coefficient		Marginal effect	
	Est	P-Value	Est	P-Value
CEO Age	0.400* (0.205)	0.052	0.084** (0.043)	0.050
CEO Age 2	-0.004** (0.002)	0.023	-0.001** (0.000)	0.022
CEO MBA and Executive studies	-0.836** (0.378)	0.027	-0.175** (0.077)	0.023
CEO Industry experience	1.663** (0.765)	0.030	0.349** (0.158)	0.028
CEO International experience	1.665** (0.692)	0.016	0.349** (0.140)	0.012
CEO Country specific knowledge	-0.802** (0.378)	0.034	-0.168** (0.080)	0.035
CEO tenure	0.076** (0.030)	0.011	0.016*** (0.006)	0.008
CEO cultural distance	-0.594*** (0.139)	0.000	-0.125*** (0.027)	0.000
CEO acquisition experience	-0.160* (0.088)	0.068	-0.033* (0.018)	0.067
Acquirer size	0.001* (0.001)	0.058	0.000* (0.000)	0.052
Acquirer age	-0.032** (0.014)	0.022	-0.007** (0.003)	0.021
Geographical distance	0.035 (0.064)	0.583	0.007 (0.013)	0.584
Multiple Acquisitions	0.005 (0.408)	0.991	0.001 (0.086)	0.991
CEO Duality	0.589 (0.378)	0.119	0.124 (0.078)	0.114
Outside directors	0.101 (0.103)	0.329	0.021 (0.021)	0.325
Acquirer Public company	0.581 (0.517)	0.261	0.122 (0.107)	0.254
Acquirer ROA	-0.011** (0.005)	0.020	-0.002** (0.001)	0.017
Acquirer Industry Diversification	-0.163 (0.189)	0.388	-0.034 (0.039)	0.375
Acquirer International Experience	0.019 (0.055)	0.727	0.004 (0.012)	0.727
Acquirer International Acquisition Experience	-0.266** (0.121)	0.029	-0.056** (0.024)	0.022
Acquirer Country Specific Experience	-0.016 (0.292)	0.957	-0.003 (0.061)	0.957
Acquirer Unrelated Acquisition Experience	0.401*** (0.131)	0.002	0.084*** (0.027)	0.002
Host Country Political Risk	-0.234 (1.844)	0.899	-0.049 (0.386)	0.899
EU Country	-0.237 (0.661)	0.720	-0.050 (0.138)	0.719
Year Dummies	Yes		Yes	
Industry Sectors Dummies	Yes		Yes	
Constant	-11.18 (0.616)			

Observations	176
Prob>Chi2	0.000
Pseudo R2	0.384

Standard errors clustered at the level of the acquiring firm in parentheses; *** p<0.01, ** p<0.05, * p<0.1

5. Discussion and conclusions

Discussion

The purpose of our study is to understand how CEOs' experience matters in complex strategic decision-making, focusing on the choice to engage in industrial diversification via international acquisitions. Drawing from the UE and strategic leadership literature, we have developed and tested a set of hypotheses linking CEOs' experiences to the diversification strategy decision. Specifically, this study examines such attributes by associating them with CEOs' risk propensity and how risk-related CEO characteristics predispose firms to engage in more exploitative or exploratory international expansion strategies (Rabbiosi, et al., 2012).

Taken together, our results show the importance of executives' experiences as a key antecedent of firms' strategic choices in the international context. First, our model supports the existence of an inverted U-shape relationship between *CEO life experience*, as measured by age, and the propensity to engage in unrelated diversification. Numerous studies have considered age as a crucial antecedent of executives' decision-making preferences (see among others Hambrick & Mason, 1984; Wiersema & Bantel, 1992; Hermann & Datta, 2006; Hsu et al, 2013). Our results demonstrate that age is associated with reduced risk propensity for both older and younger CEOs. Older CEOs may be reluctant to accept the risks of unrelated acquisitions, thus potentially jeopardizing their legacy; whereas younger CEOs may prefer to take fewer risks to preserve their reputation at an early stage of their career.

The *CEO educational experience* of top managers is typically associated with greater analytical capabilities, higher openness to change, and specific cognitive styles (e.g. Holland, 1973; Wiersema & Bantel, 1992; Daellenbach et al 1999; Tihanyi et al, 2000; Hermann & Datta, 2005). However, relatively little attention has been paid to formal professional management education, in particular, to the role of MBA and Executive Programs in the context of managerial risk-taking propensity. Our analyses lend support to the notion that professional management degrees promote specific mindsets and cognitive capabilities in CEOs that affect their strategic choices and lead to avoidance of excessive risk-taking. This suggests that top managers with MBAs or Executive Education qualifications may be particularly suited to manage firms in contexts that emphasize the importance of risk avoidance, e.g. in the context of high uncertainty.

Moreover, our analyses underline the importance of executives' *broad-based work experience*. Top managers with a broad career background spanning multiple different environments across industries and countries have a wider range of knowledge and perspectives, greater access to external resources, an extensive network of contacts, and more openness to new experiences, which are likely to increase the CEO's risk propensity (Crossland et al., 2014). Conversely, CEOs with narrow career backgrounds are more likely to be risk-averse and display a preference for staying within known domains in their growth and expansion strategies (Custodio & Metzger, 2013). Our study re-affirms that internationally experienced CEOs as well as

CEOs with experience spanning several industries, possess greater knowledge, confidence and ability, which will make them more inclined to pursue unrelated cross-border acquisitions than CEOs with narrower limited international and sectoral experiences.

Theoretical contributions

Our study makes important contributions to the existing literature. First, our study adds to the literature on strategic decision-making in international business (e.g. Aharoni et al., 2011; Brouthers & Hennart, 2007) by showing that observable CEO experience characteristics matter in complex decision-making pertaining to international diversification strategies. We contribute to this debate by developing and testing the ‘managerial micro-foundations’ of firm risk-taking behavior in the context of cross-border acquisitions. Thus, we contribute to a more nuanced and systematic view of managerial influence in FDI decisions, by showing how CEO experience influences the propensity to engage in unrelated diversification in cross-border acquisitions. More specifically, we provide evidence that not only the type of experience, but also the level and amount of accumulated experience, influence strategic outcomes. Indeed, our results show that the international and industry experience of decision-makers matter, while the equivalent experience-based variables at the organization-level are not significant. This confirms the importance of not neglecting the individual level of analysis and emphasizes the relevance of the microfoundations approach in the international business and management literature.

Second, our study shows that there is potential to make important empirical and theoretical contributions where the microfoundations approach and the strategic leadership perspective intersect. The focus on a strategic outcome at the deal-level (i.e. below the firm-level) enables us to make a contribution from a managerial risk-taking perspective, thereby by answering Hoskisson et al.’s (2017) call to better understand the strategic outcomes (rather than the antecedents) of managerial risk-taking. From a strategic leadership perspective, we show how different categories of observable experiences – i.e. life, work and education experience - are distinctly associated with managerial risk-taking, as characterized by engaging in riskier exploratory acquisitions of target firms in unrelated industries.

Managerial relevance

Our results provide valuable practical suggestions for organizations as well as managers. It is important for firm owners and boards appointing CEOs to be aware that certain CEO experiences are likely to be associated with a higher risk propensity in subsequent growth and expansion strategies. Specifically, our study indicates that a mid-aged CEO without an MBA or other professional management, and who also possesses

heterogeneous international and industry experience is most likely to pursue unrelated diversification strategies.

Secondly, firms should consider these results when planning and developing the careers of their young managers. In particular, supporting MBA or Executive Education degrees may subsequently make firms less prone to riskier diversification strategies. At the same time, broad-based international and industry experience enhances CEOs' confidence in the ability to assess risks and uncertainties related to foreign investments. Likewise, managers who are aspiring to become CEOs may find these arguments valuable for their career planning, aligning themselves to the needs of the market.

Directions for future research

Future research should further examine whether international experience can be “too much of a good thing” (Georgakakis et al., 2016) in the decision-making process, in particular whether it can make CEOs excessively confident in the decision to pursue riskier expansion strategies. Further research is also needed to investigate whether certain types of experience are more likely to endow top managers with (over-)confidence rather than the requisite competencies needed to pursue higher-risk internationalization opportunities (Buckley et al., 2016).

Furthermore, in this study we have equated life experience with age. Clearly, this is true to a certain extent. While it is to be expected that as CEOs grow older they accumulate life experiences which will shape their strategic decisions, it also needs to be considered that individuals of the same age certainly may have lived very different lives and acquired very different experiences, through childhood, travelling, bereavement and parenthood, among other things. This speaks to the necessity to also unpack qualitative aspects of life experience. With regard to education experience, future studies should try to better disentangle the heterogeneity of CEOs' past education (e.g. in terms of fields – STEM vs. humanities, length – short-term vs. long-term programs, geographic scope – domestic vs. international, etc.) and its impact on multiple levels (e.g. across firms - SMEs vs. large firms, industries – e.g. high-tech vs. low-tech, countries – e.g. emerging vs. advanced markets, etc.).

We also propose that future research extends our model to consider the interface between the CEO and the top management team. On the one hand, CEOs have the ultimate responsibility for key strategic decisions, on the other hand, strategic decisions are often the result of a broader discussion that may involve further members of the top management team. Future studies may also consider the experience of the firm and the CEO with past acquisitions to gain a more complete picture of firms' diversification preferences, as they may indicate an intrinsic organizational and individual preference towards specific diversification strategies.

Another promising avenue of future research is to explore the boundary conditions of the relationships we have found between CEO experience and industrial diversification strategies in an IB context. While

robustness checks have shown that our findings are largely insensitive to basic variations in some of our key variables, a more in-depth examination of boundary conditions may reveal how CEO experience characteristics interact with firm- and industry-level factors, such as complexity, uncertainty, dynamism, and munificence, supporting the development of a finer-grained understanding of our results. In a similar vein, future research should explore the performance implications of pursuing riskier internationalization and diversification strategies, and whether the type and amount of CEO experience increases or decreases the likelihood of successfully pursuing more high-risk growth and expansion strategies. From an IB perspective, it would also be interesting to examine how industrial diversification strategies are influenced by the interaction of CEO experience with the choice of foreign locations, home-host country institutional distance, and prior international acquisition experience.

Finally, due to the challenges of manually collecting and coding data on CEO experience, we chose to focus our analysis on a limited sample of firms, notably concentrating on UK-headquartered firms and excluding very large firms from our sample. It would be interesting to generalize and consolidate our results in future studies by considering the impact of CEO experience at larger and non-UK headquartered firms – which may differ in terms of managerial discretion – as well as including minority stakes M&As, which may be perceived as lower-risk and thereby affect the propensity to diversify the firm's business portfolio. Similarly, the focus of future studies may be extended to include announced deals, as opposed to completed deals only, as the former are potentially even more sensitive to CEO attributes.

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Appendix

Table 3 –One standard deviation effect of the Determinants of the Probability of Unrelated Acquisitions Baseline Specification, estimated from Probit Regression analyses

Variables	Coefficient		Increase in DV Std. Dev
	Est*Std Dev	P-Values	(Est*Std. Dev.) / Std. Dev. of DV
CEO Age	0.574** (0.043)	0.050	1.255
CEO Age 2	-0.639** (0.000)	0.022	-1.397
CEO MBA and Executive studies	-0.079** (0.140)	0.012	-0.173
CEO Industry experience	0.077** (0.077)	0.023	0.169
CEO International experience	0.078** (0.158)	0.028	0.170
CEO Country specific knowledge	-0.073** (0.080)	0.035	-0.160
CEO tenure	0.089*** (0.006)	0.008	0.194
CEO cultural distance	-0.164*** (0.027)	0.000	-0.358
CEO acquisition experience	-0.069* (0.018)	0.067	-0.150
Acquirer size	0.049* (0.000)	0.052	0.108
Acquirer age	-0.128** (0.003)	0.021	-0.280
Geographical distance	0.031 (0.013)	0.584	0.068
Multiple Acquisitions	0.000 (0.086)	0.991	0.001
CEO Duality	0.055 (0.078)	0.114	0.120
Outside directors	0.045 (0.021)	0.325	0.097
Acquirer Public company	0.053 (0.107)	0.254	0.117
Acquirer ROA	-0.064** (0.001)	0.017	-0.140
Acquirer Industry Diversification	-0.034 (0.039)	0.375	-0.074
Acquirer International Experience	0.012 (0.012)	0.727	0.026
Acquirer International Acquisition Experience	-0.108** (0.024)	0.022	-0.235
Acquirer Country Specific Experience	-0.002 (0.061)	0.957	-0.004
Acquirer Unrelated Acquisition Experience	0.123*** (0.027)	0.002	0.269
Host Country Political Risk	-0.005 (0.386)	0.899	-0.011
EU Country	-0.025 (0.138)	0.719	-0.054
Year Dummies	Yes		

Industry Sectors Dummies	Yes	
Observations	176	176

Table 4 – *Semi-elasticity of the Determinants of the Probability of Unrelated Acquisitions Baseline Specification, estimated from Probit Regression analyses*

Variables	Elasticity	
	Est	P-Values
CEO Age	3.543* (2.045)	0.083
CEO Age 2	-1.848** (0.920)	0.045
CEO MBA and Executive studies	-0.040*** (0.015)	0.007
CEO Industry experience	0.212** (0.099)	0.032
CEO International experience	0.057* (0.030)	0.061
CEO Country specific knowledge	-0.041** (0.019)	0.032
CEO tenure	0.137** (0.054)	0.011
CEO cultural distance	-0.095*** (0.019)	0.000
CEO acquisition experience	-0.098*** (0.036)	0.006
Acquirer size	0.013 (0.010)	0.203
Acquirer age	-0.092** (0.037)	0.014
Geographical distance	0.012 (0.064)	0.849
Multiple Acquisitions	0.004 (0.047)	0.935
CEO Duality	0.028 (0.027)	0.299
Outside directors	0.054 (0.073)	0.464
Acquirer Public company	0.093 (0.089)	0.296
Acquirer ROA	0.008 (0.006)	0.154
Acquirer Industry Diversification	-0.072 (0.059)	0.227
Acquirer International Experience	0.005 (0.046)	0.909
Acquirer International Acquisition Experience	-0.060** (0.024)	0.013
Acquirer Country Specific Experience	0.004 (0.033)	0.915
Acquirer Unrelated Acquisition Experience	0.101*** (0.029)	0.000

Host Country Political Risk	-0.062 (0.214)	0.771
EU Country	-0.028 (0.046)	0.539
Year Dummies		Yes
Industry Sectors Dummies		Yes
Observations		176

Table 5 – *Determinants of the Probability of Unrelated Acquisitions - Robustness Checks, Probit Regression analyses on foreign acquisitions occurring between 2010 and 2016*

Variables	Relatedness 3-digits		Relatedness 4-digits	
	Est	P-Values	Est	P-Values
CEO Age	0.322* (0.190)	0.089	0.398** (0.186)	0.032
CEO Age 2	-0.003* (0.002)	0.066	-0.004** (0.002)	0.021
CEO MBA and Executive studies	-0.710** (0.340)	0.037	-0.612* (0.337)	0.069
CEO Industry experience	1.424** (0.704)	0.043	1.353* (0.704)	0.055
CEO International experience	0.947 (0.595)	0.111	1.044* (0.592)	0.078
CEO Country specific knowledge	-0.613* (0.327)	0.061	-0.687** (0.314)	0.028
CEO tenure	0.033 (0.028)	0.234	0.027 (0.026)	0.298
CEO cultural distance	-0.410*** (0.127)	0.001	-0.356*** (0.113)	0.002
CEO acquisition experience	-0.144* (0.076)	0.060	-0.136* (0.081)	0.093
Acquirer size	0.001 (0.001)	0.487	0.000 (0.001)	0.555
Acquirer age	-0.003 (0.007)	0.679	-0.002 (0.006)	0.733
Geographical distance	-0.004 (0.050)	0.931	-0.020 (0.049)	0.678
Multiple Acquisitions	-0.137 (0.331)	0.680	0.035 (0.323)	0.914
CEO Duality	0.377 (0.372)	0.310	0.554 (0.362)	0.126
Outside directors	0.085 (0.086)	0.323	0.131 (0.086)	0.129
Acquirer Public company	0.526 (0.480)	0.273	0.368 (0.442)	0.405

Acquirer ROA	-0.009** (0.005)	0.038	-0.006 (0.004)	0.166
Acquirer Industry Diversification	-0.004 (0.162)	0.982	-0.065 (0.153)	0.671
Acquirer International Experience	0.022 (0.055)	0.685	-0.029 (0.055)	0.601
Acquirer International Acquisition Experience	-0.240** (0.101)	0.017	-0.133 (0.097)	0.171
Acquirer Country Specific Experience	0.208 (0.273)	0.446	0.277 (0.268)	0.302
Acquirer Unrelated Acquisition Experience	0.274** (0.114)	0.016	0.193 (0.120)	0.109
Host Country Political Risk	-1.855 (1.670)	0.267	-1.032 (1.616)	0.523
EU Country	-0.297 (0.558)	0.595	-0.417 (0.552)	0.451
Year Dummies		Yes		Yes
Industry Sectors Dummies		Yes		Yes
Constant	-8.223 (5.381)		-9.943 (5.264)	
Observations	176		176	
Prob>Chi2	0.000		0.000	
Pseudo R2	0.273		0.250	
Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1				

Table 6 – *Determinants of the Probability of Foreign Acquisitions - Robustness Checks, Heckman selection model – First Stage model*

Variables	Coefficient	
	Est	P-Values
CEO Age	-0.004 (0.116)	0.974
CEO Age 2	-0.000 (0.001)	0.858
CEO MBA and Executive studies	0.207 (0.226)	0.358
CEO Industry experience	0.129 (0.454)	0.776
CEO International experience	0.508 (0.491)	0.301
CEO tenure	-0.020 (0.017)	0.253
Acquirer size	0.000 (0.001)	0.518
Acquirer age	-0.000 (0.004)	0.972
Acquirer Public Company	-0.582** (0.257)	0.024
Acquirer ROA	-0.001 (0.003)	0.766
Acquirer Industry Diversification	0.024 (0.115)	0.838
Acquirer International Experience	0.100** (0.039)	0.011
Acquirer International Acquisition Experience	-0.002 (0.045)	0.971
Number of Domestic Enterprises in Target Sector	-0.207** (0.083)	0.013
Year Dummies	Yes	
Industry Sectors Dummies	Yes	
Constant	0.782 (3.082)	
Observations	296	
Prob>Chi2	0.000	
Pseudo R2		
Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1		

Table 7 – *Determinants of the Probability of Unrelated Acquisitions - Robustness Checks, Heckman selection model – Second Stage model*

Variables	Coefficient	
	Est	P-Values
CEO Age	0.227 (0.260)	0.383
CEO Age 2	-0.002 (0.002)	0.329
CEO MBA and Executive studies	-0.749* (0.398)	0.060
CEO Industry experience	1.605** (0.781)	0.040
CEO International experience	1.612** (0.696)	0.021
CEO Country specific knowledge	-0.956** (0.398)	0.016
CEO tenure	0.086** (0.034)	0.012
CEO cultural distance	-0.614** (0.287)	0.032
CEO acquisition experience	-0.179** (0.090)	0.047
Acquirer size	0.001 (0.001)	0.131
Acquirer age	-0.037** (0.016)	0.020
Geographical distance	0.031 (0.062)	0.616
Multiple Acquisitions	0.036 (0.408)	0.930
CEO Duality	0.681* (0.384)	0.076
Outside directors	0.067 (0.106)	0.527
Acquirer Public company	0.758 (0.626)	0.226
Acquirer ROA	-0.011** (0.005)	0.015
Acquirer Industry Diversification	-0.167 (0.182)	0.360
Acquirer International Experience	0.026 (0.060)	0.660
Acquirer International Acquisition Experience	-0.261** (0.127)	0.040
Acquirer Country Specific Experience	-0.073 (0.310)	0.814
Acquirer Unrelated Acquisition Experience	0.382*** (0.144)	0.008
Host Country Political Risk	-0.387 (1.882)	0.837
EU Country	-0.270 (0.667)	0.685
Mills Ratio term	-0.054 (1.005)	0.957
Year Dummies	Yes	

Industry Sectors Dummies	Yes
Constant	-6.917 (7.138)
Observations	167 ⁶
Prob>Chi2	0.000
Pseudo R2	0.348
Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1	

⁶ The number of observations slightly shrinks due to generation of the Mills ratio in the first stage of the Heckman model robustness check. Specifically, there are some missing values in the first stage of the Heckman model concerning the exclusion restriction variable, i.e. Number of Domestic Enterprises in Target Sector.