



Imperfect information in firm growth strategy: Three essays on M&A and FDI activities

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Three essays on M&A and FDI activities

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CHAPTER 1

INTRODUCTION

Firm growth is one of the fundamental questions in strategy and international business research (Buckley & Casson, 1976; Lockett, Wiklund, Davidsson, & Girma, 2011; Nason & Wiklund, 2018; Penrose, 1959). From a theoretical point of view, a variety of theoretical perspectives have explored its antecedents, modes, mechanisms, and implications, including the resource-based view (Penrose, 1959; Wernerfelt, 1984), the transaction-cost-based theories (Buckley & Casson, 1976; Williamson, 1975), the competitive dynamics perspective (Ang, 2008; Haveman & Nonnemaker, 2000), agency theory (Anderson, Bustamante, Guibaud, & Zervos, 2018; Jensen & Meckling, 1976), and behavioral theory of the firm (Cyert & March, 1963; Greve, 2008). For practitioners, growth is also among the most critical performance metrics by which a firm is evaluated (Kim, Halebian, & Finkelstein, 2011). Hence, managers have strong incentives to identify and exploit growth opportunities and expand their operations either under pressure from investors and analysts (Shi, Connelly, & Cirik, 2018; Zhang & Gimeno, 2010) or in pursuit of personal goals such as higher compensation or increased power and prestige (Cyert, Kang, & Kumar, 2002; Wright, Kroll, & Elenkov, 2002). Firms can expand and grow their businesses organically by engaging in internal corporate development activities, such as greenfield foreign direct investment (FDI) or in-house R&D (Cuervo-Cazurra & Annique Un, 2010; Lockett et al., 2011; Lu & Beamish, 2004). They may also break away to new development paths by adopting an external-oriented strategy using mergers and acquisitions (M&As) or joint ventures and alliances (Kim et al., 2011; Pearce & Zahra, 1992). In terms of the geographic scope, firms can expand their boundaries either domestically via product diversification or internationally via foreign market penetration (Delios & Beamish, 1999;

Wiersema & Bowen, 2008). Given the importance and multiplicity of corporate growth strategies, this dissertation aims to contribute to the strategy and international business literature by focusing on one key condition characterizing firms' strategic decision-making of such activities, namely imperfect information.

Good management requires good information (Bernard, Blackburne, & Thornock, 2020). Information is the crucial ingredient in mapping strategy for an organization. However, the business world is fraught with information frictions (Bergh, Ketchen, Orlandi, Heugens, & Boyd, 2019; Connelly, Certo, Ireland, & Reutzel, 2011). Challenges and opportunities associated with information are fundamental elements in theories on firm growth, such as information asymmetry in agency theory (Jensen & Meckling, 1976), information impactedness in transaction cost economics (Williamson, 1975), and the information-based isolating mechanism in the resource-based view (Peteraf, 1993). When firms seek growth opportunities through various corporate development activities such as M&As and FDIs, their decision-making and implementation are plagued by the lack of perfect information (Chen, Kale, & Hoskisson, 2018; Mahoney & Qian, 2013). In the case of M&As, acquirers are constrained by asymmetric and imperfect information when assessing potential targets, leading to the problem of adverse selection in the transactions (Akerlof, 1970). As a result, firms are often unable to create and capture value from their acquisitions due to risks such as picking a poor-quality target (i.e., a lemon), overpayment, or excessive transaction costs in the pre-acquisition evaluation and bargaining process (Graebner, Eisenhardt, & Roundy, 2010; Reuer, Shenkar, & Ragozzino, 2004; Zaheer, Hernandez, & Banerjee, 2010). Similarly, firms are faced with considerable uncertainty in their foreign investments due to the lack of accurate and complete information about the local business contexts, increasing information search costs and impairing firms'

ability to realize anticipated benefits in the overseas markets (Aharoni, Tihanyi, & Connelly, 2011; Henisz & Delios, 2001; Kang & Kim, 2010). These growth activities also create a more complex information environment for firms, posing significant challenges to managers in organizing the expanded operations (Buckley & Strange, 2011; Kano & Verbeke, 2019; Zollo & Singh, 2004). On the one hand, managers' bounded rationality may limit their capacity to collect and process value-relevant information from the acquired target or a foreign subsidiary, exacerbating the uncertainty of their decision-making and reducing the efficiency of intra-firm coordination (Agarwal, Anand, Bercovitz, & Croson, 2012; Contractor, Yang, & Gaur, 2016). On the other hand, self-serving managers may exploit the heightened information asymmetry with shareholders from the increased operational complexity to extract personal gains, resulting in value destruction for the firm (Filatotchev & Wright, 2011; Seth, Song, & Pettit, 2002). Considering the pervasive role of imperfect information in firms' organic and acquisitive growth strategies, I intend to use the three empirical chapters to shed light on the interaction between firms' corporate development activities and their internal and external information environments.

In this dissertation, I focus on two main modes of firm growth strategy. The first one is international diversification via FDI in general and cross-border M&A in particular. The second is domestic expansion via M&A. The choice of these two activities is twofold. First, M&A and FDI are highly complex strategic decisions, subject to substantial information frictions (Aharoni et al., 2011; Chondrakis, Serrano, & Ziedonis, 2020; Ozmel, Reuer, & Wu, 2017). Hence, imperfect information plays a vital role in understanding the competitive and performance implications of firms' international and acquisitive moves. Second, as illustrated in Figure 1 and Figure 2, despite the economic meltdown and turbulence during the recent financial crisis, the past two decades have witnessed a significant increase in both M&A and FDI activities.

Nevertheless, prior studies have shown that these growth strategies are not always value-creating (Berry & Kaul, 2016; Halebian, Devers, McNamara, Carpenter, & Davison, 2009). In effect, the meta-analysis study by King, Dalton, Daily, and Covin (2004) finds that M&As often generate a negative return to the acquirers. Research on the relationship between multinationality and performance has also reported quite mixed results regarding its functional form, ranging from a linear relationship (Denis, Denis, & Yost, 2002) to non-linear relationships, including a U shape (Lu & Beamish, 2001) and an S shape (Lu & Beamish, 2004). Although the meta-analysis by Kirca et al. (2011) shows that, on average, a higher level of multinationality contributes to better financial performance, subsequent research demonstrates that the performance benefits of multinationality are moderated by a host of information-related factors such as the presence of an efficient ICT system to facilitate information exchange (Andersen & Foss, 2005) and managerial information processing costs (Kirca, Fernandez, & Kundu, 2016). Given the prevalence of M&As and FDIs and the conflicting findings on their value creation potential, how firms make decisions under imperfect information, and the success or failure of these actions are essential questions in strategy and international business. Thus, this dissertation adopts an information perspective to examine some critical strategic decisions – specifically location choice in FDI and communication strategy in M&A – when firms pursue internal and external growth opportunities as well as the value-enhancing mechanisms of knowledge-based intangible assets in the context of cross-border M&As, the nexus of the international and acquisitive activities.

----- Insert Figures 1 & 2 here -----

To shed light on the role of imperfect information in firm growth strategy, this dissertation focuses on two distinct forms of information frictions in strategic decision-making. First, information is imperfectly and heterogeneously distributed among players in the market,

leading firms to behave differently than they would if they had perfect information (Rothschild & Stiglitz, 1976; Yao, 1988). On the one hand, better informed firms enjoy an information advantage over their rivals or transacting parties. Thus, they are incentivized to conceal their superior information to maintain the information gap and appropriate economic rents (Bergh et al., 2019; Makadok & Barney, 2001; Porter, 1980). For example, information asymmetry as a source of competitive advantage has long been recognized in the resource-based view, where proprietary information held by the firm helps build causal ambiguity and “prevent would-be-imitators from knowing exactly what to imitate or how to go about it” (Peteraf, 1993: 183). On the other hand, informationally disadvantaged firms have strong motivations to mitigate transaction hazards due to information imperfections. For instance, in the M&A market, acquirers usually lack accurate information about the quality of a potential target (Zaheer et al., 2010). To minimize the risk of adverse selection, firms can set up a dedicated M&A function to conduct thorough due diligence on the target and navigate the complex M&A process (Trichterborn, Zu Knyphausen-Aufseß, & Schweizer, 2016); they may also infer information cues or signals by observing peers’ previous acquisitions to assess the underlying value of the target’s resources (Ozmel et al., 2017).

Second, the value creation potential of corporate growth strategies also depends on their ability to deal with the formidable internal information challenges. It is widely agreed in the agency-theoretic models that information is also “distributed asymmetrically throughout the organization” (Eisenhardt, 1989: 63). As a result, owners of a company (the principal) often do not have perfect information about managers’ (the agent) actions and contributions, allowing deviations from the effort to increase shareholder wealth by self-interested managers (Bosse & Phillips, 2016; Jacobides & Croson, 2001). What is more, managers’ bounded rationality may

limit their capacity to efficiently cope with information-processing demands and coordination challenges in firm operations, especially with an increased degree of organizational complexity and a growing global footprint as a result of firms' M&A and FDI activities (Buckley & Strange, 2011; Larsson & Finkelstein, 1999). For example, the newly acquired target or the foreign subsidiary may exploit private information regarding its resources, behaviors, and local environments and behave as rent-seekers (Björkman, Barner-Rasmussen, & Li, 2004; Capron & Shen, 2007; Gong, 2003), amplifying the difficulties in obtaining accurate decision-relevant information by the parent managers and jeopardizing the value creation for the company as a whole. To alleviate challenges associated with information imperfections within the firm, much of the corporate governance literature has focused on designing governance mechanisms, such as the ownership structure or the board of directors, to effectively align the competing interests of various stakeholders and strengthen managers' decision-making abilities (Aguilera, Marano, & Haxhi, 2019; Boivie, Bednar, Aguilera, & Andrus, 2016).

The focus on imperfect information in firms' internal and external environments also speaks to the research gaps I intend to address in the three essays. In the first essay, I build upon research on acquisition motives and explore a firm's decision to conceal or reveal its proprietary information about its acquisitive moves, influencing its information asymmetry vis-à-vis rivals. As for the second essay, I focus on one well-documented external mechanism, namely the imitation strategy, to overcome information barriers and examine firms' heterogeneous reactions to information cues from peers' previous foreign location choices. The third essay highlights the role of the board of directors in mitigating internal governance challenges due to managerial bounded rationality and bounded reliability and investigates how a board's effectiveness in fulfilling its monitoring and advising functions contributes to the value creation of knowledge-

based intangible assets in cross-border M&As. Figure 3 provides an overview of the three essays that constitute the main body of the dissertation.

----- Insert Figure 3 here -----

Overview of the three essays

In the first essay (Chapter 2, titled “*Strategic communication: Acquisition motives and M&A conference call*”), I intend to answer the question of *whether and how the efficiency versus market power motive behind an acquisition determines the acquirer’s use of an M&A conference call to discuss more deal-specific details and provide incremental information*. Given the information asymmetry between the firm and its stakeholders and the related capital market and competitive consequences, research in economics, finance, accounting, and more recently in management has underscored the strategic importance of corporate communication either by complying with mandatory disclosure rules such as financial statements or by using voluntary disclosure modes – conference call in particular – to convey information (Bushee, Gow, & Taylor, 2018; Bushee, Matsumoto, & Miller, 2004; Lehavy, Li, & Merkley, 2011). Information disclosure is especially relevant in the M&A market as the acquiring firm possesses not only valuable information about the target obtained through the due diligence and negotiation process (Graebner et al., 2010; Wu, Reuer, & Ragozzino, 2013) but also proprietary information about the strategic intent and economic rationale of the proposed transaction (Clougherty & Duso, 2011; Trautwein, 1990). However, the acquirer’s communication concerning its deal needs to balance the information demands from investors and analysts and the competitive use of such information by rivals (Guo, Yu, & Gimeno, 2017; Wagenhofer, 1990). In this essay, I draw upon literature on acquisition motives (Chatterjee, 1986; Clougherty & Duso, 2011; Eckbo, 1983) to examine how the acquirer may exploit its information advantage over non-acquiring rivals by

strategically engaging in M&A conference calls. The results illustrate circumstances under which reduced information asymmetries due to an M&A conference call may also facilitate inter-firm coordination and have anti-competitive consequences.

While the first essay explicates how firms with superior information may influence others' behaviors via disclosures, prior studies have shown that firms lacking information can also infer relevant cues and signals by observing peers' previous actions (Gupta & Misangyi, 2018; Henisz & Delios, 2001; Ozmel et al., 2017), leading to the well-documented practice of inter-organizational imitation (Lieberman & Asaba, 2006). Thus, a related question is how informationally disadvantaged firms perceive and react to the benefits of emulating others' strategies. I explore the information-based mechanism underlying the imitation process in the following chapter by delineating a key yet often neglected assumption of risk aversion in imitation models. Specifically, in the second essay (Chapter 3, titled "*What drives firms to imitate others? Performance feedback, slack, and foreign location choice*"), I examine *why firms exhibit significant heterogeneity in their imitative behaviors when deciding which foreign market to enter?* Foreign location choice is one of the most complex and salient strategic decisions firms make when expanding abroad (Goerzen, Asmussen, & Nielsen, 2013; Kim & Aguilera, 2016). Location strategy and the spatial dimension of firms' FDI activities have drawn much attention from strategy and international business scholars, especially after Dunning's seminal work on the eclectic paradigm (Dunning, 1980, 1998). Early studies on location choice have mostly adopted an economics perspective and analyzed the costs and benefits of potential locations. As a result, the primary goal is to find a place that minimizes market transaction costs or enhances potential gains from access to location-specific advantages such as cheap labor or raw materials (Buckley & Casson, 1976; Dunning, 1998). Recent research on MNE location strategy has instead focused

on the considerable uncertainty involved in foreign entries stemming from incomplete information and unpredictability of the economic, social, political, and cultural systems in the overseas markets (Aharoni et al., 2011; Garcia-Canal & Guillén, 2008; Kang & Kim, 2010). These studies emphasize the uncertainty-reducing benefits of mimicking prior location choices by other firms and show that a firm tends to invest in places where peers in the reference group have entered before (Belderbos, Olffen, & Zou, 2011; Henisz & Delios, 2001; Tan & Meyer, 2011). In this chapter, I draw upon behavioral theory of the firm and its extension to organizational risk-taking to theorize and test how firms' variable risk preferences serve as a contingency to their imitative foreign entries. The findings of this essay shed some light on the firms' heterogeneous location decisions in FDI.

After studying firms' information-sharing (i.e., conference call) and information-seeking (i.e., imitation) behaviors in the M&A and FDI markets, I focus on internal information challenges in the fourth chapter and examine how firms may deal with managers' behavioral constraints in cross-border M&As to create value. As discussed above, prior studies have shown that both FDI and M&A often fail to increase firm value (King et al., 2004; Kirca et al., 2011). The potential of value destruction is further amplified in foreign acquisitions due to substantial information processing and coordination costs (Nocke & Yeaple, 2007; Shimizu, Hitt, Vaidyanath, & Pisano, 2004). Hence, understanding the information-related challenges experienced by firms undertaking foreign acquisitions is essential to assess their value creation prospects. The third essay (Chapter 4, titled "*Board effectiveness and internalization benefits: Theory and evidence from value creation in cross-border mergers and acquisitions*") focuses on governance issues in the FDI process and intends to address the question of *how multinationals' governance efficiency affects their ability to benefit from internalizing the market for knowledge-*

based intangibles via cross-border M&As? Integrating the internalization literature with research on corporate governance, I link governance inefficiencies due to managerial bounded rationality and bounded reliability to the board of directors' monitoring and advising roles. The results demonstrate that board effectiveness, determined by its independence, expertise, bandwidth, and motivation, represents a critical contingency for the value-enhancing effect of R&D and marketing intangibles in FDI. By focusing on internal governance costs associated with the cross-border use of knowledge assets, this study answers prior calls to examine the significance of corporate governance within the internalization framework (Buckley & Strange, 2011).

Empirical settings

Given the focus on various firm growth strategies, this dissertation collects data from three different empirical contexts with unique institutional backgrounds and divergent competitive environments.

Chapter 2 examines how firms pursue an acquisitive growth strategy with a focus on the acquirers' use of M&A conference calls to voluntarily disclose incremental information. I compiled a sample of domestic M&As by U.S. public firms from 2003 to 2018 and collected the transcripts of M&A conference calls for deals with a call. Domestic M&As by U.S. public firms provide an ideal context to study the competitive antecedents of M&A conference calls for three reasons. First, prior studies on acquisition motives using a U.S. sample have confirmed the distinction between the market power versus efficiency rationale and highlighted their relevance for firm strategy and performance (Eckbo, 1983; Gugler, Mueller, Yurtoglu, & Zulehner, 2003; Shenoy, 2012). Second, I follow the acquisition motives literature and identify market power and efficiency motives based on rivals' stock price reactions to the announcement of the acquisition (Chatterjee, 1986; Clougherty & Duso, 2011; Eckbo, 1983; Shenoy, 2012). Relevant rivals for a

domestic acquisition are more clearly defined than those for a foreign acquisition as the latter group may also include competing firms residing in foreign countries. Third, the emergence of M&A conference calls as a communication medium for voluntary information disclosure is a recent phenomenon, held mainly by the U.S. and, to a lesser extent, the European acquirers (Fraunhoffer, Kim, & Schiereck, 2018; Kimbrough & Louis, 2011). Thus, focusing on U.S. acquirers offers the largest sample to conduct empirical analyses.

In Chapter 3, I hand-collected data on foreign investments made by Chinese public firms from 1990 (the first year available) to 2013 based on the subsidiary list in their annual reports. The reason to use Chinese FDI to examine firms' foreign location choice is threefold. First, as illustrated by Figure 4, China's outward FDI has grown exponentially since the introduction of market reforms in 1978 and experienced a recent surge after its accession to the World Trade Organization (WTO) in 2001 (Buckley et al., 2007; Morck, Yeung, & Zhao, 2008). By 2018, China has emerged as the third-largest source country of FDI, after the U.S. and Japan. Second, despite being latecomers to the global marketplace, Chinese firms have exhibited significant heterogeneities in their foreign location choices (Buckley et al., 2007). As a result, outward FDI by Chinese firms has spanned across a broad range of foreign markets within a relatively short time (Lu, Liu, Wright, & Filatotchev, 2014). Notably, prior studies find that Chinese firms' foreign entries seem to depart from what standard theories suggest (Morck et al., 2008; Ramasamy, Yeung, & Laforet, 2012). Instead of adopting a wait-and-see strategy to mitigate the uncertainty involved, Chinese firms often take a large step in their foreign investments and expand into risky places (Buckley, Chen, Clegg, & Voss, 2018; Lu et al., 2014). Third, prior research on foreign location choice has primarily focused on multinationals from developed economies (Flores & Aguilera, 2007; Garcia-Canal & Guillén, 2008; Henisz & Delios, 2001).

While these studies have provided valuable insights into the determinants of firms' location decisions, there has been a renewed interest among strategy and international business researchers in understanding the behaviors of multinationals from less developed countries, especially those from emerging economies (Cuervo-Cazurra, 2012; Hernandez & Guillén, 2018). I intend to contribute to this discussion by examining the location decisions of Chinese multinationals in a broader and theoretically grounded framework.

----- Insert Figure 4 here -----

Chapter 4 of the dissertation explores the role of board effectiveness in moderating the value-creating effect of knowledge-based intangibles in FDI. The empirical setting I use to test the hypotheses is cross-border M&As by U.S. public firms based on two considerations. First, the baseline prediction is drawn upon internalization theory, which posits that when firms possessing intangible assets expand internationally via FDI, they create shareholder value by increasing the scale over which such intangibles are applied meanwhile avoiding substantial market transaction costs (Buckley & Casson, 1976; Morck & Yeung, 1992). MNEs from developed countries such as the U.S. are more likely to leverage and exploit superior knowledge assets developed in their home markets when going abroad, whereas MNEs from emerging or developing economies often lack such intangibles (Buckley et al., 2007). Consistent with this view, prior studies using an event study methodology to test internalization theory have validated the relevance of R&D and marketing intangibles in the value creation of foreign acquisitions by U.S. firms (Morck & Yeung, 1991; Pantzalis, Park, & Sutton, 2008; Steigner & Sutton, 2011). Second, cross-border M&As are complex strategic events that require significant inputs from the board of directors regarding potential benefits and costs, making its role more prominent (Masulis, Wang, & Xie, 2012; Miletkov, Poulsen, & Wintoki, 2017).

Methodologies

I employ various quantitative methods to analyze the datasets listed above. Throughout the dissertation, two main econometric techniques are used to address potential endogeneity concerns.

In the first and third essays (Chapters 2 and 4), I follow the standard event study procedure and calculate the cumulative abnormal returns (CARs) to capture value creation in acquisitions. I choose a relatively short event window, 3-day [-1,+1] for the first essay and 5-day [-2,+2] for the third essay to avoid the effect of confounding events (McWilliams & Siegel, 1997). I use a slightly longer event window in the third essay to allow more time for rivals' stock prices to react to the acquisition announcement.

In the second essay (Chapter 3), I use a conditional logit model to examine the location choice made by Chinese public firms (Belderbos et al., 2011; Henisz & Delios, 2001; Tan & Meyer, 2011). To mitigate the concern of the violation of the independence of irrelevant alternatives (IIA) assumption and check the robustness of the results, I draw an endogenously stratified sample and use a weighted probit regression to correct for the nonindependence of observations (Chakrabarti & Mitchell, 2013). Given the difficulties associated with interpreting the sign, significance, and magnitude of interaction terms in non-linear models, I follow the suggestions of Hoetker (2007) and use figures to illustrate the estimated marginal effects.

One endogeneity concern throughout the three essays is the sample selection problem, which is also a common problem in strategy research (Certo, Busenbark, Woo, & Semadeni, 2016). The selection bias occurs because (1) conference call transcripts are only available for firms holding M&A conference calls in Chapter 2, (2) location decisions are only observed for firms engaging in FDI in Chapter 3, and (3) CARs can only be calculated for firms undertaking

cross-border M&As in Chapter 4. To alleviate the potential biases, I use a Heckman two-step approach in all three essays. Specifically, in the first step, I model the decision to (1) hold an M&A conference call, (2) engage in FDI, and (3) undertake a foreign acquisition, respectively, using a probit model with relevant exclusion restrictions. In the second step, I include the inverse Mills' ratio produced from the first step to account for the selection problem.

Another identification challenge specific to Chapter 4 is the endogeneity of intangibles and board effectiveness. On the one hand, both are subject to reverse causality as firms' spending on R&D and marketing activities and the appointment of directors can be affected by their prior performance. On the other hand, despite my efforts to control for relevant confounders, there still might be some omitted variables that are associated with both the dependent variable of value creation and the explanatory variables of intangible assets and the board. Thus, I identify and create instrumental variables for the potential endogenous variables and use a two-stage least squares regression to mitigate such concerns.

Intended contributions

The first essay (Chapter 2) investigates the competitive determinants of firms' voluntary information disclosure via conference calls in M&As. First, by distinguishing the market power versus efficiency rationale behind a deal, I aim to show that the acquirer's decision to hold an M&A conference call and the language used in the call are influenced by its acquisition motive. Second, by theorizing and testing the acquirers' strategic use of M&A conference calls, I hone in on the active role of acquirers in revealing or concealing proprietary information about their transactions, which affects rivals' information processing and, as a result, their decision making.

The second essay (Chapter 3) explores the behavioral contingencies for firms' imitative location choices in foreign entries. I aim to challenge the implicit assumption of risk aversion in

the imitation framework by examining how variable risk preferences, as determined by performance relative to aspiration and the possession of slack resources, moderate firms' propensity to engage in imitative foreign location choice. The new conceptual model provides a fuller picture to understand the information mechanism underpinning the inter-organization imitation process. Moreover, by focusing on a sample of FDI by Chinese firms, I seek to explain what motivates them to pursue a differentiated instead of an imitative location strategy despite the great uncertainty and risks involved.

The third essay (Chapter 4) studies how a properly designed board of directors can help address the governance challenges associated with managerial bounded rationality and bounded reliability, thus contributing to the value creation in FDI by facilitating the efficient use of technological and marketing intangibles within the MNE. I intend to contribute to the internalization literature by highlighting the essential yet often neglected role of corporate governance in understanding the value-creating mechanism of knowledge assets in FDI.

Overall, my dissertation intends to advance our understanding of the role of imperfect information in firm growth strategy, specifically via FDI and M&A, by focusing on both the internal and the external information challenges firms need to address when engaging in these activities. The findings also shed light on the value creation in cross-border M&As, depending on firms' ability to efficiently organize the internal market for knowledge-based intangibles. I return to these points of contributions and discuss the general conclusion and potential research directions in the final chapter of the dissertation.

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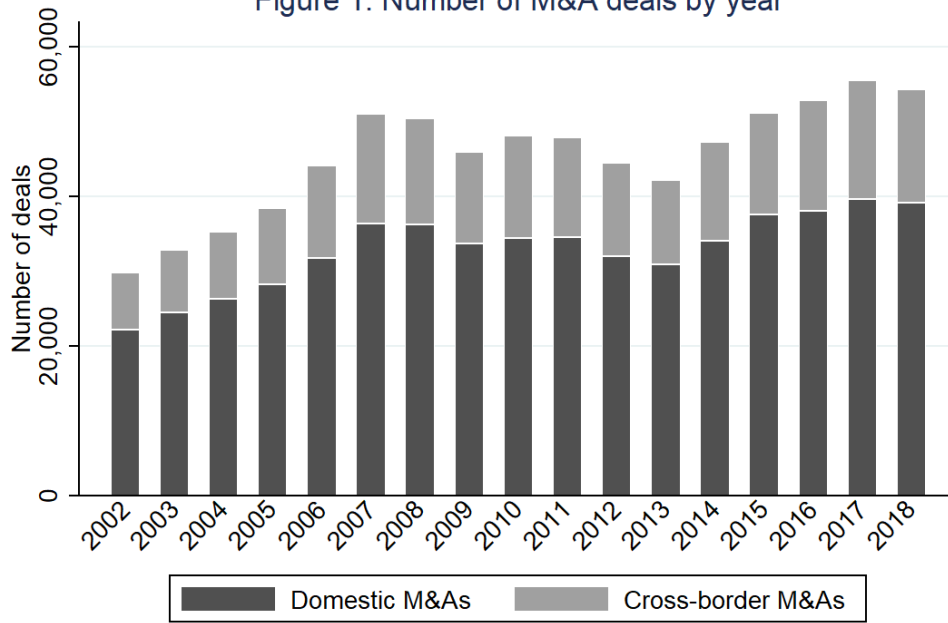
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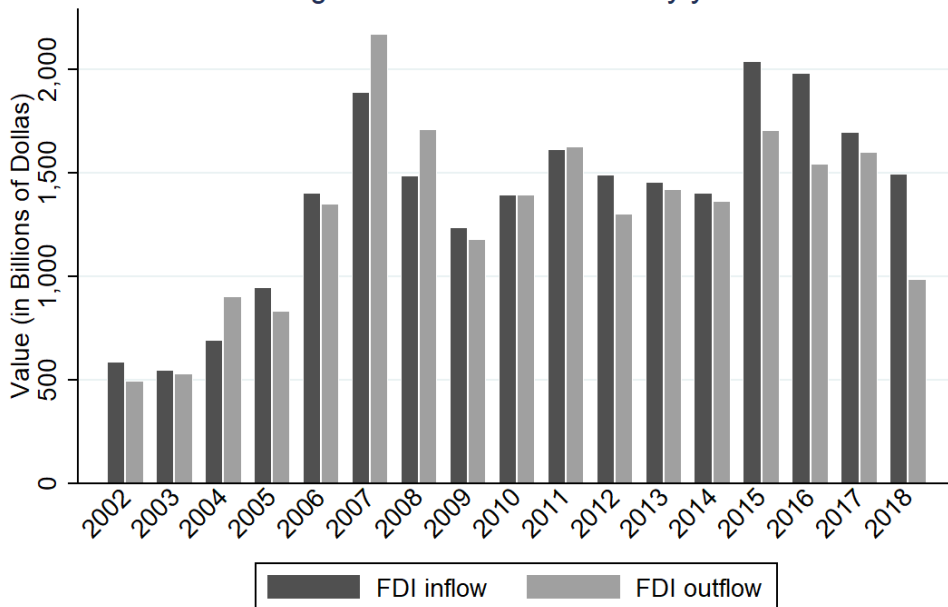
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Figure 1. Number of M&A deals by year



Source: Thomson Reuters SDC Platinum Mergers and Acquisitions

Figure 2. Value of FDI flow by year



Source: UNCTAD

Figure 3. Overview of the dissertation

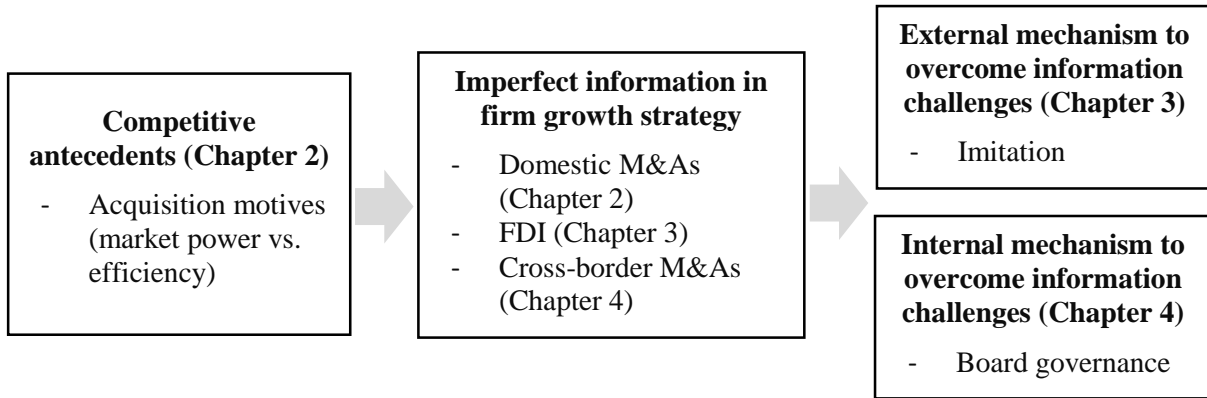
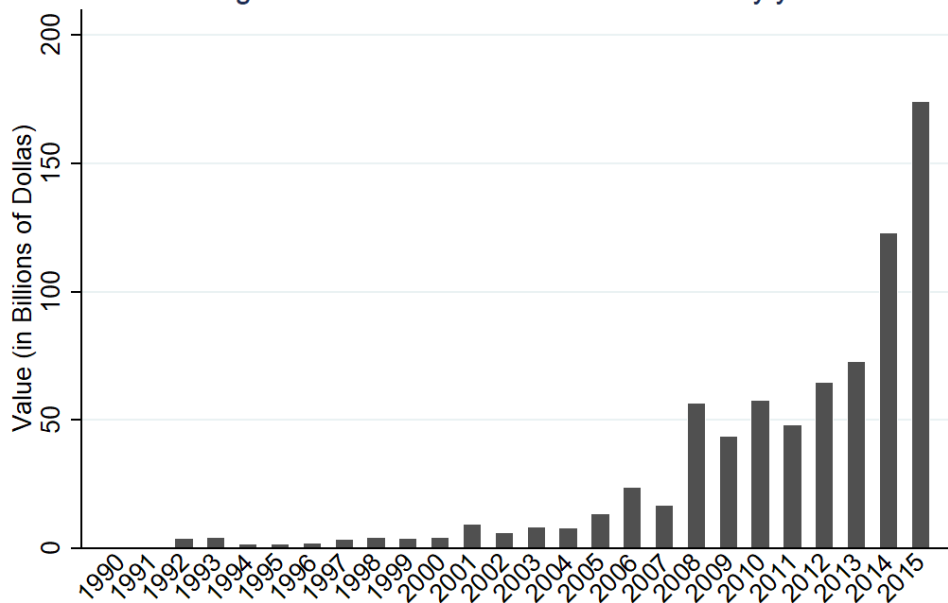


Figure 4. Value of China's outward FDI by year



Source: World Bank

CHAPTER 2

Strategic communication: Acquisition motives and M&A conference call

ABSTRACT

This paper examines the competitive antecedents of M&A conference calls. Combining insights from information economics with research on acquisition motives and corporate communication, we theorize that an acquirer's decision to hold a conference call to discuss the proposed transaction and its managers' use of vague language in the call are influenced by the motive to engage in the acquisition. Firms undertaking acquisitions to seek efficiency gains are less likely to hold an M&A conference call detailing the deal, and if they do, their managers tend to make more vague statements. This makes the communication less informative for rivals and hampers their ability to exploit the same efficiency-enhancing benefits. In contrast, for acquisitions in pursuit of improved coordination with rivals and increased market power, acquirers are more likely to hold an M&A call and use less vague language in their discussions in order to assist rivals' information processing and accommodating behaviors. Furthermore, we argue that the relationship between acquisition motives and firms' strategic use of M&A conference calls is moderated by the anticipated attention from rivals as determined by the industry structure. We test and find support for our hypotheses using a sample of domestic acquisitions and their M&A conference call transcripts by U.S. public firms from 2003 to 2018.

Keywords:

Acquisition motives; conference call; communication; language; mergers and acquisitions

INTRODUCTION

“Selective disclosure of information about itself is a crucial resource the firm has in making competitive moves. The disclosure of any information should be made as an integral part of competitive strategy.” (Porter, 1980: 107)

A key feature of the merger and acquisition (M&A) market is that it is plagued by substantial information frictions (Cuypers, Cuypers, & Martin, 2017; Wu, Reuer, & Ragozzino, 2013; Zaheer, Hernandez, & Banerjee, 2010). Acquirers are constrained by asymmetric and imperfect information when assessing potential targets, leading to the adverse selection problem in the transactions (Akerlof, 1970). As a result, firms are often unable to create and capture value from their acquisitions due to risks such as picking a poor-quality target (i.e., a lemon), overpayment, or excessive transaction costs in the pre-acquisition evaluation and bargaining process (Reuer, Shenkar, & Ragozzino, 2004; Zaheer et al., 2010). Given this, scholars and practitioners have long agreed that firms must take action to overcome such information barriers (Cullinan, Le Roux, & Weddigen, 2004; Dierickx & Koza, 1991). Previous studies on information acquisition in M&As focus on two mechanisms. First, the strategic geography literature highlights the role of geographic factors in acquirers’ search of information (Chakrabarti & Mitchell, 2013; Chen, Kale, & Hoskisson, 2018). Second, studies on signaling and information spillover examine how the acquiring firm may mitigate lack of accurate information by inferring cues or signals from the target (Capron & Shen, 2007; Wu et al., 2013) or prior deals by peers (Malhotra, Zhu, & Reus, 2015; Ozmel, Reuer, & Wu, 2017).

Whereas these separate bodies of literature have offered valuable insights into how prospective acquirers rely on various internal and external channels to alleviate information imperfections in the M&A market, less attention has been directed to firms that enjoy an

information advantage as a result of their acquisition experiences. These firms obtain valuable information about the targets through the due diligence and negotiation process (Cullinan et al., 2004; Cuypers et al., 2017; Wu et al., 2013). They also possess proprietary information about the strategic intent and economic rationale of their proposed transactions (Clougherty & Duso, 2011; Kimbrough & Louis, 2011; Trautwein, 1990). As emphasized by Michael Porter (1980) in his seminal book *Competitive Strategy*, to the extent that such privately known information can be helpful to its peers, a central question faced by a firm when formulating its acquisition strategy is whether and how to disclose information concerning the acquisitive move. Therefore, in this study, we seek to answer two questions. First, under what conditions are firms more likely to voluntarily release additional information about their acquisitions, and second, how will the acquirer adjust its linguistic tactics when communicating the information?

These questions are essential as information exchange plays a central role in understanding competitive interdependencies among firms (Guo, Yu, & Gimeno, 2017; Porter, 1980; Smith, Grimm, Gannon, & Chen, 1991). On the one hand, the resource-based view suggests that acquirers are incentivized to conceal their superior information in order to extract more economic rent (Barney, 1986; Makadok & Barney, 2001). Here information asymmetry between the acquirer and its non-acquiring rivals serves as an isolating mechanism, which increases rivals' uncertainty regarding the deal and prevents them from imitating its strategy (Peteraf, 1993). This view is supported by recent strategy studies which find that rivals' aggressive responses may neutralize the competitive advantage gained by the acquirer and erode the value the acquirer can realize (Keil, Laamanen, & McGrath, 2013; Uhlenbruck, Hughes-Morgan, Hitt, Ferrier, & Brymer, 2017). On the other hand, acquisition research has shown that rivals' reactions can also be accommodating and may increase coordinated interactions among

firms (Chatterjee, 1991; Clougherty & Duso, 2011; Eckbo, 1983). Thus, better-informed acquirers are motivated to communicate their private information to rivals to convey their rationales and intended benefits and induce peers' cooperation (Porter, 2020). Consistent with this view, an emerging line of research in economics and strategy has shown that a firm can guide rivals' information gathering and competitive actions by actively engaging in voluntary disclosures and mindfully choosing the language used in its communications (Bertomeu, Evans, Feng, & Tseng, 2020; Bourveau, She, & Žaldokas, 2020; Nadkarni, Pan, & Chen, 2019). For example, Ciliberto, Aryal, and Leyden (2020) find that managers of U.S. legacy airlines used keywords associated with the notion of "capacity discipline" in their earnings calls to coordinate with their peers to reduce the number of seats offered. Given the salience of information in the M&A context and the associated competitive consequences, whether and how acquiring firms disclose information about their deals remains an intriguing yet unexamined topic.

To understand when acquirers attempt to reduce information asymmetries and ease rivals' information processing, we draw upon literature on acquisition motives and examine how the acquiring firm's strategic intent influences its communication of the deal. Specifically, we focus on a voluntary and information-abundant type of information disclosure that is increasingly used in practice, namely the M&A conference call (Fraunhoffer, Kim, & Schiereck, 2018; Kimbrough & Louis, 2011). Integrating research on acquisition motives (Chatterjee, 1986; Clougherty & Duso, 2011; Eckbo, 1983) and insights from studies on corporate communication and language (Gao, Yu, & Cannella, 2016; Guo et al., 2017), we theorize that (1) the decision to hold an M&A conference call, and (2) managers' use of vague language in the call, are both associated with whether the motive of the acquisition is to pursue efficiency gains or to promote market power. For efficiency-driven acquisitions where value creation is enabled by the unique

combination of the acquirer's and target's assets (Fee & Thomas, 2004; Rabier, 2017; Shahrur, 2005), the acquiring firm has strong incentives to keep the efficiency-enhancing sources proprietary, knowing that they can later be used by rivals to compete against it. Hence, to minimize the spillover of value-relevant information to rivals and maintain its competitive advantage, the acquirer becomes more reluctant to hold an M&A call and tends to use more vague language in the call. In contrast, if the primary goal for an acquisition is to seek market power where economic value is created via softened competition and increased collusion potential (Chatterjee, 1986, 1991; Clougherty & Skousen, 2019), the acquirer is motivated to supplement its mandatory disclosure with detailed and contextual information to assist rivals' assessment of the transaction. As a result, holding an M&A call and discussing the deal clearly and unequivocally is more likely in order to spur post-acquisition coordination.

Next, we explore boundary conditions of the main predictions by examining the role of the industry structure, which determines how much attention rivals will pay to the acquirer's M&A disclosure and thus the effectiveness of its communication. Building upon the information processing and the competitive signaling perspectives (Makadok & Barney, 2001; Porter, 1980; Smith et al., 1991), we argue that the information spillover effect of M&A conference calls will be more pronounced when rivals are more attentive to the acquirer's competitive actions. In particular, we expect that rivals will monitor the acquirer's communications more closely in industries with (1) a higher level of concentration and (2) fewer firms competing with each other.¹ In such industries, increased strategic interdependence among firms makes the acquisitive

¹ Admittedly, number of firms may also be a component when constructing measures for industry concentration, such as the Herfindahl-Hirschman Index. However, past studies have shown that number of firms and industry concentration do not necessarily have the same effect on the competitive interactions among firms. For example, the classical model by Fama & Laffer (1972) shows that a highly-concentrated industry with two non-colluding firms can be perfectly competitive. Similarly, in strategic management, D'Aveni (1994) posits that an industry with only two competitors could still be hypercompetitive. Thus, we treat number of firms and level of industry concentration as two related but distinct constructs and examine their moderating effects separately.

moves by peers more visible (Guo et al., 2017; Porter, 1980). Moreover, the costs of identifying and attending to relevant rivals are reduced, boosting firms' motivation to invest in competitive intelligence to gather and analyze information (Kumar, Saboo, Agarwal, & Kumar, 2020; Makadok & Barney, 2001). Thus, when faced with a few powerful players in the industry, managers of efficiency-driven deals are less likely to hold an M&A conference call and will use more vague words in the call to increase the information search and processing costs of attentive rivals. Contrarily, market-power-driven acquisitions pursuing collusive benefits will rely more heavily on the M&A call and restrain from making vague statements as greater attention from rivals makes coordination more probable. We test the hypotheses using a sample of 6,861 domestic acquisitions and 1,269 M&A conference call transcripts of these deals by U.S. public firms from 2003 to 2018. Our empirical results are largely aligned with the predictions.

Our research makes three main contributions. First, it adds to the information asymmetry literature by showing how better-informed firms may exploit their information advantages to maximize value creation. Strategy research on information asymmetry has long underscored how firms collect, filter, and interpret information cues from peers' competitive moves to cope with uncertainty in a multitude of corporate decisions, such as new market entry (Henisz & Delios, 2001), corporate social responsibility (Gupta & Misangyi, 2018) and M&A (Malhotra et al., 2015; Ozmel et al., 2017). Nevertheless, relatively little has focused on the behaviors of firms that possess private information from their prior experiences and serve as a crucial information source to others. This has limited our understanding of how firms can capture value from superior information, which arguably is one of the most valuable sources of competitive advantage (Barney, 1986; Makadok & Barney, 2001; Porter, 1980). We develop a framework to unpack the competitive determinants of an acquirer's decision to voluntarily share incremental

information beyond mandatory disclosure requirements. By theorizing and testing the strategic use of M&A conference calls, we hone in on the active role of acquirers in revealing or concealing proprietary information, which affects the extent of information asymmetry faced by rivals and, as a result, their decision making.

Second, we contribute to the M&A literature by improving the understanding of the competitive interplay between the acquiring firm and its rivals. Extant acquisition literature has considered its performance effects for either the acquirer (Rabier, 2017; Seth, 1990) or the non-acquiring rivals (Clougherty & Duso, 2009; Uhlenbruck et al., 2017). We extend this line of research by demonstrating that acquirers will take the potential information spillover to rivals into account and adjust their acquisition strategies accordingly based on the underlying strategic rationales. Besides, by delving into the boundary conditions that govern the relationship between acquisition motives and M&A conference call, our contingency model emphasizes the essential role of attention from rivals in understanding the competitive costs and benefits of information disclosure and thus firms' public communications of their acquisitive moves.

Third, we advance research on communication and language by examining the strategic use of M&A conference call with a focus on its effect on rivals. Most research on corporate communication investigates how it is shaped by external pressures from investors or regulators (Graffin, Haleblan, & Kiley, 2016; Pan, McNamara, Lee, Haleblan, & Devers, 2018). Even though managers, in general, have incentives to effectively communicate with investors for capital market benefits, they often face the dilemma that rivals may benefit from the information released to gain competitive advantages (Bushee, Matsumoto, & Miller, 2004; Wagenhofer, 1990). By identifying and testing the effect of acquisition motives, this study explicates how the acquiring firm manages its communication of value-relevant information under rivals'

competitive threats. By studying the use of vague words in M&A conference calls, our study also answers the call from Guo et al. (2017) to explore the antecedents of vague language.

Our paper also has important practical implications. Despite the efforts taken by financial regulators to reduce information frictions and level the playing field for market participants, such as the Regulation Fair Disclosure (Regulation FD) and the Sarbanes-Oxley Act (SOX), there has been a growing concern that firms may take advantage of disclosure mechanisms to coordinate actions with each other (Bourveau et al., 2020; Ciliberto et al., 2020). The potential coordinated effect is especially salient in the M&A market and has long been central to merger and antitrust policies (Porter, 2020). Informed by these discussions, our study is among the first to examine competitive determinants of firms' communication in M&As. Our results provide initial evidence of how acquirers seek to enhance market power by strategically engaging in voluntary disclosures via M&A conference calls to inform rivals, illustrating the circumstances under which improved transparency may have unintended anti-competitive consequences.

THEORY AND HYPOTHESES

Corporate disclosure in M&As

M&A is a complex strategic initiative characterized by great uncertainty and substantial resource commitments (Haleblian, Devers, McNamara, Carpenter, & Davison, 2009; Keil et al., 2013). In our model, a set of firms engaged in M&A activities possess proprietary information (Trautwein, 1990). Such information is valuable not only for its future acquisitions but also, if disclosed, to its peers. The asymmetrically informed acquirers can communicate their privately known information through various disclosure channels available in the M&A market.

In 2002, as part of the SOX, all publicly traded firms in the U.S. were mandated to provide timely information disclosure “concerning material changes in the financial condition or

operations” (Section 409, SOX). SEC implemented these rules in 2004 by expanding the disclosure requirements for Form 8-K filings. Under the new rules, if a public firm has completed an acquisition, it needs to file an 8-K with information such as the completion date of the transaction and a brief description of the assets involved and the identity of its owners (Item 2.01, SEC General Guideline Form 8-K).² Besides the mandatory disclosure with the 8-K, an acquirer can choose to communicate extra information of the deal using a press release or a conference call. In this study, we focus on M&A conference calls for two reasons. First, different from an 8-K, a conference call is a means of voluntary disclosure where managers can decide whether to use it or not (Pan et al., 2018). Thus, managers may opt to supplement their mandatory disclosures with more contextual information via a conference call, such as details about the integration plans, the underlying assumptions of their financial projections, and the intended benefits (Kimbrough & Louis, 2011). Second, compared to acquisition press releases where audiences are passive information recipients, conference calls grant them the chance to actively discover information by asking questions (Huang, Lehavy, Zang, & Zheng, 2018; Matsumoto, Pronk, & Roelofsen, 2011). The Q&A session in an M&A conference call offers an ideal forum for managers to directly address concerns from a large group of market players simultaneously and reveal additional value-relevant information above their press releases and conference presentations (Fraunhoffer et al., 2018; Matsumoto et al., 2011).

Given its voluntary and interactive nature, a conference call serves as a rare (around 20% of our sample acquisitions held an M&A conference call) and salient channel for public firms to offer incremental information to their stakeholders. Using a conference call to discuss the acquisition allows managers to provide more context for the audiences to interpret the

² <https://www.sec.gov/files/form8-k.pdf>

standardized information embodied in an 8-K or the press release and understand the rationales for the proposed transaction (Kimbrough & Louis, 2011; Noh, So, & Weber, 2019). As such, we expect managers to have incentives to go beyond a brief description of the deal in other disclosures and use an M&A call to discuss deal-specific details.

Conference calls and competition

Considering the information asymmetry between the firm and its investors and the information intermediation role of analysts, the large majority of research on voluntary disclosure via conference call examines how it is perceived and evaluated by these capital market participants (see Heinrichs, Park, and Soltes (2019) as a notable exception). However, the SEC passed the Regulation FD in 2000, requiring that any material information given by the management to a specific individual must be promptly made available to the public at large. As a result, stakeholders who were denied access to conference calls before, including rivals, can now listen in on conference calls or read their transcripts on the firm website (Bushee et al., 2004; Heinrichs et al., 2019).

Despite a more open and transparent information environment promoted by the Regulation FD, the access of rivals to conference calls raises two concerns. On the one hand, rivals may take advantage of the information made available to adjust their strategy and undercut the disclosing firm's competitive position (Li, 2010). To avoid the proprietary costs imposed by better-informed rivals, firms become more reluctant to engage in conference calls (Ellis, Fee, & Thomas, 2012; Wagenhofer, 1990). On the other hand, conference calls can also serve as a coordination mechanism for firms to exchange strategic information and facilitate tacit collusion (Bourveau et al., 2020; Ciliberto et al., 2020). For example, a central question in the Department of Justice's recent investigation into the possible collusion among airlines is whether their

executives' discussion on capacity control in earnings calls is to inform the market, or it is a tool to coordinate.³ Hence, in deciding whether and how to use a conference call, managers not only need to consider the information demands from analysts and investors, they also face a crucial trade-off between the benefits of increased coordination with peers and the costs of aiding rivals' competitive initiatives.

In the context of M&A, rivals' reactions can either *intensify* – i. e., retaliatory responses such as a countervailing acquisition (Keil et al., 2013; King & Schriber, 2016) – or *soften* – i.e., accommodating behaviors such as coordination on price, capacity, or other business decisions (Chatterjee, 1991; Porter, 2020) – competition among firms. Different moves from rivals determine the extent to which the acquirer can create and capture value from the deal (Clougherty & Duso, 2011; Haleblan et al., 2009). Given the vital role of conference calls in informing rivals' competitive actions and their performance implications, a natural question facing the acquirer is when and how to use them. We draw upon the literature on acquisition motives (Chatterjee, 1986; Eckbo, 1983) to explore how different motives may influence the acquirer's use of M&A conference calls.

Acquisition motives

One fundamental question in the M&A literature is what motivates firms to undertake M&As (Haleblan et al., 2009; Hitt, Ireland, & Harrison, 2001). Based on the various sources of value creation, past research has highlighted two main competing rationales for M&As, namely efficiency and market power.

On the one hand, firms may undertake acquisitions to pursue efficiency gains. An acquirer can realize two forms of efficiency-based synergies by taking over the target: (1)

³ <https://www.nytimes.com/2015/07/02/business/airlines-under-justice-dept-investigation-over-possible-collusion.html>

productivity improvement through more efficient use of the combined resources and capabilities (Li, 2013; Seth, Song, & Pettit, 2002), or 2) cost savings arising from the economies of scale or a more diversified financial structure (Dessaint, Golubov, & Volpin, 2017; Rabier, 2017). As a result, the acquirer enjoys a competitive advantage over its rivals due to the unique operational, managerial, or financial synergies created by the transaction (Clougherty & Duso, 2011; Hitt et al., 2001). On the other hand, a firm's acquisition decision may be driven by anti-competitive purposes. In this case, an acquisition is used to lessen rivalry intensity and facilitate collusion among firms due to the reduced costs of enforcing non-competitive behaviors (Chatterjee, 1991). Thus, both the acquirer and its non-acquiring rivals benefit from their increased market power at the expense of customers and suppliers (Fee & Thomas, 2004; Shahrur, 2005).

Though the distinction between efficiency and market power motives was first developed and tested for horizontal acquisitions, subsequent evidence has shown that they may be just as common in vertical and conglomerate deals (Chatterjee, 1991; Shenoy, 2012). First, vertical takeovers can lead to firms' concerted actions with the acquired supplier or customer serving as the node for information flow (Nocke & White, 2007). Moreover, conglomerate M&As increase the degree of multimarket contact and competitive embeddedness between the acquirer and its rivals, which dampens competition and fosters coordination (Gimeno & Woo, 1999; Gugler, Mueller, Yurtoglu, & Zulehner, 2003). Second, both vertical and conglomerate deals generate efficiency gains by internalizing transaction costs or creating economies of scope (Eckbo, 2014; Shenoy, 2012).

In addition to the value-creating motives mentioned above, which focus on shareholders' interests and aim to maximize firm value by undertaking an M&A, acquisitions can also be driven by managers' self-serving goals (Seth et al., 2002; Trautwein, 1990). First, managers may

use M&As to grow their company to realize personal gains such as higher compensation and improved job security (Haleblian et al., 2009; Morck, Shleifer, & Vishny, 1990). Second, managerial hubris is also found to increase firms' acquisitive behaviors as overconfident managers tend to overestimate their ability to run the combined entity and generate returns (Becher, Mulherin, & Walkling, 2012). However, these overly optimistic managers often overpay for the target, which harms acquisition performance (Hayward & Hambrick, 1997). Acquisitions driven by managerial self-interest are usually value-destroying for the firm as managers attempt to extract private benefits (Clougherty & Duso, 2011). For such acquisitions, managers are less likely to possess valuable strategic information, making information spillover to rivals less of a concern in their communications. Instead, monitoring from shareholders becomes the primary consideration to managers given the heightened conflict of interests and thus plays a dominant role in their information disclosures (Hope, Thomas, & Vyas, 2011; Zhao, Allen, & Hasan, 2013). Thus, we do not expect a systematic association between managerial-driven M&As and the use of conference calls from a competitive view. In our theorization, we focus on the two strategically oriented motives of efficiency and market power. We go beyond the dichotomy in the empirics and account for value-destroying acquisitions driven by managerial self-interests (to be explained later).

Depending on the different mechanisms for value creation, the acquirer may evaluate rivals' information processing and potential responses differently. Next, we examine how the two motives influence the acquirer's decision to hold an M&A conference call.⁴

⁴ For the purpose of understanding how distinctive acquisition motives affect firms' communications of their acquisitions, one limitation of the classification should be emphasized. The efficiency and market power motives are not mutually exclusive (Chatterjee, 1991), meaning a firm's acquisition can both increase its own efficiency and facilitate coordinated interactions with rivals (Porter, 2020). From a theoretical point of view, although simultaneous pursuit of both goals is plausible, prior research has shown that there is a dominant source of value creation that determines the competitive interactions following the acquisition and thus the performance outcome for the acquirer and rivals. For example, in a study examining the effects of two major mergers in the U.S. beer industry, Miller,

Acquisition motives and the decision to hold an M&A conference call

Efficiency-driven acquisitions and the call decision

Theories of M&A that emphasize value creation have long highlighted that firms engage in acquisitions to pursue synergistic values (Haleblian et al., 2009). Improved operational and financial efficiency could arise from sources such as the economies of scale or scope, elimination of duplicate facilities, tax reduction, and lower costs of capital (Dessaint et al., 2017; Larsson & Finkelstein, 1999; Rabier, 2017; Seth, 1990). The integration of the acquirer's and target's resources and capabilities provides a competitive advantage to the acquirer, whereas their non-acquiring rivals do not have access to the same portfolio of productive assets (Chatterjee, 1986; Uhlenbruck et al., 2017). As a result, rivals have strong incentives to understand and adopt the same production process or financial structure enabled by the M&A to defend their competitive positions and restore competitive parity (Hopkins, 1991; Keil et al., 2013).

To deter rivals' counterattacks, the acquirer should suppress the amount of information transmitted to them directly or indirectly through informational intermediaries such as analysts (Arya & Mittendorf, 2005; King & Schriber, 2016). By complying with the minimal disclosure requirements, the acquirer can protect its information advantage and makes it more difficult for rivals to identify and seize the same efficiency-enhancing benefits (Subrahmanyam & Xu, 2018).

In effect, synergy-related questions are among the most frequently asked ones in an M&A

Sheu, and Weinberg (2020) find that increased profits of beer manufacturers are mostly due to industry consolidation where the improved coordination arises with substantial efficiency gains for the merging companies. For such deals, efficiency benefits are dominated by adverse competition effects as the primary goal is to reduce competition and facilitate collusion. As a result, the deals are conducive to concerted actions and serve as a positive shock to rivals. Consistent with this view, empirically, we follow the tradition of the acquisition motives literature and use an acquisition's performance effect on rivals to capture the primary motive behind a deal (Eckbo, 1983; Chatterjee, 1986). Specifically, on average, the stock price reactions of rivals to an acquisition announcement will be negative if the deal primarily benefits the acquiring firm due to efficiency gains. On the contrary, market-power-dominated deals are likely to enhance the future profits also for rivals, leading to a positive average market reaction (Clougherty & Duso, 2011).

conference call. To give an example, in the press release and the conference call presentation, managers of the acquirer remained silent on potential synergy. Analysts quickly picked this up in the Q&A session with one question of “did you mention anything about possible synergies that you are going to see through this acquisition?” and another question asking whether the benefits are “in the operating synergies and cost savings or would it be in the exploration?” (Glamis Gold, 2004). This example illustrates how proprietary information on synergies may inevitably be made public in M&A calls. Rivals can thus take advantage of the value-relevant information to assess potential competitive moves and adjust their strategies to pursue the same efficiency gains, for instance, by undertaking a countervailing acquisition with a target offering similar synergistic values (Gimeno, 2004; Keil et al., 2013). Given this, we expect that an efficiency-driven acquisition is less likely to hold an M&A call as the acquirer desires to keep its rivals at bay by minimizing the spillover of strategic information to them.

Hypothesis 1a. A firm that undertakes an efficiency-driven acquisition is less likely (H1a) to hold an M&A conference call than with other acquisitions.

Market-power-driven acquisitions and the call decision

Contrary to efficiency-driven acquisitions, market-power-driven acquisitions are used as a vehicle to alleviate competition and facilitate collusive behaviors, which raises profits for all firms in the industry (Chatterjee, 1991; Eckbo, 1983). The acquirer can more easily coordinate with its rivals on output and price in a more concentrated industry after a horizontal M&A (Fee & Thomas, 2004). Firms also tend to act more cooperatively after vertical or conglomerate deals due to increased foreclosure pressure (Shenoy, 2012) or multimarket contact (Gugler et al., 2003). Either way, the potential gains of a market power deal can be amplified if the acquiring firm manages to elicit reciprocating reactions from rivals (Miller, Sheu, & Weinberg, 2020). One such accommodating move by rivals could be to undertake a non-competitive acquisition, which

can either create a more consolidated and symmetric market structure or lead to a higher level of multimarket contact. Both serve to reduce rivalry intensity and sustain tacit collusion (Fuentelsaz & Gómez, 2006; Gimeno & Woo, 1999).

To help rivals understand its intention to coordinate and thus maximize the value creation of a market power deal, we expect the acquirer to be especially likely to rely on an M&A conference call. The reasons are twofold. First of all, the interactive nature of an M&A call allows managers to convey more deal specifics related to its future strategies and long-term goals (Kimbrough & Louis, 2011), which provides more context for rivals to interpret the competitive and performance implications of the transaction (Noh et al., 2019). Besides, the experimental results by Schwartz, Young, and Zvinakis (2000) show that greater disclosure of prior strategies improves the extent of cooperation among players. Compared to acquisition press releases, M&A calls contain incremental information on the acquisition that can be valuable to rivals. With such information, rivals develop a better understanding of the acquirer's strategic intent and are more likely to behave reciprocally (Bertomeu et al., 2020). For example, in 2008, Delta merged with Northwest and formed the largest airline in the world at that time. In the conference presentation, Ed Bastian, the President and CFO of Delta, stated that this merger provides "a significant strategic advantage for Delta...against our domestic competitions", which may raise the concern of intensified competition to rivals. However, when answering a question on capacity in the Q&A, he indicated that this acquisition should not be taken as a provocation by saying that "both airlines independently are taking pretty aggressive steps to downside the domestic capacity of our respective business" (Delta Airline, 2008). This answer, together with another statement made in the call that "the domestic market is highly fragmented," signals to rivals about future opportunities for consolidation and coordination. Two years later, Southwest Airlines, a major

domestic competitor to Delta, acquired AirTran. With this acquisition, Southwest Airlines gained access to a hub in Atlanta, where Delta was headquartered. When addressing a similar question in the M&A call, the CEO of Southwest also signaled its intention to rein in capacity by answering that “we don’t have a plan today to add airplanes” (Southwest, 2010). These communications made by legacy airlines demonstrate how the acquirer may use an M&A call to reduce information asymmetry with its peers and how rivals may follow up with non-rivalry moves based on an improved understanding of the competitive environment. Second, in addition to the direct transmission of information to rivals, the acquirer can also use an M&A call to guide analysts’ information gathering and dissemination, a critical information source for rivals to evaluate competition (Arya & Mittendorf, 2005). Taken together, we predict that a market power acquisition is more likely to hold an M&A conference call to communicate contextual information and spur rivals’ accommodating behaviors.

Hypothesis 1b. A firm that undertakes a market-power-driven acquisition is more likely to hold an M&A conference call than with other acquisitions.
(H1b)

Acquisition motives and the use of vague language in an M&A conference call

Recent studies on corporate communication have highlighted that a firm’s competitive moves are not only affected by the amount of information available but also by its quality, where various linguistic and verbal traits play a vital role (Guo et al., 2017; Li, 2010; Pan et al., 2018). One language attribute that has received increasing attention in the management literature is vague language. On the one hand, managers may use vague language as a strategic tool to limit the amount of value-relevant information rivals can extract from their communications (Guo, Sengul, & Yu, 2020), making rivals’ information processing costlier and less precise. On the other hand, a firm’s heavy use of vague language can also increase the perceived uncertainty by rivals regarding the competitive implications and the economic value of its actions (Nadkarni et

al., 2019), which complicates rivals' interpretation of the information and discourages them from taking aggressive competitive moves.

For the M&A conference call, although the acquirer has discretion over whether to use it or not, it often faces intense pressures from analysts and investors for more information (Kimbrough & Louis, 2011). Once it decides to hold an M&A call, vague language provides some leeway for managers to control the quality of their communications and the extent to which they can be interpreted by rivals. Given the importance of vague language in influencing rivals' information processing, in this section, we explore how the acquirer's efficiency versus market power motive affects its use of vague language in M&A conference calls.

Efficiency-driven acquisitions and the use of vague language

To the extent that the incremental information discussed in an M&A call could be strategically valuable, rivals of the acquirer are incentivized to pay attention (Heinrichs et al., 2019). For efficiency deals, even though the amount and basis of synergies are highly relevant to analysts and investors, disclosing such information can also aid rivals' retaliatory reactions. Given the competitive pressures from rivals, the acquirer may consider using more vague language to increase their (1) information processing difficulties and (2) perceived risks, and consequently impair rivals' ability to exploit the information communicated.

The example of Glamis Gold above has shown that one of the primary interests of market participants when attending an M&A call is to obtain a better understanding of potential synergies in the deal. To address their information needs while limiting rivals' free-riding on value-relevant information, managers can rely on vague language. For example, one CEO, in his answer to a synergy-related question, said that "so there's potential for savings in *many* arena, but software, hardware, that *kind of* thing – economies of scale throughout [Italics added to

highlight vague expressions]” (Infocrossing Inc., 2004). Although gains from cost reduction are acknowledged, which is additional information compared to press release and call presentation, the details are concealed by the use of nonspecific quantifiers (“many”) and approximation terms (“kind of”). In contrast, managers can make rivals’ assessment more straightforward and precise by talking with clear and concrete language, one example being “we have anticipated \$2 million of net synergies with 30% of that being net cost saves, which includes back office consolidations” (National Penn Bancshares, 2005).

Thus, we expect managers of efficiency-driven deals to use more vague words in an M&A conference call to hide the sources of their efficiency benefits and extract more value from the acquisition by sustaining their information advantages over rivals.

Hypothesis 2a. A firm that undertakes an efficiency-driven acquisition is more likely to use vague language in the M&A conference call than with other acquisitions.

Market-power-driven acquisitions and the use of vague language

As discussed above, the acquirer of a market power deal can maximize its value creation by eliciting rivals’ reciprocating reactions, such as their accommodating acquisitions, to further reduce the competitive intensity (Miller et al., 2020). Consistent with this view, McNamara, Haleblan, and Dykes (2008) show that early movers in a merger wave earn above-average returns. One way to encourage post-acquisition coordination is by disseminating extra information to generate greater awareness and facilitate a more accurate assessment of the deal’s intentions and potential benefits (Porter, 2020). However, whether rivals will react to the information released depends crucially on how easily it can be collected and understood (Guo et al., 2017; Smith et al., 1991). Managers of the acquirer can ease rivals’ information acquisition and processing by using less vague expressions in their communications. This is because the lack

of clarity in vague language reduces the amount of information embodied in the disclosure and obscures the acquirer's strategic intents (DesJardine, Marti, & Durand, in press). As a result, rivals may interpret the information in a way that is not intended by the acquirer. For instance, when answering a question on productivity, the acquirer's CEO said that "we have taken a very disciplined approach to the marketplace with respect to where we have added capacity" (Rock-Tenn Company, 2011). Without any ambiguous words, this statement delivers a clear message that the acquirer did not mean to intensify competition despite its enhanced productivity and signals to rivals its willingness to coordinate by exercising capacity control. Conversely, managers' answers with more vague language are prone to multiple interpretations. For instance, when addressing a similar question, the CEO of another acquirer replied that "*I think* what we want to do is keep an open mind towards opportunities that take place in our market, and we want to be disciplined in our approach if *those* opportunities become available to us [Italics added to highlight vague terms]" (National Penn Bancshares, 2010). Although the answer also implied an intention to impose capacity discipline, the use of vague expressions such as "I think" and "those" may cast some doubt on whether the signal is credible, reducing rivals' likelihood of cooperation.

Therefore, we predict that managers of a market power deal will use less vague language in an M&A conference call to increase the informativeness of their communications and reduce the processing costs of rivals. Both contribute to informing and stimulating rivals' accommodating responses.

Hypothesis 2b. A firm that undertakes a market-power-driven acquisition is less likely to use vague language in the M&A conference call than with other acquisitions.

The moderating effect of the industry structure

In the previous sections, we first highlighted the goal of the acquirer to maintain or reduce information asymmetry vis-à-vis rivals by strategically engaging in an M&A conference call. We then emphasized the role of vague language in rivals' information processing. The basic premise of our model is that informationally disadvantaged rivals closely monitor the acquirer's M&A call to gather and interpret the additional information disclosed. Given (1) that the anticipated attention from rivals provides the foundation for the described communication process and (2) that information cues are more likely to be transmitted and provoke a response when peers' attention rises, it follows that the hypothesized relationships should be stronger in contexts where rivals are more actively observing their competitive environment and weaker in contexts where rivals are less attentive. To examine the extent to which rivals devote attention to the acquirer's M&A call, we focus on the industry structure, which determines the costs and benefits of gathering and processing information.

First, the benefits of attending to others' competitive actions are enhanced in industries with greater strategic interdependence. The competitive signaling perspective posits that competitive market signals, which are "announcement or previews of potential actions intended to convey information or to gain information from competitors" (Heil & Robertson, 1991: 403), are more critical in oligopolistic markets because firms are mutually dependent (Porter, 1980). Thus, information about competitors is essential to firms' strategic decision-making in such markets (Gao et al., 2016). The Herfindahl-Hirschman index (HHI) is a common measure of the oligopolistic nature of a market and an essential predictor of firms' competitive behaviors (Jayachandran, Gimeno, & Varadarajan, 1999). In industries with a higher level of HHI (i.e., greater concentration), each firm has more at stake, and its performance is more likely to be influenced by rivals' moves (King & Schriber, 2016; Porter, 1980). As a result, firms in such

industries have greater incentives to pay attention to others' competitive signals and understand their strategic intentions before deciding how to react (Heil & Robertson, 1991). Peers' heightened attention makes the acquirer's strategic use of M&A call a more effective mechanism to influence their competitive analysis by determining the amount and the clarity of information that can be received and interpreted.

Thus, we expect that, in more concentrated markets, acquirers driven by strategic motives are more likely to consider the potential information spillovers to rivals and their possible reactions when deciding whether and how to use an M&A conference call. As such, the goal to either deter rivals' retaliatory responses or induce rivals' cooperative moves will have a stronger effect on the decision to hold an M&A call and the use of vague language in the call.

Hypothesis 3a. (H3a) The relationship between acquisition motives and the probability of holding an M&A conference call will become stronger in more concentrated industries.

Hypothesis 3b. (H3b) The relationship between acquisition motives and the use of vague language in an M&A conference call will become stronger in more concentrated industries.

Second, information search and processing costs are reduced substantially in industries with fewer firms. Even though there is widespread agreement that firms must collect information about their competitive context to formulate strategies (Makadok, 2011; Smith et al., 1991), information acquisition can be costly, especially in terms of the opportunity costs of diverting scarce managerial attention from other important issues (Makadok & Barney, 2001). Porter (1980) also acknowledges that given the subtlety of gathering and interpreting signals, too much attention to competitors may potentially be a counterproductive distraction. The costs of identifying relevant competitors and acquiring information about the competitive environment grow exponentially with an increased number of peers in the market (Li & Greenwood, 2004). On the contrary, attending to competitors becomes more manageable if a firm needs to monitor

only a handful of players (Guo et al., 2017). In addition to the lessened difficulties in monitoring others, firms in industries with fewer firms are also more motivated to acquire information about rivals' competitive moves as such moves are more likely to change the competitive landscape and affect their performance (Head, Mayer, & Ries, 2002). Consistent with these views, the model by Myatt and Wallace (2015) shows that firms will pay more attention to public signals with fewer competitors on the market when information is costly and endogenously acquired.

In sum, we suggest that, with fewer rivals, firms are more capable and incentivized to closely monitor and interpret competitive moves by others due to increased strategic significance and reduced information acquisition costs. If an acquiring firm from such industries holds a conference call, attentive rivals are more likely to gather, decipher, and react to the information cues from the communication. Hence, we predict that in industries with fewer players, greater attention from rivals will increase the salience of the acquirer's information disclosure, providing more opportunities for the acquirer to use an M&A call to maximize its value creation by either withholding (for an efficiency-driven deal) or sharing (for a market-power-driven deal) information. In contrast, lack of attention from rivals in industries with numerous competitors reduces the effectiveness of M&A calls in influencing rivals' information processing, weakening the relationships between acquisition motives and M&A conference calls.

Hypothesis 4a. The relationship between acquisition motives and the probability of holding an M&A conference call will become stronger in industries with fewer firms.

Hypothesis 4b. The relationship between acquisition motives and the use of vague language in the M&A conference call will become stronger in industries with fewer firms.

METHODOLOGY

Data

To test our hypotheses, we used a sample of domestic M&As by U.S. public firms from 2003 to 2018. We obtained information on acquisitions from the SDC Platinum Mergers and Acquisitions database and included deals that meet the following requirements: 1) the acquirer and the target are both U.S. firms, 2) the acquirer has the necessary data on Compustat and CRSP, 3) the deal status is “completed”, 4) the transaction value is larger than 10 million U.S. dollars, and 5) the acquirer took over more than 50% of the target shares.⁵ The last two criteria ensure that the sample deals are significant enough to impact competition. Given that we used the stock price responses of rivals to identify acquisition motives, we removed deals when another acquisition was announced in the same 4-digit SIC industry within the 5-day event window (i.e., [-2, +2]). We also excluded deals where the acquirer or the target is a financial firm (4-digit SIC codes between 6000 and 6999).

M&A conference calls were collected using transcripts from Thomson Reuters EIKON. We first downloaded all conference call transcripts related to M&As (4,471) between October 2003 (the earliest date available) and June 2018. Each transcript consists of four sections: a list of corporate participants (usually CEO and CFO), a list of call participants (such as analysts and investors), a presentation session, and a Q&A session. Considering that an M&A conference call is voluntary and that the presentation tends to be scripted and does not provide much additional information beyond the press release, we follow prior studies and focus on the Q&A session (Kimbrough & Louis, 2011; Matsumoto et al., 2011). Thus, for the text analysis, we only included transcripts with at least one question asked and answered.⁶ Also, we removed

⁵ We used two alternative requirements on the percentage of share acquired: 1) only included deals where the bidder owned 100% of the target after the acquisition and 2) included deals where the bidder owned less than 50% before and over 50% after the acquisition. The results are the same.

⁶ Two types of conference calls were removed. First, conference calls with only a presentation planned. For these conference calls, attendees are automatically disconnected after the presentation. Second, conference calls with a Q&A session planned, but no question was asked. In either case, no additional information beyond the presentation was provided. There were 21 and 11 sample calls for the first and the second type respectively.

conference calls discussing multiple deals as they may be driven by different motives and jointly determine managers' discussion.⁷ We then kept the most consistent set of calls, focusing on 1) the call by the acquirer (i.e., dropped conference calls by the target or the seller), 2) the analysts call when the media call with journalists was also available, 3) the first analyst call when multiple calls are available (e.g., subsequent calls to update the progress of the transaction), and 4) conference calls held in English. We matched the transcript sample with the acquisition data from SDC, first using the ticker symbols, then manually checking the unmatched instances. We supplemented the matched sample with data on firm financials from Compustat and data on stock price from CRSP. The final sample consists of 6,861 acquisitions and 1,269 transcripts of conference calls on these deals.

Variables

Dependent variables

(H1a & H1b) Call decision. The first dependent variable, *call*, is a dummy variable which equals 1 if there was an M&A conference call held for the acquisition and 0 otherwise. One concern with this measure is that EIKON may not provide transcripts for some M&A calls. We do not deem this a serious issue for several reasons. First, our sample period starts after the passage of the Regulation FD, which requires prompt dissemination of information conveyed in conference calls. Second, given that we focus on materially important acquisitions, it is very likely that the call was transcribed and collected by EIKON if there was one. Third, we randomly chose 50 acquisitions with no transcripts from the sample and searched for their press releases on Business Wire, PR newswire, and company websites. In the 48 press releases that could be

⁷ 44 conference calls discussed 2 or 3 deals. Our results remain unchanged if we include these calls when examining the effect of acquisition motives on the use of vague language.

identified, we did not find any mention of a conference call, suggesting that there is no systematic missing of transcripts by EIKON.

(H2a & H2b) Vague communication. Following prior research (DesJardine et al., in press; Guo et al., 2017), we use a word-count approach to quantify the use of vague language in M&A conference calls. Vague language is identified based on Hiller’s communication vagueness dictionary. This dictionary contains 356 unique vague words and phrases along 10 dimensions.⁸ Examples of some words and their associated dimensions are “*a certain*” for ambiguous design, “*largely*” for approximation, and “*probably*” for probability and possibility. To calculate managers’ use of vague language, we first used a Python algorithm to parse out the Q&A session from each transcript and identified the role of each speaker based on the lists of corporate and call participants. For cases where the speaker’s identity was unclear (usually coded as “unidentified audience member”), we read the transcripts and ascertained whether it was an answer from a manager or a question from a call participant. We then text analyzed answers by managers and counted the occurrences of vague expressions. The second dependent variable, $\ln(\text{vague words}_{\text{manager}})$, is measured as the natural logarithm of the total number of vague words and phrases by managers in the Q&A session. To account for the size effect (i.e., longer answers are likely to have more vague words), we included the natural logarithm of the total number of words by managers in the Q&A, $\ln(\text{total words}_{\text{manager}})$, as a control variable. We used the number instead of the percentage of vague words because of the difficulties in separating the complementary versus the substitutive role of lengthy answers. On the one hand, longer answers may be more informative (Matsumoto et al., 2011); on the other hand, managers can increase

⁸ There are cases where a word or phrase is part of another word or phrase. For example, “much” (category “indefinite amount”) and “not so much” (“negated intensifiers”) / “pretty much” (“approximation”). Our results remain the same when using only the full words and phrases to avoid double counting.

communication ambiguity by hiding value-relevant information in lengthy answers (Li, 2008; Loughran & McDonald, 2014). Hence, we used the count measure while controlling for the total length of answers to facilitate the *ceteris paribus* interpretation (Bushee, Gow, & Taylor, 2018).⁹

Independent variables

Acquisition motives. Consistent with prior studies (Chatterjee, 1986; Clougherty & Duso, 2011; Eckbo, 1983; Shenoy, 2012), we operationalized the *efficiency* versus *market power* motive of M&As using an event-study approach. First, we identified rivals as all public firms with the same primary 4-digit SIC code (Chatterjee, 1991; Eckbo, 1983; Fee & Thomas, 2004). This definition is also in line with studies examining how disclosure affects rivals (Ellis et al., 2012). We then followed the standard event study procedure to obtain the 5-day [-2, +2] cumulative abnormal return (CAR) for both the acquirer and its non-acquiring rivals. Normal returns were calculated using a market model with the CRSP value-weighted market return and a 250-day [-295,-45] estimation period (Griffin, Kelly, & Nardari, 2010; Pan et al., 2018). We used a 5-day event window to allow sufficient time for the market to react while limiting the effect of confounding events. This choice is also consistent with prior research investigating the performance effect of acquisitions on rivals (Gaur, Malhotra, & Zhu, 2013).¹⁰ Using the CAR of each rival, we calculated the average rivals' CAR ($ACAR_{rival}$) as

$$ACAR_{rival} = \frac{1}{n} \sum_{i=1}^n CAR_{rival\ i}$$

Where n is the number of rivals and $CAR_{rival\ i}$ is the individual CAR of rival i .¹¹

⁹ In a robustness check, we created a dummy variable vague call which equals to 1 if the percentage of vague words in the Q&A session is above the sample median and 0 if below. The effect of acquisition motives on the probability of having a vague call is qualitatively similar to the main results presented below.

¹⁰ Alternatively, we used a 3-day [-1, +1] event window (Uhlenbruck et al., 2017), and our results remain the same.

¹¹ Our results are unchanged if we winsorize individual rival's CAR at the 1% and 99% level before aggregating them to calculate the average rivals' CAR.

Consistent with the view that the acquirer's unique efficiency gains give it a competitive advantage over rivals (Chatterjee, 1986; Shenoy, 2012), *efficiency* deals are coded as 1 when the acquirer's CAR is positive while $ACAR_{rival}$ is negative, and 0 otherwise (Becher et al., 2012; Clougherty & Duso, 2011). In comparison, *market power* deals are coded as 1 when both the acquirer's CAR and $ACAR_{rival}$ are positive and 0 otherwise (Eckbo, 1983). This is because these acquisitions reduce competition and benefit all firms competing in the market (Fee & Thomas, 2004; Gugler et al., 2003). Table 1 illustrates the taxonomy of the efficiency versus market power motive of M&As and our operationalization using the acquirer's and its rivals' CARs.

----- Insert Table 1 here -----

As discussed above, value-destroying deals with a negative acquirer CAR, regardless of the sign of $ACAR_{rival}$, suggest the pursuit of managerial self-interest (Becher et al., 2012; Rabier, 2017; Seth et al., 2002) and are neither efficiency- nor market-power-driven (Clougherty & Duso, 2011). In our analyses, these deals are combined with efficiency-deals (market-power-deals) to form the non-market-power (non-efficiency) category and serve as the omitted category when *efficiency* and *market power* dummies are both included in regression models.

Moderators

(H3a & H3b) HHI. We measured the industry concentration rate using $HHI_{industry}$, which determines the oligopolistic nature of the market and thus the strategic interdependence among firms. It is calculated as the sum of the market shares (based on revenue) of all firms in the same 4-digit SIC industry.

(H4a & H4b) The number of firms. We captured the costs of monitoring the competitive environment and attending to peers' strategic moves by taking the natural logarithm of the number of firms in the same 4-digit SIC industry, i.e., $\ln(\text{number of firms})_{industry}$.

Control variables

We control for a list of transcript-, deal-, firm-, and industry-level characteristics that may also explain firms' use of M&A conference calls.

Transcript-level controls. Prior studies in finance and accounting have identified other verbal or linguistic tools that may also affect information processing from conference calls. First, managers can use a more positive tone to incite investor optimism (Huang, Teoh, & Zhang, 2014). Second, managers can obfuscate information by giving less readable or more complex answers (Li, 2008; Loughran & McDonald, 2014). Besides, some words and phrases from the vagueness dictionary overlap with those in dictionaries used to measure other linguistic tools. For example, “error” and “mistake” are considered as “negative” words when measuring tone and sentiment (Loughran & McDonald, 2011); meanwhile, “a mistake” “I made a mistake” and “I made an error” are included in the vagueness dictionary under the dimension of “admission of error.” To mitigate the concern that our vague language measure captures the effect of other language attributes, we controlled for (1) the tone of managers' answers, *manager tone*, measured as the difference in the frequency of positive and negative words divided by the total number of positive and negative words (Huang et al., 2014; Loughran & McDonald, 2011) and (2) the complexity of managers' answers, *manager readability*, using the Fog index (Guo et al., 2020; Lehavy, Li, & Merkley, 2011).¹²

Given the interactive nature of M&A calls, managers' use the vague language can be influenced by the call participants. First, managers may feel more comfortable using vague

¹² The Fog index is calculated as $Fog = 0.4 * (average\ words\ per\ sentence + percent\ of\ complex\ words)$ where complex words are words with three or more syllabus. This index is interpreted as the number of years of formal education required for a person of average intelligence to read the document once and understand it. Therefore, a high fog index implies a less readable and more complex text. Our inferences remain unchanged if using alternative measures of readability such as the Flesch–Kincaid Grade Level.

language if the questions from participants are also unclear. Thus, we controlled for *vagueness_{participants}* calculated as the count of vague expressions normalized by the call participants' total number of words. Second, if analysts and investors actively seek information, managers may reduce the use of vague language to meet their needs (Matsumoto et al., 2011). We captured the audience's information-seeking behaviors using $\ln(\text{total words}_{\text{participants}})$, which is the natural logarithm of the call participants' total number of words. Lastly, we also included *vagueness_{presentation}* measured as the percentage of vague language by managers in the presentation session to account for the general tendency of managers to use vague language.

Deal-level controls. Acquirers' acquisition and communication strategy may both vary with some deal characteristics. First, an acquisition could also affect rivals' valuation by sending a positive signal about the target industry and increasing the probability that they will follow up with a similar move (Eckbo, 1983). To account for the acquisition probability hypothesis where the abnormal return to rivals increases with the magnitude of surprise about the acquisition (Song & Walkling, 2000), we created a dummy variable, *acquisition probability*, that equals 1 when there was an acquisition between the acquirer and target 4-digit SIC industries one year before the acquisition announcement and 0 otherwise (Shenoy, 2012). In addition to influencing rivals' stock price reactions, *acquisition probability* also indicates how familiar the stock market is in evaluating the acquisition, which determines the information demands from investors and analysts and the acquirer's disclosures. Second, an acquirer's use of an M&A conference call may also reflect the underlying quality and complexity of the deal. High-quality acquirers may have more incentives to engage in M&A calls to distinguish themselves from low-quality lemons. To control for the level of information asymmetry surrounding the transaction and deal quality, we followed past studies (Bonaime, Gulen, & Ion, 2018; Capron & Shen, 2007) and

included the *acquirer 5-day CAR* (a continuous variable of the five-day abnormal returns to the acquirer) and *public target* (a dummy variable which equals 1 if the target is a public firm, and 0 otherwise). In addition, acquirers of complex deals may benefit more from disclosing additional information to assist the evaluation of the deal (Bushee et al., 2004; Fraunhoffer et al., 2018). Prior M&A research has shown that deal complexity is associated with deal size, percentage of target ownership acquired, deal attitude, payment method, and whether there were multiple bidders (Bao & Edmans, 2011; Cuypers et al., 2017; Krishnan & Masulis, 2013; Zaheer et al., 2010). Deal size is measured using *deal value* by taking the natural logarithm of the reported transaction value. *Shares acquired* is the percentage of shares acquired. Deal attitude is measured by *friendly attitude* which equals 1 if the deal is flagged as “friendly” in SDC and 0 otherwise. The payment method is indicated by *all cash*, which equals 1 if the transaction is 100% financed by cash, and 0 otherwise. *Competing bids* is a dummy variable which equals 1 if there were multiple bidders for the deal and 0 otherwise. Lastly, to account for the different mechanisms for efficiency and market power gains in horizontal versus vertical and conglomerate deals (Gugler et al., 2003), we included two dummy variables to indicate the type of relatedness of the transaction. *Horizontal deal* is coded as 1 if the acquirer and the target have the same primary 4-digit SIC code and 0 otherwise (Fee & Thomas, 2004; Uhlenbruck et al., 2017). We used the Input-output (IO) accounts published by the Bureau of Economic Analysis (BEA) to identify vertical relatedness. BEA publishes the IO tables every five years to provide information on dollar flows between producers and purchasers in the U.S. economy. We relied on the “Use table” from 2002, 2007, and 2012 for acquisitions taking place from 2003-2007, 2008-2012, and 2013-2018 respectively. *Vertical deal* is measured as 1 if the value of the commodity that the acquirer 4-digit industry sold to or purchased from the target 4-digit industry accounts for over

5% of its total output, and it equals 0 otherwise (see Shenoy (2012) for more detailed discussions on the calculation of vertical relatedness between acquirer and target industries).

Acquirer-level controls. We controlled for several key characteristics of the acquiring firms that may influence their vulnerability to rivals' competitive moves and thus their strategic use of M&A conference calls. These variables include *firm size* (the natural logarithm of the book value of total assets, deflated using 2000 CPI as the base year), firm performance, using *return on assets* (the ratio of EBIT over total assets), and *Tobin's q* (the ratio of the market value of total assets to the book value of total assets), levels of slack resources proxied by *cash flow* (the ratio of internal cash flow to book value of total assets), and the *leverage ratio* (the book value of debt to the book value of total assets), and room for cost reduction measured by *operating costs* (the natural logarithm of operating costs as defined in Kama and Weiss (2013)). Moreover, from a learning perspective, a firm's use of M&A calls may be affected by their prior experiences of undertaking acquisitions and holding M&A calls. Thus, we controlled for prior acquisition and call experiences using *prior deals_{3years}* (the number of acquisitions by the acquirer for the past three years) and *prior calls_{3years}* (the number of conference calls by the acquirer for the past three years).

Industry-level controls. Since we aim to provide a refined understanding of how the acquirer can manage the attention and reactions from rivals by revealing or concealing strategic information using an M&A conference call, it is critical to control for factors that may shape the competitive interactions among firms and as a result their communications. First, Li (2010) shows that the quantity and quality of firms' voluntary disclosures are affected by the level of competition they face. Firms can engage in either price-based competition or non-price-based competition (Chen, Matsumura, Shin, & Wu, 2015). For the price-based competition, firms focus

on reducing costs to offer lower prices (Chen et al., 2015); whereas, for the non-price-based competition, firms distinguish themselves based on the quality of customer service or the introduction of new products (Li, 2010). Therefore, we controlled for the level of price-based competition in the acquirer industry using firms' capital expenditures as aggressive capital investments can increase industry capacity and boost the overall supply level, leading to more intense price competition (Chen et al., 2015). $\ln(\text{average cap expenditure})$ is calculated as the natural logarithm of the weighted average of capital expenditure by all firms in the same 4-digit SIC industry. We captured the intensity of non-price-based competition using the acquirer industry *median SG&A ratio* and *median R&D intensity*, which reflect the overall marketing and R&D efforts by firms to differentiate their products (Bao & Edmans, 2011; Nachum & Wymbs, 2005).¹³ Overall, we predict that both types of competition reduce the acquirer's incentive to disclose information. Second, an acquirers' motivation to undertake an acquisition or to hold an M&A conference call may also be a function of peers' acquisition and call behaviors (Harford, 2005; McNamara et al., 2008). Thus, we included a dummy variable *merger wave* to indicate how active peers are in undertaking acquisitions. A merger wave is identified following the simulation-based approach described in Harford (2005). Specifically, each wave is a 24-month period during which the number of M&As in the industry is higher than the 95th percentile of a simulated uniform distribution of all deals in that industry over 2000-2009 and over 2010-2018. Besides, we captured how common it is to hold an M&A call in the industry using $\ln(\text{prior calls by peers}_{3\text{years}})$. It is calculated as the natural logarithm of the number of conference calls by other

¹³ For the non-price-based competition, we follow prior studies and use the industry SG&A median ratio instead of the industry advertising ration because total selling costs is a broader marketing measure which captures a whole set of factors related to firms' promotion and brand management activities (Nachum & Wymbs, 2005; Bao & Edmans, 2011). Our results are robust if we use the industry median advertising intensity instead. For the price-based competition, we also check the robustness of our results using alternative measures, such as the industry-level property, plant, and equipment (Chen et al., 2015) and the industry median capital intensity (Shenoy, 2012) and get very similar results.

firms from the same 4-digit SIC industry over the past three years. Third, Guo et al. (2017) posit that the average size of firms also determines the amount of attention from potential entrants. We calculated *average firm size* as the average book value of firms' total assets in the same 4-digit SIC industry. Lastly, the recent investigations on the possible anti-competitive effect of conference calls by regulators may also play a significant role in the acquirer's call-related behaviors (Ciliberto et al., 2020). Hence, we included a dummy variable of *regulated industries* to account for industries subject to more regulatory pressures (Kimbrough & Louis, 2011). All industry-level variables are calculated based on the Computat population.

We also included a set of the year and industry (on the 2-digit SIC level) dummies in all the models. All continuous variables are winsorized at the 1% and 99% level to mitigate the effect of outliers.

Estimation models

We began by examining the relationship between acquisition motives and the decision to hold an M&A conference call using a logit model (**H1a & H1b**). The empirical model being estimated is (where acquisitions are indexed as i and years of acquisitions as t)

$$call_{i,t} = \beta_0 + \beta_1 motive_{i,t} + \beta_2 deal\ controls_{i,t} + \beta_3 firm\ controls_{i,t-1} + \beta_4 industry\ controls_{i,t-1} + year\ dummies + industry\ dummies + \varepsilon_{i,t} \quad (1)$$

For **H2a & H2b**, we used a multivariate OLS regression model to examine the relationship between acquisition motives and the use of vague language in the M&A call. The variables of interest are still the acquisition motive dummies (*efficiency* and *market power*). A serious concern is that managers who expect to benefit more from the strategic use of vague language may self-select into holding an M&A conference call. To alleviate this endogeneity concern, we implemented a Heckman two-step approach (Certo, Busenbark, Woo, & Semadeni, 2016). In the first step, we modeled the call decision with a discrete choice model. In the second

step, we included the inverse Mills' ratio produced from the first step to correct the selection problem. The first-step model included all variables used to test H1. In the second-step model, we used the same set of variables except for *prior deals*_{3years} and *prior calls*_{3years}, i.e., they served as our exclusion restrictions. The rationale behind using these two variables as exclusion restrictions is twofold. Theoretically speaking, we expect that the numbers of prior deals and prior calls are essential predictors of firms' decisions to hold an M&A call. First, firms that engage in multiple acquisitions may be more likely to hold an M&A call to manage stakeholder expectations and garner their support (Graffin et al., 2016). As for the number of prior calls, by accumulating more experience, managers may become more comfortable holding one and become better at using it to achieve strategic goals. However, it is unlikely that prior experience with acquisitions and M&A calls will have a direct effect on the type of language used in the call, especially considering that acquisitions can be driven by different motives and conditions such that managers must adjust their language accordingly. Our theorization also received some empirical support. In a set of analyses (not reported), we regressed *vague words*_{manager} (the dependent variable for the second-step model) on *prior deals*_{3years} and *prior calls*_{3years}, with other controls. The coefficients of the two are never significant ($p > 0.3$). Thus, we believe that *prior deals*_{3years} and *prior calls*_{3years} are valid exclusion restrictions to address the endogenous selection problem and help provide a better estimate of the effect of acquisition motives on the use of vague language in M&A conference calls. The second-stage model being estimated is:

$$vague\ word_{i,t} = \beta_0 + \beta_1 motive_{i,t} + \beta_2 inverse\ mills\ ratio_{i,t} + \beta_3 transcript\ controls_{i,t} + \beta_4 deal\ controls_{i,t} + \beta_5 firm\ controls_{i,t-1} + \beta_6 industry\ controls_{i,t-1} + year / industry\ dummies + \varepsilon_{i,t} \quad (2)$$

To test the moderating effect of industry structure (**H3a, H3b, H4a, & H4b**), we included the interaction terms between *efficiency / market power* and $HHI_{industry} / \ln(\text{number of firms})_{industry}$ in regression models (1) and (2).

RESULTS

Tables 2 and 3 contain descriptive statistics and correlations for variables used in testing H1 and H2, respectively. Some correlation coefficients exhibit high values (e.g., 0.91 between $\ln(\text{total assets})$ and $\ln(\text{operating costs})$), which is not surprising as larger firms tend to have higher operating costs due to the size effect). We calculated the variance inflation factor (VIF) score for each regression model estimated. The highest VIF scores are 8.47 for $\ln(\text{total assets})$ and 7.44 for $\ln(\text{operating costs})$, both of which are below the critical value of 10 (Kalnins, 2018). For the other variables, individual VIF scores are always below 4. Thus, we concluded that multicollinearity is not a serious problem. In a robustness check, we entered $\ln(\text{total assets})$ and $\ln(\text{operating costs})$ separately in regression models, and our results were not affected.

----- Insert Tables 2 & 3 here -----

Acquisition motives and the decision to hold an M&A conference call

Table 4 presents the results of the decision to hold an M&A conference call (H1a & H1b). Model 1 is the baseline model with only control variables. Model 2 includes the dummy variable *efficiency*. Consistent with H1a, the coefficient of *efficiency* is negative and significant ($p = 0.037$), which implies that compared to other types of acquisitions, efficiency-driven deals are less likely to hold an M&A call. In Model 3, we add the dummy variable *market power* to test H1b. The coefficient of *market power* is positive and significant at the 1% significance level ($p = 0.004$). So our H1b is also supported where market-power-driven acquisitions indeed have a high probability of holding an M&A call. In Model 2 (3), efficiency (market power) deals are grouped with the value-destroying deals (i.e., deals with negative CAR for the acquirers) to serve as the omitted category. To account for the heterogeneity in this group, in Model 4, we include both *efficiency* and *market power* dummies and use the value-destroying deals (Base_1 and

Base_2 in Table 1) as the reference group. The results show that compared to deals motivated by managerial self-interests, market-power-driven acquisitions are more likely ($p < 0.046$) to hold an M&A call; whereas the coefficient of efficiency deals is still negative as predicted, it is not significant at the conventional levels ($p = 0.711$). This result suggests that similar to efficiency-driven deals where managers are reluctant to disclose incremental information for fear that rivals may exploit it, self-serving managers also have strong incentives to withhold information to disguise their opportunistic behaviors from shareholders (Hope et al., 2011; Zhao et al., 2013). Lastly, given that value-destroying deals may be inherently different from value-creating ones, in Model 5, we exclude the former group and compare efficiency and market power deals directly. The coefficient of *efficiency* is negative and significant ($p = 0.005$), indicating that even though both motives result in a positive return for the acquirer, managers' decision to engage in an M&A call is affected by the underlying sources of value creation.

----- Insert Table 4 here -----

Although the sign and significance of coefficients in logistic regressions are meaningful, they do not reflect the magnitude of the effect of acquisition motives on the probability of holding an M&A conference call. To better understand the effect size, we calculated the average marginal effect (AME) (Hoetker, 2007). The AME of *efficiency* in Model 2 is -0.019, which implies that compared to other types of acquisitions, a deal seeking efficiency gains decreases the probability of holding an M&A call by 1.9%. It represents a 10 percent decrease relative to the average probability of having an M&A call in the sample (0.2). Compared to non-market-power-driven deals, the AME of *market power* in Model 3 is 0.026, which implies a 2.6% increase in the probability of holding an M&A call and a 13 percent increase relative to the sample average.

For the control variables, we find that the probability of holding an M&A conference call increases for acquisitions with a larger deal size, better deal quality, or involving a public target. The results show that the characteristics of the acquirer and its industry also affect whether it will hold an M&A call. Specifically, bigger and better-performing acquirers – both indicate the competitive advantage enjoyed by the acquirer over its rivals (Fiegenbaum & Karnani, 1991; Flammer, 2015) – are less likely to hold an M&A call in order to safeguard their competitive positions. The leverage ratio is negatively related to the probability of holding an M&A call as the lack of slack resources makes the acquirer more vulnerable to rivals’ counterattacks (Carnes, Xu, Sirmon, & Karadag, 2019). This result is also consistent with prior studies positing that firms that rely more on debt can communicate with banks using private channels, reducing the capital market benefits of public disclosure (Li, Lin, & Zhang, 2018). Besides, firms with higher operating costs are more likely to hold an M&A call to inform analysts and investors and garner their support. We also find that the acquirer’s M&A call decision is positively associated with the number of calls by the focal firms and its peers while negatively related to the number of its prior acquisitions. Lastly, acquirers faced with more intense price-based competition, as indicated by industry-level capital expenditure, also refrain from holding an M&A call.

Acquisition motives and the use of vague language in an M&A call

Table 5 reports the regression models that test the hypotheses (H2a & H2b) regarding acquisition motives and managers’ use of vague language in M&A conference calls. The main results are from the second-step regressions of the Heckman model. For the first step, we present only the results of the two exclusion restrictions. As expected, the two restrictions are both significant predictors of the call decision. Specifically, *prior deals_{3years}* is negatively ($p < 0.001$) while *prior calls_{3years}* is positively ($p < 0.001$) associated with the probability of holding an

M&A call. The negative sign of *prior deals*_{3years} suggests that for serial acquirers, the action of undertaking multiple acquisitions itself already sends a solid signal to rivals (Lieberman & Asaba, 2006; Ozmel et al., 2017), reducing the need of using an M&A call to convey extra information. We constructed the inverse Mills' ratio from the first-step regressions and included it as an additional regressor in the second-step equations. The coefficients of inverse Mills' ratio are all negative, suggesting that the call decision and managers' use of vague language are negatively correlated. However, they are never significant, indicating that the extent to which vague language is used in a call is not affected by managers' decision to hold an M&A call, possibly because of the pressures from call participants for clear and concrete information (Matsumoto et al., 2011; Pan et al., 2018).

----- Insert Table 5 here -----

As for the effect of acquisition motives on the use of vague language in M&A calls, Model 2 shows that managers of efficiency deals tend to make more vague statements when answering questions ($p = 0.008$), aligning with H2a. We also find support for H2b in Model 3, where the *market power* dummy is negatively associated with the number of vague words used by managers in the Q&A ($p = 0.083$). Model 4 compares the efficiency and market power acquisitions to the reference group of value-destroying deals. The effect of *efficiency* remains positive and significant ($b = 0.028$, $p = 0.044$) whereas the effect of *market power* is still negative but loses its significance ($b = -0.0001$; $p = 0.995$). In Model 5, we remove the value-destroying deals and directly compare the effect of efficiency and market power motives. It is shown that compared to market-power-driven acquisitions, managers of efficiency-driven ones will use more vague words in their answers ($b = 0.02$, $p = 0.085$). Taken together, the comparatively less significant effect of the market power deals on the use of vague language

suggests that despite their incentives to clarify the strategic rationale and facilitate coordination with rivals, they may also obfuscate their communications and hide their intentions to mitigate potential litigation risks from antitrust authorities (Bourveau et al., 2020; Ciliberto et al., 2020).

The magnitude of the effects is also economically significant. Our estimates imply that the use of vague language is reduced by 2% for market power deals and increased by 3% for efficiency deals when compared to non-market-power and non-efficiency deals, respectively.

Results of the control variables indicate that managers tend to use more vague language when giving lengthy answers or when their discussions are less complicated (i.e., higher readability). Their use of vague language is also affected by the behaviors of the call participants. Specifically, managers tend to answer more vaguely when analysts' questions are also less clear or when participants are less actively seeking information (i.e., fewer words by participants). Both *horizontal deal* and *regulated industry* dummies are positively related to managers' use of vague words, suggesting increased regulatory pressures in such situations. Acquirers with better financial performance or greater reliance on external financing make more vague statements to deter rivals' competitive moves. We also find that acquisitions of public targets reduce the vagueness of managers' communication as much of the information about the target is readily available in the market (Capron & Shen, 2007).

The moderating effect of the industry structure

In Table 6, we examine the moderating effect of rivals' attention, as determined by the industry structure. Modes 1, 3, 5, & 7 focus on how the relationship between acquisition motives and the strategic use of conference calls is moderated by industry concentration (H3a & H3b). Models 2, 4, 6, & 8 test the moderating role of the number of firms (H4a & H4b).

----- Insert Table 6 here -----

For the moderating effect of industry concentration, the coefficient of the interaction term between *efficiency* and *acquirer industry HHI* is significantly negative (Model 1, $b = -0.969$, $p = 0.041$), and it is positive for the interaction term between *market power* and *acquirer industry HHI* (Model 3, $b = 1.009$; $p = 0.017$). These results are consistent with H3a and suggest that in more concentrated industries, due to the increased strategic interdependence among firms and thus greater attention from rivals, an efficiency-driven acquisition becomes even less likely to hold an M&A call to limit the spillover of value-relevant information. The opposite is true for market-power-driven deals as acquirers' intention to coordinate is more likely to be received and understood by attentive rivals. Thus, they become more dependent on an M&A call to send the signal and aid rivals' information processing. We also find partial support for the moderating effect of industry concentration on managers' use of vague language. Model 5 shows that the coefficient of *efficiency* and *acquirer industry HHI* is positive and significant ($b = 0.111$, $p = 0.046$), suggesting that managers of efficiency-driven deals will give more vague answers to hide information when the industry becomes more concentrated. The coefficient of the interaction term between *market power* and *acquirer industry HHI* in Model 6 is positive, opposite to our hypothesis, and not significant ($b = 0.058$; $p = 0.237$), indicating that the acquirer does not necessarily reduce their use of vague language when the industry is more consolidated due to the heightened concern of antitrust issues. Importantly, after controlling for the moderating effect, the main effect of market power becomes more significant (compared to the baseline of Model 3 in Table 5), implying that industry concentration indeed serves as a boundary condition to the effect of market power on managers' use of vague language.

For the role of the number of firms that influences rivals' information acquisition costs, we do not find support for its moderating effect on the relationship between efficiency and the

call decision (Model 2, $b = -0.036$, $p = 0.578$). One explanation is that more rivals may also indicate increased competition intensity (Fama & Laffer, 1972), which cancels the buffering effect of substantial costs incurred by information-seeking rivals and reduces the acquirer's incentives to disclose more information. On the contrary, Model 4 shows that the interaction between *market power* and $\ln(\text{number of firms})_{\text{industry}}$ is negative as predicted in H4a ($b = -0.124$; $p = 0.043$), suggesting that in industries with fewer players, the acquirer is more likely to use an M&A call due to the lessened difficulties for firms to monitor others' moves and take concerted actions. Models 6 and 8 examine the moderating effect of the number of firms on the use of vague language. The coefficient of the interaction term between *efficiency (market power)* and $\ln(\text{number of firms})_{\text{industry}}$ is negative (positive) and significant at the 5% level ($b = -0.016$, $p = 0.031$; $b = 0.015$, $p = 0.028$, respectively), which is consistent with H4b. These results imply that in industries with fewer players, managers of efficiency deals will further increase their reliance on vague language to obfuscate information. In contrast, there is a reduction in the number of vague expressions used in managers' answers for market-power-driven acquisitions as they seek to encourage accommodating behaviors from more attentive rivals.

Past studies have highlighted that the sign and significance of the moderating effect in logit models (Models 1 – 4) are not accurately reflected by the coefficient of the interaction term (Ai & Norton, 2003; Hoetker, 2007). Thus, we present the marginal effects of the two moderators graphically to better interpret the results (Hoetker, 2007).

----- Insert Figures 1 – 4 here -----

The figures largely align with our discussions above. Specifically, Figure 1 (3) illustrates how the probability of holding an M&A conference call changes with different levels of HHI depending on whether it is an efficiency-driven (market-power-driven) versus non-efficiency-

driven (non-market-driven) deal. We can see that the differences in the probability of holding a conference call become more significant in more concentrated industries with a higher level of HHI. More notably, the effect is especially salient in industries with moderate concentration levels (i.e., HHI from 0.35 – 0.55). It is consistent with prior literature on competitive dynamics and competitive signaling, which posit that firms are more likely to monitor signals and react to others' competitive behaviors in an oligopolistic market (Gimeno, Hoskisson, Beal, & Wan, 2005; Porter, 1980). Figure 2 (4) demonstrates the moderating effect of the number of firms in the industry on the relationship between efficiency-driven (market-power-driven) acquisition and the decision to hold an M&A call. Figure 2 shows that both efficiency and non-efficiency deals become more reluctant to hold an M&A conference call when more firms compete on the market. However, the overlap in the confidence intervals suggests that the difference between them is not significant at the 5% level. Moreover, from Figure 4, we can see that the probability of holding an M&A call is significantly higher for market-power-driven in industries with 2 – 20 firms. On the contrary, when the market is dominated by two major players or when there are numerous competing firms, using an M&A call to reduce information asymmetry and achieve collusion with rivals becomes less probable due to the risks of antitrust litigation and the difficulties in monitoring and coordinating actions among firms.

Supplemental analyses

The central argument of our study is that an acquirer could manage its information asymmetry with rivals and their competitive engagements by strategically using an M&A conference call to conceal or reveal value-relevant information. Therefore, we expect the availability and vagueness of M&A conference call to be associated with rivals' information acquisition efforts and competitive moves. One such move is their subsequent acquisitions as

past research has shown that firms rely heavily on information cues and signals from prior acquirers to formulate their acquisition strategies (Malhotra et al., 2015; Ozmel et al., 2017), either as a counterattack or as a reciprocating action (Clougherty & Duso, 2011; Keil et al., 2013). We conducted a series of analyses to verify the information mechanism proposed in our theorization by examining whether acquirers' M&A conference calls indeed influence future acquisitive moves by rivals.

In the supplemental analyses, our key dependent variable is *rival acquisition*, a dummy variable that equals 1 if an acquisition in a given year was made by a non-acquiring rival from the same 4-digit SIC industry and 0 otherwise. Non-acquiring rivals are those with no acquisition in the previous year. To test the effect of conference calls from prior acquirers, we focus on three main independent variables. First, we measured the availability of M&A conference calls as an information source by counting the number of calls in the previous year (*call_{1-year}*). Second, to examine the role of vagueness in rivals' information processing, we split M&A calls into vague versus non-vague ones based on whether the percentage of vague words by managers in the Q&A session is above or below the sample median. We then measured the frequency of prior vague (non-vague) M&A calls by counting the number of vague (non-vague) calls in the previous year (*vague call_{1-year}* and *non-vague call_{1-year}*, respectively). We also controlled for some industry-related proxies that may affect rivals' motivation and ability to undertake acquisitions. First, we accounted for the vicarious learning effect using (1) *number of deals_{1year}*, measured as the number of acquisitions in the industry over the previous year, and (2) *ln(value of deals_{1year})*, measured as the natural logarithm of the total value of acquisitions in the industry over the previous year. Second, firms may react differently to efficiency and market power deals. We thus included *efficiency deal_{1year}* (the number of efficiency-driven deals in the previous year)

and *market power deal*_{1year} (the number of market-power-driven deals in the previous year).

Third, we controlled for the same set of industry-level characteristics as our main analyses except for the dummy variable *merger wave* as it is defined monthly, while our current unit of analysis is on the industry-year level.

To test the effect of M&A conference calls on rivals' responses, we regressed the dummy of subsequent acquisitions (*rival acquisition*) on the number of prior calls as well as the number of prior vague and non-vague calls. We used a fixed-effect logit model (also known as conditional logit) to control time-invariant unobservables that explain industry-level acquisition activities, such as the attitude toward M&As and antitrust regulations on acquisitions in each industry. The results are summarized in Table 7.

----- Insert Table 7 here -----

First, consistent with our argument that incremental information disclosed in M&A calls is valuable to non-acquiring rivals and can facilitate their subsequent acquisitive moves, *call*_{1-year} is positively and significantly ($b = 0.2, p = 0.03$) related to the probability that at least one rival undertakes an acquisition this year. Considering that these are the rivals with no acquisitions last year, plus we controlled for the number and value of last year's acquisitions, the positive effect is likely driven by the additional information spillover from prior M&A calls. As for M&A calls characterized by greater use of vague words (Model 2, *vague call*_{1-year}), the effect is not significant ($p = 0.735$). The positive coefficient ($b = 0.042$) suggests that despite the difficulties associated with processing information from vague communications, rivals may still be prompted by them to engage in acquisitions. On the contrary, Model 3 shows that the coefficient of *non-vague call*_{1-year} is positive and significant ($b = 0.327, p = 0.01$), indicating that information provided in M&A calls with limited use of vague language enables quick analyses

and reactions by rivals. In Model 4, we include the number of both vague calls and non-vague calls. The results are similar to when they were entered separately. In effect, the coefficient of *non-vague call_{1-year}* is slightly larger and more significant than that in Model 3 ($b = 0.334$; $p < 0.01$), suggesting that for rivals faced with the same number of vague M&A calls from prior acquirers, non-vague calls play an even more critical role in their acquisition decisions.

Given that the coefficients in fixed-effect logit models do not represent the magnitude of the effect, we also calculate the AME for the key independent variables. The AME of *call_{1-year}* in Model 1 is 0.070, equivalent to around half of a standard deviation (23%) change in the sample distribution of the dependent variable (*rival acquisition*). The AME of *non-vague call_{1-year}* in Model 3 is 0.101, representing a one-third increase from the average probability of having an acquisition by non-acquiring rivals.

Second, in Models 5 – 8, we explore the possibility that the extent to which non-acquiring rivals benefit from prior M&A calls depends on their attention to others' acquisitive moves and communications, as determined by the industry structure. If our contingency model is correct, the likelihood that non-acquiring rivals engage in subsequent acquisitions will be enhanced in more concentrated industries or industries with fewer players due to the increased motivation and ability of rivals to monitor the competitive environment. We first split the sample into industries with high HHI (above the sample mean) and low HHI (below the sample mean). Consistent with our expectation, the effect of *call_{1-year}* is only significant in more concentrated industries (Model 5, $b = 0.329$, $p = 0.043$). We then split the sample into industries with a high versus a low number of firms, also based on the sample mean. We again find that the positive relationship between the number of prior M&A calls and the probability of rivals' subsequent acquisitions is only present in industries with fewer players (Model 8, $b = 0.27$, $p = 0.07$).

Overall, these results confirm our moderating arguments that the industry structure, characterized by concentration level and the number of firms, is an essential boundary condition to understand how information exchange shapes the competitive interplay among firms.

To further assess the competitive consequences of M&A conference calls, we also tested the characteristics of the subsequent acquisitions by rivals. We focused on (1) the number of non-acquiring rivals that undertake an acquisition this year, (2) the number of acquisitions by these rivals, and (3) the average value of these acquisitions. In models not reported, we found that (1) the number of calls, the number of vague calls, and the number of non-vague calls are not significantly associated with the number of rivals undertaking acquisitions or the number of acquisitions taken by them, (2) the effect of the number of vague calls is negative, though not significant, for the number of rivals and the number of subsequent acquisitions ($b = -0.024$ and -0.014 , respectively) and (3) the number of non-vague calls is positively and significantly associated with the average deal value of rivals' subsequent acquisitions ($b = 0.347$, $p = 0.028$). Together, these results suggest that the availability of M&A conference calls does not necessarily increase the likelihood of *all* rivals engaging in acquisitions. Nevertheless, using less vague language in M&A calls increases rivals' confidence in undertaking bigger deals.

DISCUSSION AND CONCLUSION

In recent years, M&A conference calls have become increasingly common to provide additional information over mandatory disclosure requirements and press releases (Fraunhoffer et al., 2018; Kimbrough & Louis, 2011). Much of the prior studies on the M&A conference call or other more routinely conference call such as earnings calls have focused on the associated capital market benefits such as lower costs of capital or favorable stock reactions (Kimbrough & Louis, 2011; Matsumoto et al., 2011; Pan et al., 2018). Nevertheless, information released in a

conference call will be publicly disseminated and can potentially be taken advantage of by competing firms (Heinrichs et al., 2019). Indeed, a growing body of research has shown that firms either (1) reduce the use of voluntary disclosure or manipulate the quality of the information they share due to proprietary costs imposed by better-informed rivals (Ellis et al., 2012; Huang et al., 2018) or (2) use conference calls to communicate strategic information and coordinate with rivals (Bertomeu et al., 2020; Ciliberto et al., 2020). Given the conflicting effects, the question of why and how firms engage in conference calls remained underexplored. To shed light on how competitive interactions between the acquirer and its rivals shape its communications concerning the deal via the M&A conference call, in this study, we theorized and tested the role of acquisition motives in determining the decision to hold an M&A call and the use of vague language in the call.

First, we found that acquirers strategically use M&A conference calls to maximize the value creation of the proposed transaction. Specifically, our analyses show that for market-power-seeking deals where the acquirer and its rivals both benefit from reduced competition and increased coordination potential (Chatterjee, 1986; Eckbo, 1983; Gugler et al., 2003), the acquirer is more likely to hold an M&A conference call and its managers tend to use less vague expressions when addressing questions from the audience. It is consistent with our argument that M&A calls serve as a strategic tool to signal to rivals the acquirer's intention to cooperate and to induce accommodating moves from rivals by providing more and better quality information. In contrast, when the primary source of value creation in the deal stems from efficiency gains, which gives the acquiring firm a unique competitive advantage over rivals (Becher et al., 2012; Clougherty & Duso, 2011), the acquirer desires to hide its proprietary information by shunning away from an M&A call and using more vague language in the call. This supports our

expectation that vagueness increases the difficulties for rivals to interpret value-relevant information, which in turn hampers their ability to exploit the same efficiency-enhancing benefits and helps sustain the acquirer's advantageous competitive position.

Second, by examining the boundary conditions of industry structure on the relationship between acquisition motives and the strategic use of M&A conference calls, we verify and highlight the essential role of rivals' attention in understanding the underlying information channel. We found that corporate communication via M&A conference calls becomes more salient in more consolidated industries or industries with fewer competing firms, both arguably increasing the benefits while reducing the costs of gathering and processing information of others' competitive moves. These findings also align with the competitive signaling perspective, which has long posited that "the risk/benefit trade-off should dictate the firm's signaling propensities" (Heil & Robertson, 1991: 415).

As such, our study extends the literature on information asymmetry and corporate communication in two ways. First, we complement prior research examining how firms overcome information barriers in the M&A market (Malhotra et al., 2015; Wu et al., 2013) by focusing on the active role of informationally advantaged acquirers in sharing or withholding their proprietary information. Our study not only accounts for the strategic significance of information asymmetry in sustaining competitive advantage from a resource-based point of view (Barney, 1986; Makadok & Barney, 2001) but also considers the value-creating role of reduced information asymmetry in promoting coordination as emphasized in industrial organization theories (Chatterjee, 1991; Ciliberto et al., 2020). The findings illustrate how firms may exploit their information advantage to extract economic rents either from rivals (in the case of efficiency deals) or together with rivals from customers and suppliers (for market power deals).

Second, we advance prior research on corporate communication by examining whether and how competitive pressures influence firms' information disclosure. Our results provide supporting evidence that acquirers can use M&A calls to communicate and coordinate with rivals. This finding has important theoretical and practical implications. For the literature on the motivation for and effects of M&As, we highlight the information mechanism through which the acquirer can manage rivals' competitive engagements. The results also shed some light on the policy discussion on information disclosure by illustrating the potential anti-competitive effect of measures used to promote transparency in the capital market. What is more, a small but growing line of research has started to investigate the implication of corporate communication and language from a competitive dynamics perspective. However, they tend to focus either on the competitive aspect, for example, how communication and language hinder rivals' moves (Guo et al., 2017; Nadkarni et al., 2019), or from a cooperative aspect, for instance, how communication helps sustain tacit collusion (Bourveau et al., 2020; Ciliberto et al., 2020). We extend this line of research by showing that in the context of M&A, depending on their competitive motives, acquirers can use an M&A conference call to either soften competition or facilitate coordination.

Lastly, our supplementary analyses present evidence suggesting that the quantity and the quality of the information provided in M&A conference calls are associated with the likelihood of rivals' responses via acquisitions. We found that the number of prior M&A conference calls, especially those characterized by limited use of vague language, is positively associated with rivals' propensity to undertake subsequent acquisitions. These findings complement prior research on imitation in M&As – which focuses on how prospective acquirers infer information cues from prior acquirers (Ozmel et al., 2017) – by explicating the information-sharing role of prior acquirers. Our findings also have important implications for both the acquirer and its rivals.

For the acquirer, the lack of effect of vague calls on rivals' acquisitions indicates that it may be able to postpone rapid responses from rivals and protect its competitive advantage by using vague language to blur its strategic intentions. However, the positive association between vague calls and rival's acquisition propensity also implies that vague communication may only defer rivals' competitive responses temporarily. Thus, to sustain its competitive advantage, the acquirer needs to be prepared for potential competitive moves taken by better-informed rivals on a longer time horizon. For the rivals, even though a swift response can be essential to restore their competitive position (Smith et al., 1991), deciphering information from M&A calls with heavy use of vague language can be a formidable task. However, given the scarcity of information available in the M&A market, M&A conference calls, even the vaguely communicated ones, provide potentially valuable information. Hence, managers of rivals must make an effort to gather and interpret the information from the vague calls to better formulate their acquisition strategies.

Limitations and future research

Our study also has several limitations, which offer opportunities for future research. First, drawing upon literature on acquisition motives, we adopted a theory-based classification and focused on deals driven by efficiency gains and market power benefits. However, firms may engage in acquisitions for other reasons, for example, empire building or risk reduction for managers (Seth et al., 2002) and hubris (Becher et al., 2012). These managerial-driven motives are interesting given their value-destroying consequences. Thus, future research may continue this line of inquiry and further explore the role of corporate communication for acquisitions with negative market responses, which can shed some light on our understanding of the different acquisition motives and the related strategic and performance implications. Second, we followed

recent studies on communication and language in strategy and examined the role of vague language in M&A conference calls. Although we accounted for other verbal cues, such as tone and readability, other language attributes may also be relevant to firms' competitive dynamics. For example, managers may affect stakeholders' evaluation of competition by using different words to characterize the competitive environment (Li, Lundholm, & Minnis, 2013). Hence, we encourage future work to use recent advances in text analysis and machine learning to investigate how firms perceive and communicate about competition. One fruitful direction would be to use topic modeling techniques to understand better the specific aspects of acquisitions that are discussed in M&A calls and other corporate communications. Third, we based upon an information perspective to theorize the mechanism through which communication and language affect rivals' competitive behavior and found supporting evidence. Nonetheless, we did not observe rivals' information gathering and interpretation. We also did not have direct evidence on how acquirers anticipated attention and responses from rivals. Therefore, we see ample opportunities to deepen our understanding of competitive interdependencies among firms by delving into factors that affect the information processing and decision-making of both the acquirer and its rivals. For example, we would expect managers with different backgrounds to interpret information differently (Finkelstein & Hambrick, 1996), leading to heterogeneous competitive reactions. A related limitation of this study is the implicit assumption that all competing firms are subject to potential coordinated effects. As a result, we used the average stock price changes of all the other firms in the same industry to infer the acquisition motive. However, coordination may only involve a subset of the firms in the industry (Porter, 2020). We thus encourage future research to build on these initial findings and explore new ways to identify rivals most likely to be influenced by competitive or cooperative pressures. Finally, researchers

and practitioners have long been interested in understanding why M&As often fail to create value for the acquirer (Haleblian et al., 2009). Despite various explanations discussed in the literature, one mechanism subject to more systematic analysis is aggressive responses from rivals, which may increase the competitive intensity and prevent the acquirer from realizing its intended benefits (Uhlenbruck et al., 2017). Our results show that the acquirer can use M&A conference calls to influence rivals' information processing and subsequent competitive moves. While we provided some preliminary theorization and tests for the boundary conditions of the industry structure, we believe that there are more contingencies worth exploring. Future studies could fruitfully explore the interaction between firm-level communication strategies and industry-level competition characteristics to offer additional insights into inter-firm rivalry.

In conclusion, we examined the question of how the acquirer, mindful of the watchful eyes of its rivals, may strategically engage in voluntary disclosure via conference calls to influence their information gathering and processing. We showed that the acquirer's decision to hold an M&A conference call and the use of vague language by managers in the call are both influenced by the efficiency versus market power motive behind the acquisition. Our study advances research on corporate communication by spotlighting the importance of competitive pressures and research on M&A by demonstrating the active role of acquirers in influencing information asymmetries in the market. More broadly, this paper provides a fuller picture to understand how information may affect competitive dynamics among firms.

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Figure 1. Marginal effect of efficiency on the call decision with different levels of HHI

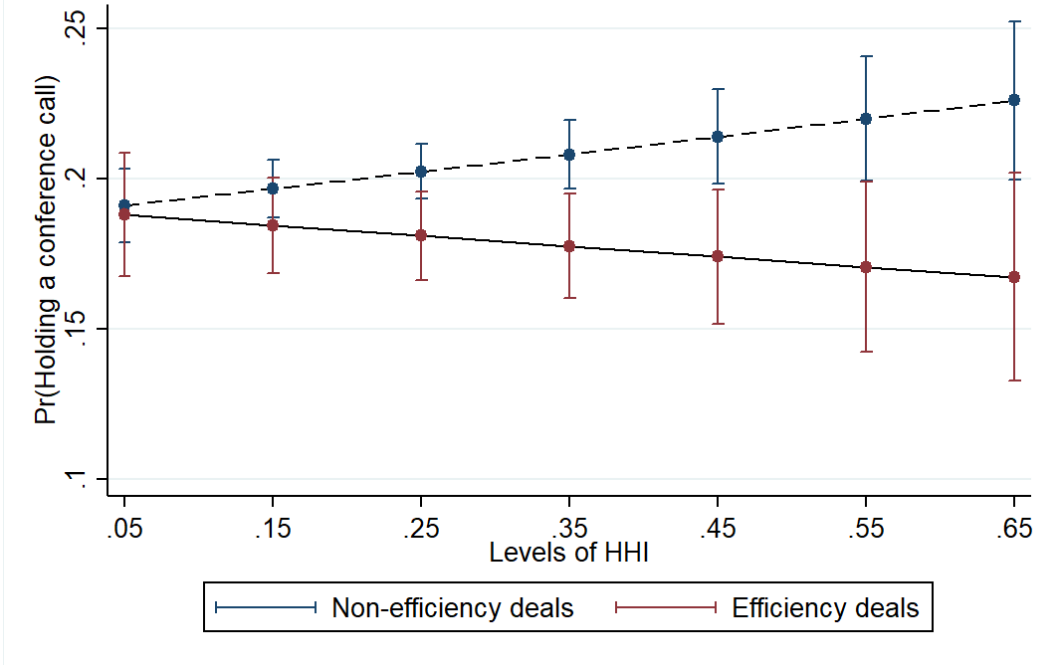


Figure 2. Marginal effect of efficiency on the call decision with different numbers of firms

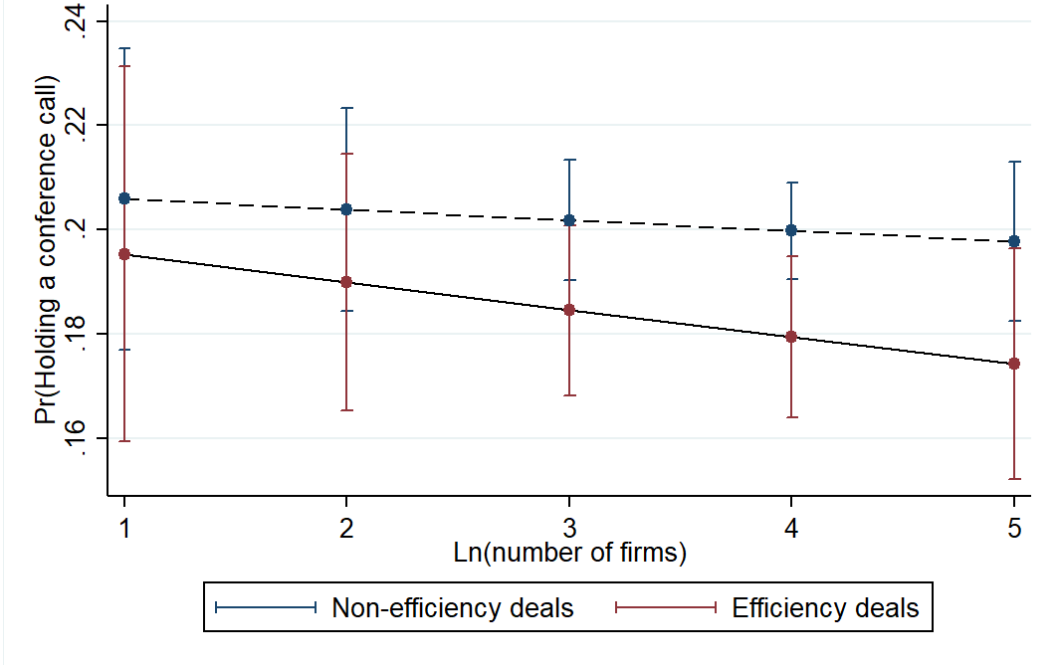


Figure 3. Marginal effect of market power on the call decision with different levels of HHI

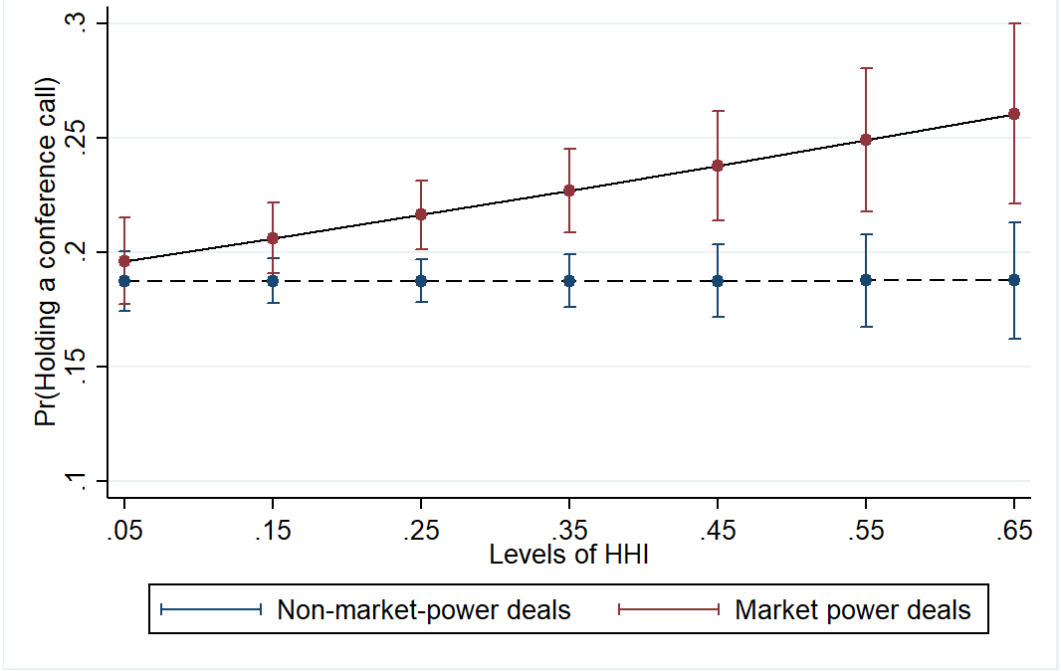


Figure 4. Marginal effect of market power on the call decision with different numbers of firms

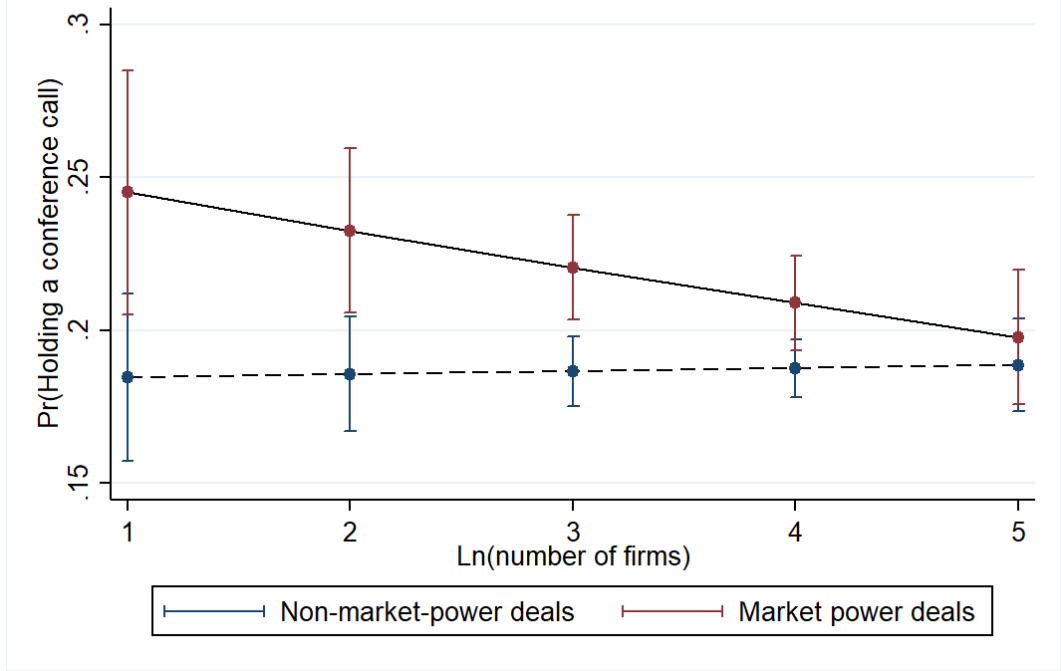


Table 1. Taxonomy and operationalization of acquisition motives			
		Acquirer's CAR	
		Positive	Negative
Average rivals' CAR	Positive	Market power	Base_1
		(2052)	(1268)
	[416]	[231]	
	Negative	Efficiency	Base_2
(1742)		(1799)	
		[303]	[319]
Number of deals in the acquisition sample in parentheses.			
Number of deals in the transcript sample in square brackets.			

Table 2. Descriptive statistics and correlations for call decision models (H1a, H1b, H3a, & H3b)

Variables	Mean	SD	Min.	Max.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Call	0.20	0.40	0.00	1.00												
(2) Efficiency	0.25	0.44	0.00	1.00	-0.02											
(3) Market power	0.30	0.46	0.00	1.00	0.03*	-0.38*										
(4) Ln (deal value)	4.52	1.52	2.23	8.81	0.39*	-0.02	0.02									
(5) Acquirer 5-day CAR	0.01	0.07	-0.19	0.25	0.05*	0.32*	0.43*	0.02								
(6) Acquisition probability	0.38	0.49	0.00	1.00	0.04*	-0.03*	-0.01	0.05*	-0.04*							
(7) Horizontal deal	0.35	0.48	0.00	1.00	0.04*	-0.02	0.02	0.05*	0.03*	0.46*						
(8) Vertical deal	0.06	0.23	0.00	1.00	0.03*	0.01	-0.02	0.06*	-0.02	0.03*	-0.18*					
(9) Competing bids	0.01	0.09	0.00	1.00	0.08*	-0.01	0.00	0.13*	0.00	0.03*	0.03*	0.01				
(10) Friendly attitude	0.99	0.09	0.00	1.00	-0.02*	0.01	-0.03*	-0.06*	-0.02	0.00	-0.04*	0.01	-0.05*			
(11) All cash	0.62	0.48	0.00	1.00	-0.10*	0.00	0.02	-0.02*	-0.01	-0.02	-0.02	-0.01	0.00	-0.01		
(12) Shares acquired	0.99	0.07	0.50	1.00	0.04*	0.00	-0.02	-0.03*	-0.01	0.00	0.00	-0.05*	0.00	0.09*	0.01	
(13) Public target	0.14	0.35	0.00	1.00	0.26*	-0.08*	-0.02	0.40*	-0.08*	0.04*	0.03*	0.03*	0.17*	-0.07*	-0.08*	-0.02
(14) Ln (total assets)	7.13	1.90	2.99	12.1	0.00	-0.07*	0.00	0.53*	-0.10*	0.04*	-0.01	0.06*	0.06*	-0.03*	0.23*	-0.06*
(15) Return on assets	0.08	0.10	-0.39	0.31	-0.02	0.01	0.01	0.11*	0.00	-0.11*	-0.05*	-0.02	0.01	0.00	0.18*	0.03*
(16) Tobin's q	1.74	0.91	0.69	6.00	0.01	0.00	-0.03*	-0.02	-0.06*	0.12*	-0.02	0.03*	0.01	0.01	-0.04*	0.04*
(17) Cash flow	0.08	0.10	-0.47	0.29	0.00	0.01	0.00	0.11*	-0.02	-0.07*	-0.02	-0.02	0.01	0.00	0.15*	0.01
(18) Leverage ratio	0.09	0.32	-0.76	0.86	-0.07*	-0.01	0.05*	0.16*	0.04*	-0.06*	0.06*	-0.01	0.00	0.01	0.08*	-0.05*
(19) Ln (operating costs)	6.72	1.84	2.65	11.3	0.01	-0.05*	0.00	0.47*	-0.08*	-0.06*	-0.06*	0.04*	0.06*	-0.02*	0.22*	-0.03*
(20) Prior deals _{3years}	1.41	2.25	0.00	29.0	-0.07*	-0.02	0.00	0.05*	-0.05*	0.12*	-0.06*	0.00	-0.01	0.01	0.07*	-0.01
(21) Prior calls _{3years}	0.07	0.33	0.00	5.00	0.27*	-0.02*	-0.01	0.14*	-0.03*	0.06*	0.00	0.02	0.05*	0.01	0.00	0.00
(22) Ln (prior calls by peers _{3years})	0.80	1.08	0.00	4.03	0.19*	-0.04*	-0.02	0.11*	-0.06*	0.43*	0.19*	0.08*	0.01	0.01	-0.05*	0.01
(23) Merger wave _{industry}	0.22	0.42	0.00	1.00	-0.05*	0.00	0.02	-0.05*	-0.01	0.15*	0.02*	0.02	0.01	0.00	0.02	-0.02
(24) HHI _{industry}	0.23	0.20	0.03	0.99	-0.04*	0.04*	0.00	-0.05*	0.03*	-0.25*	-0.17*	-0.05*	-0.01	0.00	0.05*	0.01
(25) Ln(number of firms) _{industry}	3.62	1.32	1.10	6.24	0.03*	-0.04*	-0.03*	0.01	-0.07*	0.40*	0.15*	0.07*	0.01	0.01	-0.06*	0.00
(26) Average firm size _{industry}	5.29	1.39	2.87	8.86	0.01	-0.02	0.04*	0.17*	0.02	-0.07*	0.06*	0.02	0.01	-0.01	0.02	-0.07*
(27) Median SG&A ratio _{industry}	0.25	0.18	0.00	0.74	0.04*	0.00	-0.04*	-0.07*	-0.05*	0.13*	-0.03*	-0.10*	0.00	0.00	-0.03*	0.07*
(28) Median R&D ratio _{industry}	0.04	0.06	0.00	0.33	0.07*	-0.01	-0.04*	-0.02*	-0.06*	0.23*	0.03*	0.08*	0.02	0.01	-0.07*	0.04*
(29) Ln(average cap expenditure) _{industry}	5.68	1.61	1.87	9.02	0.03*	-0.05*	0.00	0.17*	-0.07*	0.28*	0.15*	0.09*	0.03*	0.00	-0.02	-0.04*
(30) Regulated industry	0.18	0.38	0.00	1.00	0.03*	-0.01	0.00	0.05*	-0.02	-0.03*	-0.13*	0.13*	0.02	0.02	0.01	0.02*

Table 2. Continued

Variables	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
(15) Return on assets	0.20*															
(16) Tobin's q	-0.16*	0.18*														
(17) Cash flow	0.18*	0.82*	0.11*													
(18) Leverage ratio	0.30*	0.12*	-0.32*	0.08*												
(19) Ln (operating costs)	0.91*	0.25*	-0.16*	0.21*	0.26*											
(20) Prior deals _{3years}	0.28*	0.09*	0.00	0.07*	0.14*	0.22*										
(21) Prior calls _{3years}	0.12*	-0.01	-0.02	-0.01	0.02	0.09*	0.27*									
(22) Ln (prior calls by peers _{3years})	0.05*	-0.11*	0.12*	-0.02*	-0.17*	-0.08*	0.15*	0.21*								
(23) Merger wave _{industry}	-0.04*	-0.03*	0.05*	-0.02	-0.01	-0.06*	0.11*	0.02	0.04*							
(24) HHI _{industry}	0.01	0.11*	-0.06*	0.05*	0.05*	0.07*	0.08*	-0.02	-0.33*	-0.09*						
(25) Ln(number of firms) _{industry}	-0.03*	-0.22*	0.20*	-0.12*	-0.25*	-0.17*	0.06*	0.06*	0.55*	0.13*	-0.41*					
(26) Average firm size _{industry}	0.24*	0.05*	-0.24*	0.08*	0.36*	0.25*	-0.02	-0.03*	-0.20*	-0.06*	-0.11*	-0.28*				
(27) Median SG&A ratio _{industry}	-0.09*	-0.02	0.24*	-0.05*	-0.38*	-0.11*	0.03*	0.07*	0.33*	0.04*	-0.01	0.28*	-0.60*			
(28) Median R&D ratio _{industry}	-0.07*	-0.16*	0.24*	-0.16*	-0.42*	-0.12*	0.03*	0.06*	0.39*	0.04*	-0.15*	0.40*	-0.45*	0.51*		
(29) Ln(average cap expenditure) _{industry}	0.23*	-0.11*	0.00	-0.02	0.02	0.12*	0.06*	0.04*	0.40*	0.08*	-0.35*	0.43*	0.29*	-0.02	0.17*	
(30) Regulated industry	0.06*	-0.02	0.11*	-0.06*	-0.15*	0.05*	0.09*	0.06*	0.03*	-0.01	0.07*	0.03*	-0.20*	0.09*	0.33*	0.04*

N = 6,861. * = significant at the 5% level

Table 3. Descriptive statistics and correlations for the use of vague words models (H2a, H2b, H3a, H3b)

Variables	Mean	SD	Min.	Max.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
(1) Ln (Vague words _{manager})	5.13	0.59	2.56	6.24																
(2) Efficiency	0.24	0.43	0.00	1.00	-0.03															
(3) Market power	0.33	0.47	0.00	1.00	-0.01	-0.39*														
(4) Ln (Total words _{manager})	7.74	0.55	5.23	8.77	0.95*	-0.07*	-0.01													
(5) Vagueness _{presentation} (%)	0.04	0.01	0.02	0.07	0.15*	0.00	0.03	0.07*												
(6) Vagueness _{participants} (%)	0.08	0.01	0.05	0.12	-0.03	0.05	0.00	-0.10*	0.05											
(7) Manager readability	9.82	1.83	6.02	15.0	0.02	-0.01	-0.09*	0.10*	-0.18*	-0.08*										
(8) Manager tone	0.47	0.22	-0.22	0.89	0.01	0.01	0.00	0.03	-0.12*	0.04	0.12*									
(9) Ln (Total words _{participants})	7.55	0.49	6.26	8.76	0.16*	-0.02	-0.02	0.20*	0.12*	-0.14*	0.05	-0.06*								
(10) Ln (deal value)	5.72	1.59	2.23	8.81	0.24*	-0.09*	0.00	0.29*	-0.02	-0.24*	0.10*	0.08*	0.23*							
(11) Acquirer 5-day CAR	0.02	0.08	-0.19	0.25	-0.04	0.31*	0.48*	-0.06*	0.01	0.03	-0.09*	0.02	-0.03	-0.08*						
(12) Acquisition probability	0.42	0.49	0.00	1.00	0.04	-0.01	0.01	0.05	0.06*	-0.05	0.03	-0.12*	0.02	0.01	-0.02					
(13) Horizontal deal	0.39	0.49	0.00	1.00	0.07*	0.01	0.03	0.06*	0.01	-0.04	-0.03	-0.05	-0.01	0.08*	0.07*	0.47*				
(14) Vertical deal	0.07	0.26	0.00	1.00	-0.06*	0.00	-0.05	-0.04	-0.03	-0.05	0.06*	-0.04	-0.01	0.03	-0.04	-0.01	-0.23*			
(15) Competing bids	0.02	0.15	0.00	1.00	0.06*	-0.02	-0.02	0.06*	-0.01	-0.03	0.02	-0.02	0.03	0.16*	-0.02	0.06*	0.03	0.04		
(16) Friendly attitude	0.99	0.11	0.00	1.00	0.04	0.01	-0.03	0.04	0.02	-0.02	-0.05	-0.03	0.03	-0.05	0.03	0.01	-0.01	-0.02	0.02	
(17) All cash	0.53	0.50	0.00	1.00	-0.05	-0.01	0.02	-0.06*	0.05	0.06*	-0.05	0.01	-0.22*	-0.03	0.03	-0.02	-0.07*	0.02	-0.01	
(18) Shares acquired	0.99	0.05	0.50	1.00	0.02	0.02	-0.04	0.02	-0.03	0.07*	-0.01	0.05	-0.02	-0.03	-0.01	-0.02	0.00	-0.10*	0.00	
(19) Public target	0.33	0.47	0.00	1.00	0.11*	-0.10*	-0.06*	0.16*	-0.09*	-0.20*	0.09*	0.06*	0.10*	0.44*	-0.14*	0.07*	0.07*	-0.01	0.18*	
(20) Ln (total assets)	7.13	1.78	2.99	12.1	0.19*	-0.10*	-0.03	0.23*	0.04	-0.21*	0.11*	0.03	0.05	0.78*	-0.14*	0.01	0.02	0.04	0.11*	
(21) Return on assets	0.08	0.10	-0.39	0.31	0.09*	0.00	0.02	0.07*	0.00	0.03	-0.02	0.13*	-0.08*	0.25*	0.00	-0.15*	-0.04	-0.05	0.06*	
(22) Tobin's q	1.76	0.93	0.69	6.00	0.02	-0.01	-0.06*	0.02	0.00	-0.03	0.08*	-0.03	-0.07*	-0.06*	-0.11*	0.12*	-0.02	0.09*	0.01	
(23) Cash flow	0.08	0.10	-0.47	0.29	0.08*	-0.02	-0.01	0.07*	-0.01	-0.01	-0.01	0.09*	-0.06*	0.24*	-0.05	-0.07*	0.01	-0.05	0.05	
(24) Leverage ratio	0.04	0.34	-0.76	0.86	0.08*	0.00	0.09*	0.06*	0.09*	-0.05	-0.05	0.01	0.05	0.35*	0.09*	-0.09*	0.06*	-0.01	0.02	
(25) Ln (operating costs)	6.75	1.79	2.65	11.3	0.18*	-0.06*	-0.03	0.22*	0.02	-0.17*	0.11*	0.10*	0.03	0.71*	-0.10*	-0.11*	-0.02	0.02	0.11*	
(26) Ln (prior calls by peers _{3years})	1.20	1.12	0.00	4.03	0.00	-0.06*	-0.09*	0.01	-0.04	-0.07*	0.05	-0.12*	0.04	0.00	-0.15*	0.51*	0.22*	0.05	0.02	
(27) Merger wave _{industry}	0.19	0.39	0.00	1.00	0.00	-0.01	0.04	-0.01	0.08*	-0.01	-0.03	-0.09*	0.01	-0.07*	0.01	0.12*	0.00	0.03	0.00	
(28) HHI _{industry}	0.21	0.18	0.03	0.99	-0.02	0.03	0.04	-0.03	-0.01	0.11*	-0.02	0.13*	-0.07*	-0.06*	0.05	-0.31*	-0.23*	-0.06*	-0.03	
(29) Ln(number of firms) _{industry}	3.70	1.33	1.10	6.24	0.01	-0.08*	-0.08*	0.03	0.02	-0.08*	0.08*	-0.20*	0.05	-0.05	-0.16*	0.47*	0.18*	0.07*	0.03	
(30) Average firm size _{industry}	5.31	1.41	2.87	8.86	0.04	0.01	0.08*	0.04	0.01	-0.03	-0.05	0.05	0.04	0.28*	0.08*	-0.14*	0.07*	-0.01	0.03	
(31) Median SG&A ratio _{industry}	0.27	0.19	0.00	0.74	-0.02	-0.03	-0.08*	0.00	-0.08*	-0.04	0.07*	-0.03	-0.02	-0.15*	-0.11*	0.19*	0.00	-0.14*	-0.02	
(32) Median R&D ratio _{industry}	0.05	0.07	0.00	0.33	-0.05	-0.05	-0.10*	-0.02	-0.10*	-0.07*	0.09*	-0.13*	0.01	-0.13*	-0.13*	0.30*	0.05	0.12*	0.05	
(33) Ln(average cap expenditure) _{industry}	5.78	1.61	1.87	9.02	0.00	-0.07*	-0.05	0.02	0.01	-0.16*	0.04	-0.11*	0.09*	0.19*	-0.12*	0.26*	0.19*	0.07*	0.08*	
(34) Regulated industry	0.21	0.41	0.00	1.00	-0.04	-0.04	-0.04	-0.02	0.02	-0.08*	0.03	-0.06*	0.03	0.04	-0.07*	-0.02	-0.13*	0.16*	0.07*	

Table 3. Continued

Variables	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	
(17) All cash	-0.02																		
(18) Shares acquired	-0.01	-0.01																	
(19) Public target	0.02	-0.10*	-0.02																
(20) Ln (total assets)	-0.01	0.17*	-0.06*	0.34*															
(21) Return on assets	-0.02	0.23*	-0.01	0.07*	0.25*														
(22) Tobin's q	-0.03	0.07*	0.03	-0.02	-0.13*	0.16*													
(23) Cash flow	-0.01	0.17*	-0.01	0.06*	0.23*	0.82*	0.08*												
(24) Leverage ratio	0.01	0.01	-0.07*	0.06*	0.37*	0.12*	-0.28*	0.08*											
(25) Ln (operating costs)	-0.01	0.16*	-0.04	0.31*	0.91*	0.30*	-0.14*	0.25*	0.35*										
(26) Ln (prior calls by peers _{3years})	0.04	0.00	0.00	0.05	0.05	-0.13*	0.15*	-0.04	-0.21*	-0.11*									
(27) Merger wave _{industry}	-0.04	0.00	-0.01	-0.09*	-0.09*	-0.01	0.05	0.01	-0.03	-0.09*	0.05								
(28) HHI _{industry}	-0.03	0.07*	0.05	-0.11*	-0.05	0.14*	-0.02	0.05	0.01	0.02	-0.39*	-0.09*							
(29) Ln(number of firms) _{industry}	0.03	-0.08*	0.01	0.07*	-0.06*	-0.24*	0.17*	-0.12*	-0.23*	-0.23*	0.65*	0.13*	-0.46*						
(30) Average firm size _{industry}	0.01	-0.04	-0.11*	0.07*	0.28*	0.10*	-0.26*	0.11*	0.41*	0.32*	-0.29*	-0.08*	-0.09*	-0.33*					
(31) Median SG&A ratio _{industry}	-0.01	0.07*	0.09*	0.02	-0.12*	-0.01	0.23*	-0.02	-0.38*	-0.16*	0.41*	0.06*	-0.03	0.28*	-0.58*				
(32) Median R&D ratio _{industry}	0.04	0.00	0.04	0.08*	-0.13*	-0.19*	0.27*	-0.15*	-0.47*	-0.22*	0.48*	-0.01	-0.15*	0.41*	-0.48*	0.50*			
(33) Ln(average cap expenditure) _{industry}	0.05	-0.04	-0.11*	0.14*	0.25*	-0.09*	-0.03	0.00	0.08*	0.13*	0.44*	0.06*	-0.41*	0.44*	0.29*	-0.01	0.16*		
(34) Regulated industry	0.04	0.05	0.03	0.05	0.05	-0.06*	0.10*	-0.09*	-0.16*	0.01	0.05	-0.03	0.04	0.00	-0.17*	0.07*	0.33*	0.07*	

N = 1,269. * = significant at the 5% level

Table 4. Acquisition motives and conference call decision: Logit regressions

Dependent variable:	(1)	(2)	(3)	(4)	(5)
<i>Call</i>	Baseline	vs. non-efficiency	vs. non-market-power	vs. value-destroying	vs. market-power
Efficiency		-0.202* (0.097) [0.037]		-0.046 (0.124) [0.711]	-0.309** (0.110) [0.005]
Market power			0.272** (0.094) [0.004]	0.243* (0.122) [0.046]	
Deal value	1.136** (0.043) [0.000]	1.137** (0.043) [0.000]	1.143** (0.043) [0.000]	1.142** (0.043) [0.000]	1.200** (0.061) [0.000]
Acquirer 5-day CAR	1.269* (0.575) [0.027]	1.638** (0.605) [0.007]	0.551 (0.637) [0.387]	0.711 (0.792) [0.369]	-0.310 (1.089) [0.776]
Acquisition probability	0.015 (0.110) [0.891]	0.015 (0.110) [0.894]	0.011 (0.110) [0.920]	0.011 (0.110) [0.918]	0.274+ (0.149) [0.066]
Horizontal deal	-0.064 (0.102) [0.532]	-0.066 (0.102) [0.520]	-0.061 (0.102) [0.549]	-0.062 (0.102) [0.545]	0.038 (0.135) [0.780]
Vertical deal	0.078 (0.176) [0.656]	0.086 (0.175) [0.626]	0.095 (0.175) [0.588]	0.095 (0.175) [0.589]	0.103 (0.249) [0.678]
Competing bids	0.105 (0.423) [0.805]	0.105 (0.423) [0.805]	0.111 (0.424) [0.794]	0.110 (0.424) [0.795]	-0.219 (0.435) [0.614]
Friendly attitude	-0.184 (0.389) [0.637]	-0.177 (0.385) [0.646]	-0.158 (0.386) [0.683]	-0.159 (0.386) [0.680]	0.299 (0.533) [0.574]
All cash	0.061 (0.088) [0.489]	0.061 (0.088) [0.492]	0.060 (0.088) [0.501]	0.060 (0.088) [0.500]	-0.015 (0.119) [0.900]
Shares acquired	1.108 (0.749) [0.139]	1.132 (0.747) [0.130]	1.112 (0.749) [0.137]	1.117 (0.748) [0.136]	1.258 (1.093) [0.250]
Public target	0.598** (0.114) [0.000]	0.582** (0.114) [0.000]	0.591** (0.115) [0.000]	0.588** (0.115) [0.000]	0.701** (0.173) [0.000]
Ln (total assets)	-0.775** (0.075) [0.000]	-0.777** (0.075) [0.000]	-0.785** (0.075) [0.000]	-0.784** (0.075) [0.000]	-0.940** (0.105) [0.000]
Return on assets	-0.769 (0.755) [0.308]	-0.773 (0.758) [0.308]	-0.792 (0.754) [0.294]	-0.790 (0.755) [0.295]	-0.053 (1.024) [0.959]
Tobin's q	-0.184** (0.052) [0.000]	-0.181** (0.052) [0.001]	-0.184** (0.052) [0.000]	-0.183** (0.052) [0.000]	-0.283** (0.072) [0.000]
Cash flow	0.644 (0.739) [0.383]	0.641 (0.740) [0.386]	0.645 (0.736) [0.381]	0.645 (0.737) [0.382]	-0.392 (1.006) [0.697]

Table 4. Continued

Leverage ratio	-0.340*	-0.341*	-0.339*	-0.340*	-0.328
	(0.168)	(0.168)	(0.168)	(0.169)	(0.224)
	[0.043]	[0.043]	[0.044]	[0.044]	[0.143]
Ln (operating costs)	0.190**	0.192**	0.193**	0.194**	0.281**
	(0.070)	(0.070)	(0.070)	(0.070)	(0.096)
	[0.007]	[0.006]	[0.006]	[0.006]	[0.003]
Prior deals _{3years}	-0.296**	-0.295**	-0.296**	-0.296**	-0.286**
	(0.042)	(0.041)	(0.042)	(0.042)	(0.048)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Prior calls _{3years}	2.270**	2.268**	2.276**	2.275**	2.655**
	(0.152)	(0.152)	(0.152)	(0.152)	(0.193)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Ln (prior calls by peers _{3years})	0.463**	0.464**	0.464**	0.464**	0.461**
	(0.060)	(0.060)	(0.060)	(0.060)	(0.083)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Acquirer industry merger wave	-0.086	-0.088	-0.100	-0.099	0.043
	(0.112)	(0.112)	(0.112)	(0.112)	(0.152)
	[0.440]	[0.430]	[0.370]	[0.375]	[0.779]
Acquirer industry HHI	0.316	0.325	0.331	0.332	0.155
	(0.257)	(0.257)	(0.256)	(0.256)	(0.346)
	[0.218]	[0.205]	[0.195]	[0.195]	[0.655]
Acquirer industry ln (number of firms)	-0.028	-0.030	-0.028	-0.029	-0.097
	(0.048)	(0.048)	(0.048)	(0.048)	(0.064)
	[0.557]	[0.534]	[0.558]	[0.553]	[0.132]
Acquirer industry average size of firms	0.078	0.076	0.073	0.073	0.069
	(0.056)	(0.056)	(0.056)	(0.056)	(0.077)
	[0.166]	[0.178]	[0.191]	[0.191]	[0.367]
Acquirer industry median SG&A ratio	-0.521	-0.530	-0.520	-0.522	-0.949+
	(0.413)	(0.414)	(0.414)	(0.414)	(0.561)
	[0.207]	[0.200]	[0.209]	[0.207]	[0.090]
Acquirer industry median R&D intensity	0.467	0.481	0.494	0.494	0.183
	(0.989)	(0.990)	(0.990)	(0.990)	(1.416)
	[0.637]	[0.627]	[0.618]	[0.618]	[0.897]
Acquirer industry ln(average capital expenditure)	-0.082*	-0.081*	-0.081*	-0.081*	-0.066
	(0.039)	(0.039)	(0.039)	(0.039)	(0.050)
	[0.035]	[0.037]	[0.037]	[0.038]	[0.191]
Regulated industry	0.155	0.156	0.154	0.155	0.389
	(0.213)	(0.214)	(0.214)	(0.214)	(0.301)
	[0.469]	[0.465]	[0.470]	[0.469]	[0.196]
Constant	-3.399+	-3.254+	-3.410+	-3.375+	-3.385+
	(1.805)	(1.816)	(1.802)	(1.807)	(1.975)
	[0.060]	[0.073]	[0.059]	[0.062]	[0.086]
Industry fixed effects	Included	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included	Included
Observations	6,861	6,861	6,861	6,861	3,785
Wald test (vs. the baseline)		4.33*	8.34**	8.43*	7.87**
Mean VIF	2.10	2.07	2.08	2.11	2.04

Robust standard errors in parentheses. P-values in square brackets. Two-tailed tests: ** p<0.01, * p<0.05, + p<0.1

Table 5. Acquisition motives and use of vague words in conference calls: Heckman regressions

2nd-step Dependent variable:	(1)	(2)	(3)	(4)	(5)
<i>Ln (vague words_{managers})</i>	Baseline	vs. non-efficiency	vs. non-market-power	vs. value-destroying	vs. market-power
Efficiency		0.028** (0.011) [0.008]		0.028* (0.014) [0.044]	0.020+ (0.011) [0.085]
Market power			-0.018+ (0.011) [0.083]	-0.0001 (0.014) [0.995]	
Ln (total words _{manager})	1.027** (0.008) [0.000]	1.027** (0.008) [0.000]	1.027** (0.008) [0.000]	1.027** (0.008) [0.000]	1.029** (0.011) [0.000]
Vagueness _{presentation}	3.761** (0.396) [0.000]	3.752** (0.395) [0.000]	3.761** (0.396) [0.000]	3.752** (0.395) [0.000]	3.512** (0.500) [0.000]
Vagueness _{participants}	2.019** (0.324) [0.000]	2.009** (0.323) [0.000]	2.018** (0.323) [0.000]	2.010** (0.323) [0.000]	1.683** (0.425) [0.000]
Manager readability	-0.016** (0.002) [0.000]	-0.016** (0.002) [0.000]	-0.016** (0.002) [0.000]	-0.016** (0.002) [0.000]	-0.014** (0.003) [0.000]
Manager tone	-0.017 (0.020) [0.405]	-0.016 (0.020) [0.437]	-0.017 (0.020) [0.409]	-0.016 (0.020) [0.437]	-0.066* (0.026) [0.010]
Ln (total words _{participants})	-0.040** (0.010) [0.000]	-0.040** (0.010) [0.000]	-0.040** (0.010) [0.000]	-0.040** (0.010) [0.000]	-0.021 (0.013) [0.104]
Deal value	-0.003 (0.007) [0.695]	-0.003 (0.007) [0.699]	-0.003 (0.007) [0.678]	-0.003 (0.007) [0.693]	-0.012 (0.010) [0.203]
Acquirer 5-day CAR	0.069 (0.056) [0.213]	0.025 (0.058) [0.669]	0.120+ (0.063) [0.055]	0.025 (0.079) [0.750]	-0.112 (0.099) [0.255]
Acquisition probability	-0.003 (0.012) [0.798]	-0.004 (0.012) [0.729]	-0.003 (0.012) [0.799]	-0.004 (0.012) [0.730]	-0.007 (0.015) [0.634]
Horizontal deal	0.020+ (0.011) [0.068]	0.020+ (0.011) [0.069]	0.019+ (0.011) [0.074]	0.020+ (0.011) [0.070]	0.023 (0.014) [0.102]
Vertical deal	-0.004 (0.018) [0.807]	-0.005 (0.018) [0.775]	-0.006 (0.018) [0.747]	-0.005 (0.018) [0.775]	0.015 (0.025) [0.540]
Competing bids	0.014 (0.029) [0.631]	0.014 (0.029) [0.641]	0.013 (0.029) [0.671]	0.014 (0.029) [0.641]	-0.032 (0.043) [0.464]
Friendly attitude	-0.029 (0.039) [0.460]	-0.029 (0.039) [0.451]	-0.033 (0.039) [0.404]	-0.029 (0.039) [0.453]	-0.019 (0.048) [0.695]
All cash	-0.004 (0.010) [0.669]	-0.004 (0.010) [0.711]	-0.004 (0.010) [0.667]	-0.004 (0.010) [0.711]	0.007 (0.012) [0.575]
Shares acquired	-0.010 (0.084) [0.900]	-0.017 (0.083) [0.839]	-0.017 (0.084) [0.837]	-0.017 (0.083) [0.840]	0.081 (0.099) [0.413]
Public target	-0.031** (0.011) [0.005]	-0.030** (0.011) [0.006]	-0.031** (0.011) [0.005]	-0.030** (0.011) [0.006]	-0.036* (0.015) [0.014]
Ln (total assets)	-0.003 (0.009) [0.764]	-0.002 (0.009) [0.843]	-0.002 (0.009) [0.818]	-0.002 (0.009) [0.847]	0.006 (0.011) [0.612]

Table 5. Continued

Return on assets	0.226** (0.083) [0.007]	0.232** (0.083) [0.005]	0.226** (0.083) [0.007]	0.232** (0.083) [0.005]	0.256* (0.110) [0.020]
Tobin's q	0.006 (0.005) [0.309]	0.005 (0.005) [0.335]	0.006 (0.005) [0.295]	0.005 (0.005) [0.335]	0.003 (0.008) [0.668]
Cash flow	-0.090 (0.077) [0.242]	-0.094 (0.077) [0.222]	-0.089 (0.077) [0.246]	-0.094 (0.077) [0.222]	-0.075 (0.105) [0.473]
Leverage ratio	0.034* (0.017) [0.049]	0.035* (0.017) [0.043]	0.035* (0.017) [0.045]	0.035* (0.017) [0.042]	-0.021 (0.022) [0.362]
Ln (operating costs)	-0.002 (0.008) [0.793]	-0.003 (0.008) [0.708]	-0.002 (0.008) [0.759]	-0.003 (0.008) [0.707]	-0.008 (0.009) [0.406]
Ln (prior calls by peers _{3years})	-0.003 (0.008) [0.726]	-0.003 (0.008) [0.722]	-0.003 (0.008) [0.714]	-0.003 (0.008) [0.719]	-0.005 (0.010) [0.626]
Acquirer industry merger wave	-0.000 (0.012) [0.986]	0.000 (0.012) [0.994]	0.001 (0.012) [0.945]	0.000 (0.012) [0.994]	0.006 (0.016) [0.715]
Acquirer industry HHI	-0.024 (0.031) [0.434]	-0.024 (0.031) [0.437]	-0.023 (0.031) [0.455]	-0.024 (0.031) [0.436]	0.060 (0.041) [0.144]
Acquirer industry ln (number of firms)	-0.002 (0.006) [0.701]	-0.002 (0.006) [0.790]	-0.002 (0.006) [0.760]	-0.002 (0.006) [0.789]	-0.000 (0.008) [0.963]
Acquirer industry average size of firms	0.001 (0.007) [0.819]	0.002 (0.007) [0.754]	0.002 (0.007) [0.736]	0.002 (0.007) [0.755]	-0.011 (0.009) [0.199]
Acquirer industry median SG&A ratio	-0.052 (0.044) [0.240]	-0.049 (0.044) [0.272]	-0.052 (0.044) [0.240]	-0.049 (0.044) [0.272]	-0.148* (0.060) [0.014]
Acquirer industry median R&D intensity	0.135 (0.104) [0.196]	0.139 (0.104) [0.179]	0.133 (0.104) [0.201]	0.140 (0.104) [0.179]	0.116 (0.150) [0.438]
Acquirer industry ln(average capital expenditure)	0.000 (0.004) [0.942]	-0.000 (0.004) [0.987]	0.000 (0.004) [0.980]	-0.000 (0.004) [0.988]	0.008 (0.006) [0.161]
Regulated industry	0.057** (0.022) [0.010]	0.056** (0.022) [0.010]	0.057** (0.022) [0.009]	0.056** (0.022) [0.010]	0.061* (0.027) [0.026]
Inverse mills ratio	-0.011 (0.014) [0.436]	-0.011 (0.014) [0.424]	-0.011 (0.014) [0.416]	-0.011 (0.014) [0.418]	-0.017 (0.017) [0.330]
Constant	-2.348** (0.212) [0.000]	-2.372** (0.211) [0.000]	-2.344** (0.212) [0.000]	-2.372** (0.212) [0.000]	-2.505** (0.243) [0.000]
Industry/Year fixed effects	Included	Included	Included	Included	Included
Observations	1,269	1,269	1,269	1,269	719
1st-step DV: <i>Call</i>	(1)	(3)	(2)	(4)	(5)
Prior deals _{3years}	-0.159** (0.017) [0.000]	-0.159** (0.017) [0.000]	-0.159** (0.017) [0.000]	-0.159** (0.017) [0.000]	-0.159** (0.026) [0.000]
Prior calls _{3years}	1.260** (0.078) [0.000]	1.258** (0.078) [0.000]	1.262** (0.078) [0.000]	1.261** (0.078) [0.000]	1.514** (0.124) [0.000]
Other variables in the 2nd step	Included	Included	Included	Included	Included
Observations	6,785	6,785	6,785	6,785	3,753

Two-step consistent standard errors in parentheses. P-values in square brackets. Two-tailed tests: ** p<0.01, * p<0.05, + p<0.1

Table 6. Acquisition motives and the moderating effect of industry structure

	DV: Call decision				DV: Ln (vague words _{managers})			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	vs. non-efficiency	vs. non-efficiency	vs. non-market-power	vs. non-market-power	vs. non-efficiency	vs. non-efficiency	vs. non-market-power	vs. non-market-power
Efficiency	0.016 (0.145) [0.912]	-0.072 (0.249) [0.772]			0.004 (0.016) [0.815]	0.087** (0.029) [0.003]		
Efficiency *								
Acquirer industry HHI	-0.969* (0.474) [0.041]				0.111* (0.056) [0.046]			
Efficiency *								
Ln (number of firms)		-0.036 (0.065) [0.578]				-0.016* (0.008) [0.031]		
Market power			0.043 (0.136) [0.754]	0.717** (0.239) [0.003]			-0.031* (0.015) [0.039]	-0.071** (0.026) [0.007]
Market power *								
Acquirer industry HHI			1.009* (0.423) [0.017]				0.058 (0.049) [0.237]	
Market power *								
Ln (number of firms)				-0.124* (0.061) [0.043]				0.015* (0.007) [0.028]
Acquirer industry HHI	0.583* (0.277) [0.035]	0.321 (0.257) [0.212]	0.004 (0.301) [0.990]	0.326 (0.256) [0.204]	-0.049 (0.033) [0.145]	-0.028 (0.031) [0.361]	-0.045 (0.036) [0.207]	-0.020 (0.031) [0.520]
Ln (number of firms)	-0.033 (0.048) [0.497]	-0.021 (0.052) [0.689]	-0.028 (0.049) [0.570]	0.011 (0.052) [0.837]	-0.001 (0.006) [0.805]	0.002 (0.006) [0.740]	-0.001 (0.006) [0.807]	-0.007 (0.006) [0.248]
Call-level controls	NA	NA	NA	NA	Included	Included	Included	Included
Deal-level controls	Included	Included	Included	Included	Included	Included	Included	Included
Firm-level controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry-level controls	Included	Included	Included	Included	Included	Included	Included	Included
Industry fixed effects	Included	Included	Included	Included	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included	Included	Included	Included	Included
Inverse mills ratio	NA	NA	NA	NA	Included	Included	Included	Included
Observations	6,861	6,861	6,861	6,861	1,269	1,269	1,269	1,269

Models 1-3: Robust standard errors in parentheses. Models 4;6: Two-step consistent standard errors in parentheses.

P-values in square brackets. Two-tailed tests: ** p<0.01, * p<0.05, + p<0.1

Table 7. Conference call and subsequent acquisitions by rivals: Fixed-effect logit regressions

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Prob. of acquisition by rivals</i>	Full sample	Full sample	Full sample	Full sample	High HHI	Low HHI	More firms	Fewer firms
Number of calls	0.200* (0.093) [0.031]				0.329* (0.163) [0.043]	0.151 (0.115) [0.191]	0.195 (0.125) [0.121]	0.270+ (0.147) [0.067]
Number of vague calls		0.042 (0.124) [0.735]		0.074 (0.125) [0.554]				
Number of non-vague calls			0.327** (0.126) [0.010]	0.334** (0.127) [0.009]				
Number of deals	-0.081+ (0.042) [0.052]	-0.063 (0.041) [0.124]	-0.076+ (0.042) [0.072]	-0.080+ (0.042) [0.056]	-0.114 (0.073) [0.118]	-0.093+ (0.049) [0.056]	-0.069 (0.047) [0.139]	-0.131 (0.087) [0.132]
Ln (value of deals)	-0.139** (0.021) [0.000]	-0.130** (0.021) [0.000]	-0.138** (0.021) [0.000]	-0.140** (0.021) [0.000]	-0.182** (0.041) [0.000]	-0.130** (0.027) [0.000]	-0.140** (0.030) [0.000]	-0.155** (0.033) [0.000]
Number of efficiency deals	-0.029 (0.116) [0.804]	-0.047 (0.115) [0.683]	-0.026 (0.115) [0.818]	-0.024 (0.116) [0.839]	-0.101 (0.210) [0.631]	-0.056 (0.147) [0.702]	0.106 (0.166) [0.523]	-0.108 (0.179) [0.546]
Number of market power deals	-0.109 (0.108) [0.310]	-0.115 (0.108) [0.287]	-0.108 (0.108) [0.313]	-0.108 (0.108) [0.318]	-0.327 (0.201) [0.103]	-0.130 (0.127) [0.305]	-0.197 (0.140) [0.161]	0.015 (0.179) [0.932]
HHI	-0.458 (0.423) [0.279]	-0.478 (0.423) [0.259]	-0.471 (0.424) [0.267]	-0.464 (0.423) [0.273]	-0.263 (0.598) [0.660]	-0.589 (1.396) [0.673]	-0.075 (0.976) [0.939]	-0.738 (0.515) [0.152]
Ln (number of firms)	0.190 (0.149) [0.204]	0.184 (0.149) [0.216]	0.186 (0.150) [0.214]	0.188 (0.149) [0.209]	0.323 (0.328) [0.325]	0.506+ (0.307) [0.099]	0.683+ (0.381) [0.073]	0.270 (0.262) [0.303]
Average firm size	0.064 (0.057) [0.265]	0.064 (0.057) [0.261]	0.063 (0.057) [0.268]	0.063 (0.057) [0.268]	0.092 (0.078) [0.241]	0.109 (0.117) [0.354]	0.108 (0.165) [0.512]	0.061 (0.063) [0.336]
Median SG&A	-0.836 (0.631) [0.185]	-0.830 (0.627) [0.186]	-0.855 (0.632) [0.176]	-0.852 (0.633) [0.178]	-0.373 (0.788) [0.636]	-2.919* (1.386) [0.035]	-2.219+ (1.322) [0.093]	-0.356 (0.796) [0.655]
Median R&D	-2.290 (3.312) [0.489]	-2.398 (3.295) [0.467]	-2.238 (3.337) [0.502]	-2.232 (3.335) [0.503]	-2.909 (4.702) [0.536]	8.583 (6.818) [0.208]	2.942 (6.886) [0.669]	-3.351 (4.588) [0.465]
Average capital	0.013 (0.029) [0.654]	0.013 (0.028) [0.643]	0.013 (0.028) [0.634]	0.013 (0.028) [0.640]	0.159+ (0.086) [0.064]	-0.040+ (0.022) [0.075]	-0.021 (0.035) [0.551]	0.059 (0.070) [0.395]
Year fixed effects	Included	Included	Included	Included	Included	Included	Included	Included
Observations	7,793	7,793	7,793	7,793	2,562	4,728	3,559	3,862

Robust standard errors in parentheses. P-values in square brackets. Two-tailed tests: ** p<0.01, * p<0.05, + p<0.1

CHAPTER 3

What drives firms to imitate others?

Performance feedback, slack, and foreign location choice

ABSTRACT

Prior studies have posited that when making decisions under uncertainty, a firm tends to imitate peer firms' actions to reduce the associated risks. This study examines firms' heterogeneity in their imitative behaviors. We argue that variable risk preferences explain why firms exhibit different propensities to engage in imitation. Drawing upon the behavioral literature and research on inter-organizational imitation, we theorize how performance relative to aspirations and slack resources affects a firm's likelihood of mimicking others' location choices in foreign entries. Empirical analyses of foreign location choice by Chinese public firms over ten years confirm the conventional imitative prediction for firms performing above aspirations (hence risk-averse). In contrast, below-aspiration performance or the possession of superior slack resources, resulting in higher risk tolerance, reduces the probability of emulating others' location decisions.

Keywords:

Imitation; performance feedback; slack; risk preferences; location choice

INTRODUCTION

Researchers in strategy and organization have long been interested in understanding why and how firms imitate each other's actions. A substantial body of studies has examined firms' imitative behaviors in various corporate domains, such as mergers and acquisitions (Naumovska, Zajac, & Lee, 2021; Ozmel, Reuer, & Wu, 2017), market entry or exit (Gaba & Terlaak, 2013; Shaver, Mitchell, & Yeung, 1997), corporate social responsibility (Gupta & Misangyi, 2018; Jacqueminet, 2020), and especially location choice in foreign investments (Belderbos, Olffen, & Zou, 2011; De Beule, Somers, & Zhang, 2018; Henisz & Delios, 2001; Li, Qian, & Yao, 2015). Much of the prior work focuses on the information mechanism underpinning the inter-organization imitation process by arguing that when faced with uncertainty and risk,¹⁴ decision-makers look at others' behaviors to assess the technical and social merits of the action and make better-informed decisions (Gaba & Terlaak, 2013; Lieberman & Asaba, 2006). Accordingly, this form of imitation is termed information-based or uncertainty-based imitation (Gupta & Misangyi, 2018; Lieberman & Asaba, 2006; Pitsakis & Giachetti, 2020). One central thesis in this line of research is that firms resort to imitation to mitigate uncertainty by drawing information from others' observable actions and using their behaviors and practices as cues for effectiveness (Abrahamson, 1991; Ordanini, Rubera, & DeFillippi, 2008).

Despite the well-documented uncertainty-reducing benefits of imitation, what is yet to be considered is the possibility that a firm's attitudes toward risk may affect its likelihood to emulate peers' actions. This question is essential as past studies have highlighted that firms exhibit significant heterogeneity in their response to imitation forces under uncertainty (Delios,

¹⁴ For brevity, we will treat risk and uncertainty as synonyms unless otherwise noted. This allows us to report more faithfully the literatures that use either concept, even in equivalent ways (Cuypers & Martin, 2010). Likewise, we follow March (1988) in regarding risk aversion and uncertainty avoidance as interchangeable concepts.

Gaur, & Makino, 2008; Li et al., 2015). Moreover, one implicit assumption in the imitation literature is that firms are risk-averse such that they seek to reduce uncertainty about an action's costs and benefits by observing the behaviors of their peers to make sense of such actions (Lieberman & Asaba, 2006; Ordanini et al., 2008). However, prior works in the behavioral tradition have consistently shown that firms' attitudes toward risk vary systematically, on a spectrum from risk aversion to risk-taking (Bromiley, 1991; March & Shapira, 1987; Miller & Chen, 2004). Cross-firm differences in risk preferences have been used to explain a multitude of firm behaviors (Eggers & Kaul, 2018; Greve, 2003; Miller & Chen, 2004; Xu, Zhou, & Du, 2018), but its role in the imitation process remains underexplored.

In this study, we integrate research on inter-organizational imitation with insights from Behavioral Theory of the Firm (BToF) to examine how a firm's risk preferences condition its imitative behavior. Specifically, we build upon the variable risk preferences framework from BToF and its extension to organizational risk-taking (Cyert & March, 1963; March & Shapira, 1987, 1992) to model firms' attitudes toward risk and relate them to their propensity to imitate the practices of peer firms. We first theorize that risk-averse firms, assuaged by above-aspiration performance, are more likely to mimic others' actions, allowing them to benefit from others' information cues and minimize the possibility of losses (Chang & Park, 2005; Gaba & Terlaak, 2013; Ozmel et al., 2017). In contrast, firms with an increasing appetite for risk, driven either by below-aspiration performance or by superior slack, tend to deviate from the imitation predictions as they are more willing to tolerate exposure to failure and thus more likely to experiment with new strategies that are different from others' (March, 1991; Sitkin & Pablo, 1992).

To test our contingency model of imitation, we focus on firms' foreign location choices. Though we expect the hypothesized effect of risk preferences to be present in any strategic

domain characterized by considerable uncertainty due to the lack of accurate information about the actions' risks and benefits, the focal context is especially relevant for our inquiry for several reasons. First, foreign location choice is a highly complex strategic decision, plagued by substantial information frictions (Aharoni, Tihanyi, & Connelly, 2011; Garcia-Canal & Guillén, 2008). As a result, previous research has shown that firms are prone to imitate others' location decisions in their foreign entries as a response to uncertainty (Belderbos et al., 2011; De Beule et al., 2018; Henisz & Delios, 2001). Second, the literature on entry timing suggests that despite various advantages of an imitative entry, some firms tend to enter a foreign market early, although that entails higher risk (Luo, 1998; Mitchell, Shaver, & Yeung, 1994). The distinction between early and late movers allows us to examine how firm heterogeneity in risk preferences may explain their divergent decisions. Furthermore, an emerging line of research on foreign location choice has started to consider the effect of risk perception and propensity in firms' decision making, highlighting firms' desire to minimize exposure to uncertainty and managing the trade-offs between risk and return (Ambos, Cesinger, Eggers, & Kraus, 2020; Buckley, Chen, Clegg, & Voss, 2018). To summarize, considering the prominent role of uncertainty in foreign location choice, we expect that a firm's likelihood to pursue imitative foreign entries, as opposed to non-imitative (differentiated) ones, will vary with its performance relative to aspirations and possession of slack resources – two key determinants of firms' risk-taking behaviors.

Our empirical analysis examines the foreign location decisions among 119 potential host locations by Chinese public firms between 2004 and 2013. We distinguish between previous entries by other Chinese firms – which generate information cues relevant to uncertainty-based imitation – and previous entries by domestic rivals, which indicates a different motive of competition-based or rivalry-based imitation (Lieberman & Asaba, 2006; Sharapov & Ross,

2019). We focus on the former reference group – same country of origin, from which we excluded rivals in a robustness analysis – for several reasons. First, prior studies show that firms with the same country origin provide more trustworthy and accessible information to the focal firm, reducing the uncertainty associated with host countries and facilitating its subsequent entries (Stallkamp, Pinkham, Schotter, & Buchel, 2018; Tan & Meyer, 2011). Second, the information-based view of country-of-origin imitation also aligns with the conceptualization of risk in the BToF literature, in that incomplete information results in (downside) unpredictability and chances of losses (Bromiley, 1991; March & Shapira, 1987). Lastly, recent studies have shown that when going abroad, firms not only follow their compatriot peers in the same sector but also in unrelated sectors due to information benefits (De Beule et al., 2018). Conversely, we control for previous investments by the second referent group, rivals. The associated competition-based imitation pertains in our context to firms engaging in multimarket competition and seeking to reduce rivalry intensity or maintain competitive parity (Gimeno, Hoskisson, Beal, & Wan, 2005; Lieberman & Asaba, 2006). As rivals' imitative behaviors can both increase – i.e., more intense competition for scarce resources and greater risks of knowledge expropriation in the host location – and decrease – i.e., increased level of multimarket contact and greater coordination potential – competitive risk (Kacperczyk, Beckman, & Moliterno, 2015; Martin, Swaminathan, & Mitchell, 1998), their relationship with risk preferences is ambiguous, making our risk-based moderators less relevant for such cases. What is more, we deploy two regression approaches to test the proposed contingency model, one of which specifically accounts for the decision to make a foreign investment rather than stay put. Overall, our empirical results provide supporting evidence to the moderating effect of risk preferences in firms' propensity to imitate peers' prior location decisions.

We aim to make three contributions. First, we extend prior research on inter-firm imitation, which has thus far assumed uncertainty as a universal motive for imitation (Gaba & Terlaak, 2013; Henisz & Delios, 2001), by identifying a behavioral condition of risk aversion that underpins the imitation process under uncertainty. Drawing upon literature on uncertainty-based imitation and integrate it with insights on organizational risk-taking from a behavioral perspective, we theorize and examine the essential while often neglected role of risk aversion in imitation. Our findings show that firms' variable risk preferences, determined by performance relative to aspirations and slack resources, indeed influence the degree to which they emulate prior foreign location choices by peers in the reference group. We thus offer a behaviorally informed model to shed light on the uncertainty-based imitation. This behavioral approach opens up a new avenue for imitation research to investigate firm characteristics that affect how firms acquire, process, and react to the information from others' actions in risky decision making.

Second, we contribute to the literature on international strategy in several ways. We offer a new and powerful risk-based explanation of the conditions under which firms pursue imitative versus differentiated foreign location strategies. This is a contribution by itself to the literature on foreign market entry, which has mainly emphasized the role of heterogeneity in resources and capabilities (Kim & Aguilera, 2016; Shaver & Flyer, 2000). Besides, this study complements research on entry timing, which primarily focuses on performance differences between early and late entrants (Luo, 1998; Mitchell et al., 1994). Understanding firms' heterogeneous risk preferences should allow better-specified models to understand the antecedents and dimensions of foreign expansion performance.

Third, our study also advances empirical research on the internationalization of emerging market firms, specifically the Chinese ones. Despite China being a relative newcomer in the

international market, its multinational firms have spread quickly across a broad range of countries (Cui & Jiang, 2012). This has raised several questions about the optimality of these investments and their implications for the firms involved and the host countries alike (Morck, Yeung, & Zhao, 2008). In particular, researchers have concluded that Chinese firms sometimes make hazardous location decisions (Buckley et al., 2007). Our research examines the behaviors of this important group of investors in a broader and theoretically grounded framework by highlighting the boundary condition of risk attitude and appetite.

THEORY AND HYPOTHESES

Imitation in foreign location choice: the baseline prediction

Inter-organizational imitation has attracted considerable attention from strategy and organization scholars. One line of this literature focuses on the information aspect of imitation, which posits that in situations where managers are faced with means-ends ambiguity about the possible outcomes of their decisions and practices, they become “particularly likely to be receptive to information implicit in the actions of others.” (Lieberman & Asaba, 2006: 368), resulting in imitative behaviors (Ordanini et al., 2008; Semadeni & Anderson, 2010). This is because, under conditions of uncertainty, a particular action that is prevalently taken by other firms in the peer group not only provides relevant information cues for the focal firm to observe and interpret but also increases the perceived effectiveness of this action as others engaged in it are seen to possess superior information (Gupta & Misangyi, 2018; Vedula & Matusik, 2017). Hence, the basic prediction in the uncertainty-based imitation literature is that a firm tends to emulate the same action as others when an increased number of peers has adopted it (Lieberman & Asaba, 2006; Ozmel et al., 2017; Pitsakis & Giachetti, 2020). This proposition has been tested and confirmed for various strategic decisions. In this study, we focus on foreign location choice

where firms are found to follow others' location decisions and co-locate with their peers when going abroad (Kim & Aguilera, 2016; Li et al., 2015; Stallkamp et al., 2018).

International expansion is a salient and complex strategic action with important competitive and performance implications for the firm (Ambos et al., 2020; Delios et al., 2008). However, it typically brings about substantial risks stemming from incomplete information and unpredictability of the economic, social, political, and cultural systems in the foreign markets (Aharoni et al., 2011; Garcia-Canal & Guillén, 2008). As a result, potential foreign investors are faced with considerable uncertainty as to the comparative advantages of alternative locations (Belderbos et al., 2011). In the presence of such uncertainty, firms might look at actions taken by relevant and knowledgeable others and engage in imitation to reduce the uncertainty surrounding their decision-making (De Beule et al., 2018; Lieberman & Asaba, 2006). Among the many "other firms" that a firm can refer to, we focus on the reference group of firms of the same country of origin in the potential host locations. There are various reasons for firms to emulate home-country peers in their foreign locations decisions. First, firms from the same home country have similar socio-cultural backgrounds and are often burdened with similar types of liabilities of foreignness in the host market (Liu & Li, 2020). For example, Klossek, Linke, and Nippa (2012) find that Chinese firms in Germany need to deal with similar challenges related to the significant differences between Chinese and German cultures. In addition, firms with the same country of origin may have similar home business practices and thus are likely to go through the same process to transform their home routines and adapt to the local context (Tan & Meyer, 2011). As a result, mimicking prior locations decisions made by home-country peers and co-locating with them can help newcomers learn from others' experiences of adaptation and overcome their unfamiliarity with the local environments and institutions (Zhu, Eden, Miller,

Thomas, & Fields, 2012). Second, for firms entering a new market, they may feel vulnerable to the expropriation hazards from local business partners and find it difficult to develop trust with them given the lack of understanding of the local context (Stallkamp et al., 2018; Tsui-Auch & Möllering, 2010). The presence of home-country peers facilitates market interaction and information sharing due to shared cultural background, common social norms, and their networks at home, reducing the uncertainty about the foreign environment (Tan & Meyer, 2011).

Previous studies have provided ample evidence in line with the prediction that firms benefit from prior location decisions by firms of the same country-of-origin and engage in imitative foreign entries to address the uncertainty of the host market (De Beule et al., 2018; Stallkamp et al., 2018; Tan & Meyer, 2011; Zhu et al., 2012). Thus, in our baseline hypothesis, we expect that a firm's propensity to enter a specific foreign country increases with the number of previous investments by the home-country peers as they all provide valuable information to the firm that helps reduce its uncertainty about the potential location.

Hypothesis 1 (H1). The probability of investing in a given country will be greater, the greater the number of prior investments by other firms from the same home country in that country.

Variable risk preferences as a moderator for imitation

Even though imitation has been identified as one prominent strategy to mitigate uncertainty in decision making, researchers have noted that firms are not equally responsive to the uncertainty-reducing benefits of imitation (Delios et al., 2008; Gupta & Misangyi, 2018; Jacqueminet, 2020). To understand why firms exhibit significant heterogeneity in their propensity to mimic others' actions, we focus on firms' attitudes toward risk. Specifically, we argue that a firm's risk preferences play a vital role in assessing the uncertainty-reducing effect of information inferred from others' actions and determine its imitative behavior.

Extant explanations of uncertainty-based imitation have made an implicit behavioral assumption that firms are invariably risk-averse. Thus, when under conditions of uncertainty, they are prone to imitate peers' actions to minimize risks involved by leveraging the information learned from such actions (Gaba & Terlaak, 2013; Head, Mayer, & Ries, 2002). However, models based on BToF and its extension to organizational risk-taking have long theorized and demonstrated that a firm's risk perception and attitude are not fixed (March & Shapira, 1987, 1992). Precisely, they predict that a firm whose performance is below aspirations – evaluated either against the performance of others (social aspiration) or against its past performance (historical aspiration) – is more tolerant for risk; whereas above-aspiration performance results in risk aversion (Bromiley, 1991; Greve, 2003; Miller & Chen, 2004). Moreover, slack resources form another powerful basis for firms' risk-taking activities (Lungeanu, Stern, & Zajac, 2016; Singh, 1986); that is, firms' appetite for risk increases when slack is abundant (Iyer & Miller, 2008; Kuusela, Keil, & Maula, 2017). Consistent with these views, past behavioral research has shown that firms' performance relative to aspiration (i.e., performance feedback) and their possession of slack resources are essential predictors of firm risk-taking. We integrate the variable risk preferences model from BToF and its extension to organizational risk taking with research on uncertainty-based imitation to argue that performance feedback and slack also influence how firms perceive and respond to the uncertainty-reducing benefits of imitation and thus their propensity to emulate others' foreign location decisions.

Below-aspiration performance and imitative location choice

It is widely agreed in the behavioral literature that a firm whose performance is below its aspirations – i.e., has a negative attainment discrepancy – is more likely to fixate attention on opportunities to improve performance while neglecting the dangers involved (March & Shapira,

1987). The desire to reach aspirations leads to a greater appetite for risk and makes a firm increasingly risk-prone (Greve, 1998; Kuusela et al., 2017). This is because the increased performance variability associated with risk-taking also implies a higher probability of attaining aspirations (Miller & Chen, 2004). Firms become more anxious to reach the aspiration level by engaging in risky strategic actions as the negative attainment discrepancy becomes larger (Xu et al., 2018). Prior studies have related below-aspiration performance with a multitude of risk-taking behaviors, including R&D and innovation (Chen & Miller, 2007); acquisitions and divestments (Iyer & Miller, 2008; Kuusela et al., 2017), and illegal or unethical activities (Harris & Bromiley, 2007; Xu et al., 2018).

As noted above, for firms' foreign location choice, lack of complete and accurate information about potential host countries creates considerable uncertainty (Aharoni et al., 2011; Garcia-Canal & Guillén, 2008). Co-locating with compatriot firms helps dispel the uncertainty in establishing and managing operating in foreign markets as previous investments of other firms from the same home country offer meaningful information for the focal firm to understand the local business environments and adapt their home-born business practices to the local context (Stallkamp et al., 2018; Tan & Meyer, 2011). Hence, the newcomers can economize on information acquisition and processing costs by mimicking others' location choices (Belderbos et al., 2011; Henisz & Delios, 2001).

However, the information benefits and the reduced uncertainty associated with the imitative location strategy may become less attractive for a firm with an increased negative attainment discrepancy for two reasons. First, to remedy the widened performance shortfall, the firm needs to cultivate a distinctive strategy and seek a novel advantage, encouraging risk-tolerant experimentation with new alternatives such as an underexplored foreign market (Luo,

1998; March, 1991). For instance, Isobe, Makino, and Montgomery (2000) find that Japanese firms that entered the Chinese market early tend to attain superior performance from their investments. Second, a stronger desire to achieve its aspiration level results in overweighing the small probabilities of gain, motivating the firm to make riskier decisions (Greve, 2003; March & Shapira, 1992). Even though an imitative entry enables the firm to take advantage of the information learned from prior entrants to reduce downside risks, the potential benefits from an early entry, due to various sources of first-mover advantages, may become more appealing to the underperforming firm (Lieberman & Montgomery, 1988). This is especially relevant to firms with the most inferior performance as they are most likely to feel the pressure to address the unsatisfactory performance. As a result, they tend to take the highest risk, as “only drastic actions can possibly restore their standing and help them reaching their aspiration level” (Xu et al., 2018: 1230). Therefore, we expect a firm that falls below its aspirations to be less sensitive to the risk-reducing effect of imitating others’ location choices. Instead, it is more likely to develop a preference to invest in locations with fewer prior investments to pursue distinctive yet highly risky gains. Considering the baseline hypothesis of firms’ general tendency to engage in imitative foreign entries, we expect an increased propensity of underperforming firms to deviate from the imitation prediction.

Hypothesis 2a *The positive relationship between others’ prior investments and the likelihood that the focal firm invests in a given country becomes weaker when the firm’s performance falls further below its aspiration level.*

Above-aspiration performance and imitative location choice

In contrast to firms experiencing performance shortfalls, a firm whose performance is above its aspirations – i.e., enjoying a positive attainment discrepancy – are more likely to focus on eschewing actions that might place it below target instead of actively seeking to improve what

is seen as satisfactory (Arrfelt, Wiseman, & Hult, 2013; Iyer & Miller, 2008). For these firms, the perceived dangers of falling below aspirations dominate decision makers' attention, whereas opportunities for gains become less salient (March & Shapira, 1992; Miller & Chen, 2004). As a result, imitation provides a more viable and attractive option to firms with performance exceeding their aspirations, as the information cues and signals obtained from others' actions help the imitating firm minimize its exposure to potential downside risk and maintain its status quo (Lieberman & Asaba, 2006; Ordanini et al., 2008). This is also consistent with the findings of Audia, Locke, and Smith (2000), whereby success leads to a tendency to stick with strategies that have worked in the past. Firms' above-aspiration performance has been used to explain various types of risk-averse activities, such as underinvestment in business units with better growth prospects (Arrfelt et al., 2013), the reduced pursuit of radical innovations (Eggers & Kaul, 2018), and the avoidance of risky strategic change (Greve, 1998).

For foreign location decisions, despite the potential to gain market share and generate above-average returns by being an early entrant in a new foreign market, prior studies also reveal that the enormous uncertainty and complexity faced by first movers may eventually jeopardize their survival (Murray, Ju, & Gao, 2012). On the contrary, later entrants adopting a wait-and-see strategy can observe others' actions and infer more information about the market, assisting them to make better-informed decisions and enhancing their survival prospects (Delios & Makino, 2003; Zhu et al., 2012). As their performance rises above the aspiration level, firms lack strong motivations to experiment with new and risky practices to solve immediate problems (Xu et al., 2018). In contrast, they become more concerned with defending their satisfactory performance and tend to overweigh the probability of losses from differentiated actions (Greve, 2003; Miller & Chen, 2004). Thus, we expect that a firm with a greater level of positive attainment

discrepancy has a smaller appetite for risk and thus is all the more inclined to use an imitation approach in its foreign entries to reduce uncertainty and avoid unnecessary mistakes and complications.

Hypothesis 2b (H2b). The positive relationship between others' prior investments and the likelihood that the focal firm invests in a given country becomes stronger when the firm's performance rises further above its aspiration level.

Slack and imitative location choice

Slack resources have been identified as another important determinant of firms' risk-taking behaviors (March & Shapira, 1992; Singh, 1986). It facilitates organizational risk-taking and firms' experimentation with new strategies in several ways. First, slack reduces financing constraints and equips firms with resources to engage in risky search activities (Eggers & Kaul, 2018; Xu et al., 2018). Therefore, risk-taking activities by slack-abundant firms are less likely to be questioned (Ref & Shapira, 2017). Second, slack accumulated by persistent superior performance instills confidence in decision-makers and makes them overestimate their ability to pursue new initiatives (Chen & Miller, 2007; March & Shapira, 1992), resulting in underestimating the associated risks and increased risk-taking (Levinthal & March, 1993). Third, managers registering continuing outstanding performance and creating a pool of slack resources may accrue more power as such performance records may be viewed as demonstrating their capability to handle uncertainty (Finkelstein, 1992). Consequently, they are in an advantageous position to convince stakeholders to make risky investments.

In foreign entries, increased slack resources enable and encourage a firm to deviate from others' location choices and experiment with new national markets. Andersen (1993) extends the classical incremental internationalization process model of Johanson and Vahlne (1977) and argues that greater resources increase a firm's tolerable risk level and compel it to take larger

internationalization steps. Moreover, given the significant risks due to the incomplete and imperfect information about the underexplored locations, slack buffers a firm from unknown environmental contingencies, making it feasible to commit resources and pursue opportunities in those markets (Chen & Miller, 2007; Lungeanu et al., 2016). Consistent with these arguments, Fuentelsaz, Gomez, and Polo (2002) find that larger firms, a rough proxy for slack resources, are among the first to enter new markets. Extending this finding to imitative foreign entry, we predict that as slack rises, the firm becomes more tolerant of risks and is less likely to be responsive to the uncertainty reduction benefits of mimicking others' location choices.

Hypothesis 3 (H3). The positive relationship between others' prior investments and the likelihood that the focal firm invests in a given country becomes weaker for firms with higher levels of slack resources

METHODOLOGY

Data

Our sample consists of publicly traded Chinese companies, a sample of firms whose foreign entries face substantial uncertainty about the potential foreign locations for the lack of experience (De Beule et al., 2018) and whose performance and foreign location choice exhibit significant variations (Buckley et al., 2007). We started by compiling a complete list of foreign affiliates of all firms listed on Shanghai (SHSE) and Shenzhen Stock Exchange (SZSE) from 1990 to 2013, based on their annual reports. For comprehensiveness, we also checked the H-share annual reports for firms cross-listed on Hong Kong Stock Exchange. We ended up with 4,010 foreign investments by 617 firms located in 128 foreign locations. Table 1 provides an overview of the list of locations and the number of investments in each location. We identified the year when a firm decided to establish a foreign affiliate by hand-collecting all related dates from the annual report (e.g., the date of public disclosure and the date of governmental

approval). For 1,755 affiliates with such dates available, we used the earliest year as the decision year. For the rest, the year of decision is the first year they appeared in the annual report.

We collected firm-level data from the China Stock Market and Accounting Research (CSMAR) database and the WIND financial database. Considering the accounting standard reforms in China and the proliferation of China's outward FDI after 2002, we obtained firm information from 2002 to 2013. Our sample period choice is also consistent with recent studies on Chinese firms' foreign investments (De Beule et al., 2018; Duanmu, 2014; Lu, Liu, Wright, & Filatotchev, 2014; Ramasamy, Yeung, & Laforet, 2012). To calculate historical aspiration, two years of performance information before the first observation year is needed. Thus, 2004 is the first year for our regression analyses. To measure social aspiration, we identify the industry on the 2-digit class level defined by the China Security Regulatory Commission. To avoid possible bias in the estimates of social aspiration, industries with less than three firms were excluded, accounting for 4.6 percent of sample firms. Next, we excluded financial firms. Three of the original 128 host countries are excluded as only financial firms invested in them. Another six host locations, mainly tax havens (e.g., Hong Kong, Bermuda, Cayman Islands), were dropped due to unavailable locational characteristics. The last exclusion helps address the tax haven problem as investments in these destinations are likely driven by tax reasons and do not necessarily relate to firms' considerations of uncertainty (Lu et al., 2014; Ramasamy et al., 2012). Finally, we removed investments that appear as a result of back-door listing through the focal firm.¹⁵ To avoid bias from dependent observations, we treat multiple investments in the

¹⁵ A private firm may acquire a poorly performing public firm as a way to get listed (i.e., backdoor listing). After the takeover, the acquirer may merge in foreign subsidiaries which it founded before the acquisition. We excluded these cases as they neither reflect the risk taking of the initial public firm nor the new firm's reaction to recent performance feedback or slack.

same country in the same year as one entry (Beugelsdijk, Hennart, Slangen, & Smeets, 2010). The final sample consists of 1,138 entries by 330 firms in 119 countries from 2004 to 2013.

Dependent variable

Location choice is a dummy variable coded as 1 if a firm made one foreign entry in a particular country in a given year t and 0 otherwise.

Independent variables

(H1) Prior location decisions by peers. To capture uncertainty-based imitation (i.e., emulating actions by firms with the same country of origin), the baseline independent variable, *Prior entry by others*, is measured by the number of previous investments made by all other Chinese public firms in a given country up to $t-1$. To properly define zero values, we transformed it using the inverse hyperbolic sine (IHS) function (Nyberg, Fulmer, Gerhart, & Carpenter, 2010). Prior investments are traced back to 1990 to mitigate left censoring.¹⁶

Moderators

(H2a & H2b) Aspirations. We used return on assets (ROA) and return on sales (ROS) as performance metrics since they are the ones most frequently used by managers to evaluate firm performance and have often been used in studies on performance feedback and firm risk-taking (Greve, 2003; Xu et al., 2018). They are calculated as operating profit divided by total assets and by sales, respectively. Following recent work showing that firms evaluate historical aspiration and social aspiration separately (Bromiley & Harris, 2014), we modeled both historical attainment discrepancy, defined as $\text{Performance}_{t-1} - \text{Performance}_{t-2}$ of the focal firm, and social

¹⁶ Our results remain robust when using only foreign investments after 1999 (within 5 years of the first year of observation) or within a five-year moving window to account for knowledge depreciation (Madsen & Desai, 2010).

attainment discrepancy, calculated as $\text{Performance}_{t-1} - \text{Industry Median Performance}_{t-1}$.¹⁷ We split the relative performance measures using a spline function to capture the difference between above and below aspiration instances (Chen & Miller, 2007), as follows:

$$\text{Performance above aspiration} = \begin{cases} \text{attainment discrepancy} & \text{if attainment discrepancy} > 0 \\ 0 & \text{if attainment discrepancy} < 0 \end{cases} \quad (1)$$

$$\text{Performance below aspiration} = \begin{cases} 0 & \text{if attainment discrepancy} > 0 \\ \text{attainment discrepancy} * (-1) & \text{if attainment discrepancy} < 0 \end{cases} \quad (2)$$

(H3) Slack. Three types of slack resources were considered based on previous studies of firm risk-taking. *Unabsorbed slack* indicates uncommitted liquid resources that can be easily deployed. It is measured by cash reserves (cash and short-term investments) divided by total assets (George, 2005; Kim & Bettis, 2014). *Absorbed slack* refers to slack absorbed as costs in firms, which is harder to redeploy. It is measured by selling, general, and administrative (SG&A) expenses divided by sales (Bromiley, 1991). We used the leverage ratio (total liabilities divided by total assets) to measure *potential slack* (Deb, David, & O'Brien, 2017), a proxy for financial resources that could be obtained externally. Consistent with BToF and risk-taking literature, all slack measures are lagged by one year (Eggers & Kaul, 2018; Iyer & Miller, 2008), representing a realistic reaction period given the type of investments involved here (Lin, 2014).

Control variables

We added a set of control variables based on prior studies on organizational risk-taking and foreign location choice. Country-level control variables are as follows. We used *Prior entry by rivals*, calculated as the number of investments by firms from the same industry in the given country up to the previous year, to capture the competition-based imitation motive as discussed

¹⁷ For robustness checks, we also model historical aspiration as an exponentially weighted moving average of past performance (Greve, 2007), and social aspiration relative to the median performance at $t-2$ (Chen & Miller, 2007). The results are very similar.

above (De Beule et al., 2018; Delios et al., 2008; Sharapov & Ross, 2019). *Prior entry by the firm*, measured by the number of investments by the focal firm in a given country up to the previous year, is included to control a firm's knowledge of the host country through experiential learning (Lu et al., 2014). Both variables are IHS transformed to deal with zero values.

Another alternative explanation for firms to enter the same country is because they respond similarly to some common environmental stimuli (Lieberman & Asaba, 2006). We used *GDP growth*, *population*, and *GDP per capita* to control for market attractiveness of the host country (Zhou & Guillén, 2015). The data were obtained from the World Development Indicator (WDI) database. We calculated the 3-year average of each variable to smooth the effect of abnormal fluctuations. We also considered various country-specific risk factors. First, research shows that inter-state *political ties* serve as a powerful risk-reduction mechanism to mitigate expropriation concerns (Duanmu, 2014). We derived our measure for political ties between host countries and China from the UN Voting Index by Gartzke (2008). The index measures the similarity of national interests in global affairs between country pairs, with higher values indicating stronger ties. As Gartzke (2008)'s data end in 2008, we used the average score from 1990 to 2008 to impute values from 2009 to 2012. Second, we used the property rights protection index from the Heritage Foundation as a direct measure for residual *expropriation risk*, which increases the risks and costs of investing in a host country (Duanmu, 2014). Third, the *exchange rate* is another vital source of exogenous uncertainty as the direction of the future exchange rate is difficult to predict for individual firms (Cuypers & Martin, 2010). We obtained exchange rates from the WDI database. Finally, research suggests that *geographic distance* increases the perceived risk of entering a foreign market because of information asymmetries (Kraus, Ambos,

Eggers, & Cesinger, 2015). We calculated the geographic distance between China and host countries based on the CEPII GeoDist dataset.

We assembled a set of firm-level controls for the Heckman selection models (to be explained later), including *firm size* (the natural logarithm of total assets), *ownership concentration* (the percentage of shareholding by the largest shareholder), *firm age* (the natural logarithm of the number of years since founding), *foreign shares* (whether a firm also issues B-share or H-share), *SHSE* (whether a firm is listed on the SHSE rather than the SZSE), *private firm* (as opposed to state-owned), *central SOE* (a state-owned firm controlled by the central as opposed to local government).

Estimation models

Our study seeks to test a firm's propensity to mimic peers' prior decisions when choosing among a broad set of potential host countries, and our model pertains to how firms vary in this propensity depending on performance feedback and slack. Thus, we used the conditional logit model, which has been widely used in research on foreign location choice where decisions are made from a large set of possible geographical locations (Belderbos et al., 2011; Chang & Park, 2005; Shaver & Flyer, 2000; Siedschlag, Smith, Turcu, & Zhang, 2013). The conditional logit model requires the independence of irrelevant alternatives (IIA) property, which specifies that for any firm, the probability ratio of any two locations depends on the attributes of these two locations and is independent of any other location. Violation of the IIA assumption might result in biased estimates (Siedschlag et al., 2013). We performed a series of the Hausman-McFadden test to detect whether IIA is violated by eliminating each of the 119 locations from the choice set and comparing the results with the full model. Among the 119 tests, the χ^2 statistic is generally low, with one exception. When the United States is eliminated, the χ^2 statistic varies from 24 to

47.77 in different models ($p = 0.012$ or lower in all models), suggesting the violation of the IIA condition. Given this, we added *host region fixed effects* to the model to control for unobserved characteristics within a geographical region (Head, Ries, & Swenson, 1995; Nachum, Zaheer, & Gross, 2008; Wu, Guo, Zhang, & Bu, 2016). Countries are grouped into seven regions identified by the WDI (Jiang, Holburn, & Beamish, 2014). By performing this step, we expect to alleviate the concern over the violation of IIA; however, admittedly, it might not be fully resolved.

To check the robustness of our results, we used an alternative specification based on a probit model with an endogenously stratified sample. Specifically, for each entry in a given country by a firm in a particular year, five locations were randomly chosen from the rest of the non-entry countries. When estimating coefficients from this randomized sample, we used the weighted exogenous sampling maximum likelihood estimation (WESML) to correct for the difference between the fraction of ones in the original sample and that in the random sample (Chakrabarti & Mitchell, 2013). The WESML probit method offers three main advantages: 1) it does not require the strict data structure that the conditional logit model requires; 2) it does not require IIA; and 3) it allows direct inclusion of firm-level controls (Chakrabarti & Mitchell, 2013; Jiang et al., 2014). The WESML probit model has been widely applied in other fields to deal with nonrandom samples (Zmijewski, 1984), though strategy scholars have only started using it more recently (Wagner, Hoisl, & Thoma, 2014).

However, the WESML probit model suffers from the concern that firms' decisions to invest abroad might be endogenous, which, if uncorrected, could lead to biased estimates. It is less a concern in conditional logit models given the IIA condition (Long, 2004). To deal with the potential endogeneity issue, we used a two-step Heckman specification (Certo, Busenbark, Woo, & Semadeni, 2016; Cuervo-Cazurra, 2011). To estimate the Heckman model, we used two

exclusion restrictions in the first-step selection equation: *the number of foreign investments by rivals* and *the number of foreign investments by other Chinese firms* a given year. The rationale of the two exclusion restrictions is that other firms' international moves might affect the focal firm's decision and ability to invest abroad; whereas conditional on that, the decision of which specific country to enter is unlikely to be directly affected by the overall number of foreign investments worldwide.

RESULTS

Table 1 and Table 2 provide the descriptive statistics and correlation coefficients for the variables used in the conditional logit and Heckman WESML probit models, respectively. Although some pairwise correlations are high, the variance inflation factors (VIF) in a parallel set of OLS models were less than 5, below the cutoff value of 10 (Kalnins, 2018). Thus, we concluded that multicollinearity does not constitute a serious problem.

----- Insert Tables 1 & 2 here -----

Table 3 displays the results of conditional logit models. The odds ratio provides a better way to interpret results from logit models as they are easily calculated and do not depend on the values of other variables (Hoetker, 2007). If the odds ratio of *prior entry by others* is greater than 1, this means that the probability that a given country is chosen increases as more firms entered. If it is smaller than 1, the relationship is negative. Although the value and significance of the odds ratio reveal the presence or absence of imitative foreign entries, they are not directly related to the marginal effect (Hoetker, 2007; Shaver & Flyer, 2000). To measure marginal magnitudes of estimated parameters, we follow prior studies and calculate average probability elasticity (Belderbos et al., 2011; Siedschlag et al., 2013).

Building on a baseline model whereby cumulative entries in a given location make the imitative entry by later entrants more likely, our main interest is in how performance feedback and slack affect a firm's sensitivity to this main effect, that is, how attainment discrepancy and slack moderate this baseline effect. However, the sign and significance of the moderating effect in nonlinear models are not accurately reflected by interaction terms' coefficients (Ai & Norton, 2003; Hoetker, 2007). Following Buis (2010), we interpret the interaction terms using multiplicative effects, which illustrates how a unit change in x_2 differs for different levels or categories of x_1 relative to the respective baseline odds. Although the estimation of marginal interactive effects is problematic in logit models, the odds ratios correctly indicate the sign and the significance level of the multiplicative effect (Buis, 2010).

----- Insert Table 3 here -----

Model 1 of Table 3 is the benchmark specification containing only controls and *prior entry by others*. Subsequent models introduce the interaction terms, which directly examine the moderating effects of performance feedback and slack. First, we replicate the traditional country-of-origin imitation effect as the odds ratio of *prior entry by others* is larger than 1 ($p = 0.00$). To interpret the magnitude of the estimated effects, we calculate the average probability elasticity (Belderbos et al., 2011). On average, a 10 percent increase in *prior entry by others* increases the likelihood of the focal firm locating in that country by 4.96 percent.

Models 3, 5, 7, and 9 test the moderating effects of positive and negative attainment discrepancy. The incremental changes in log-likelihood and the likelihood ratio (LR) test in all four models indicate that including the interactions significantly improves model fit ($p = 0.02$ or lower), validating our premise that introducing heterogeneous risk references in imitation models is valuable. Models 3 and 5 test the moderating effect of performance feedback concerning

historical aspiration, and Models 7 and 9 concerning social aspiration. ROA and ROS are respectively used as performance metrics in both cases. The odds ratio of the interactions between *prior entry by others* and *performance below aspiration* is always smaller than 1 ($p = 0.04$ or lower). Given that *performance below aspiration* is reverse coded, these results suggest that the positive effect of *prior entry by others* is reduced as firms' performance falls further below their aspiration levels. In all four cases, the reduction in the odds ratio of imitation is considerable, varying from 58 percent for historical ROS discrepancy to 90 percent for social ROA discrepancy. In contrast, the odds ratio of the interactions between *prior entry by others* and *performance above aspiration* is significant (odds ratio = 2.23, $p = 0.005$) in Model 9, implying that if a firm's ROS above its rivals' increases by one unit, the positive effect of *prior entries by others* will be slightly more than doubled.

We then explore whether slack results in higher risk tolerance, reducing the attractiveness of locations with more previous investments by home-country peers. It is supported in Model 2, which shows that for all three types of slack, the odds ratio of their interactions with *prior entry by others* is smaller than 1 (odds ratio ranges from 0.41 to 0.68, $p = 0.045$ or lower).

Lastly, we jointly test the moderating effects of performance feedback and slack in Models 4, 6, 8, and 10. The LR tests confirm that model fit improves significantly compared to models with only performance feedback variables. In historical aspiration models (Models 4 and 6), the inclusion of interaction terms of slack reduces the negative moderating effect of the *performance below aspiration*. Comparing Models 3 and 4, the results suggest that the odds of entering a foreign market with prior entries is around 9 percent higher for underperforming firms when slack is controlled for. In the social aspiration models (Models 8 and 10), the significant moderating effect of the *performance below aspiration* disappears; whereas the effect of

performance above aspiration based on ROS remains robust, indicating firms' risk perception of potential locations and their motivation to engage in imitative foreign entries depend more on the evaluation of internal resources. The moderating effect of slack is comparable across models.

Table 4 provides the results of the Heckman probit model based on a random sample (using the WESML specifications).¹⁸ Given space constraints, we do not report the results of the firm-level characteristics in detail here. Besides, since it is impossible to calculate the odds ratio for probit models, estimated coefficients are reported instead in both the first-step selection and the second-step outcome models.

----- Insert Table 4 here -----

In the selection model, we include all the variables in the outcome model, along with the two exclusion restrictions. The first instrument, the *number of foreign investments by rivals*, is always positive and significant ($b = 0.05, p = 0.00$), implying that the focal firm is more likely to invest abroad if more rivals are doing so anywhere. The other instrument, the *number of foreign investments by other firms*, is negative ($b = -0.003$ or below), but its significance level varies across models. Considering the foreign exchange controls and the bank-dominated financial system in China (Buckley et al., 2007; Morck et al., 2008), these results suggest that Chinese firms compete to obtain external financing for their foreign investments. We constructed the inverse Mills' ratio from the first-step regressions and included it as an additional regressor in the second-step equations. As shown, the coefficients of inverse Mills' ratio are insignificant for all the models, suggesting that the selection problem does not plague our results.

Aside from the advantages mentioned above, using the WESML probit model also enables us to present the marginal effect of the interaction terms graphically to interpret the

¹⁸ In intermediate analyses not reported, we replicated the results from Table 3 while excluding entries into the U.S. from the sample. The results were very similar.

results (Hernandez, 2014; Hoetker, 2007). Using the simulation-based approach advanced by King, Tomz, and Wittenberg (2000) and Zelner (2009) and accounting for sample randomness, we construct several figures to compare the predicted probabilities associated with different combinations of prior entry by others and performance feedback and slack.

----- Insert Figures 1 – 6 here -----

We first note that in all figures, lines are upward sloping, confirming the baseline imitation effect. More importantly, the figures also show patterns consistent with our expectation of heterogeneous propensity to imitate depending on performance feedback and slack. Specifically, Figure 1 illustrates how the predicted probability of a firm entering a specific location changes with *prior entry by others* depending on whether the firm is above (dashed line) or below (solid line) aspiration. Aspiration in this figure is measured based on the social comparison of ROS (Model 9 in Table 4) for consistency with Figures 2 and 3 as this aspiration specification allows the best comparison. Figure 1 is from a specification with a simple dummy of below aspiration performance serving as moderator (regression results available upon request). While this specification misses the specificity of the spline function, it allows a direct contrast between below and above aspiration firms. Focusing on the end values along the horizontal axis, we see that at high values of *prior entry by others*, a firm performing above aspiration – and thus expected to be risk-averse – is especially subject to the imitation pull. At the upper end of the observed range of *prior entry by others*, firms performing above aspiration are more than twice as likely to enter that location (probability of entry = 0.071) than firms performing below aspiration (probability = 0.031). Conversely, when no other firm has entered previously, denoting maximum informational uncertainty, below-aspiration firms are almost twice more likely to enter than above-aspiration firms (probabilities of 0.0026 and 0.0014,

respectively). These figures illustrate our predictions that while firms performing above aspiration tend to adopt an uncertainty-avoidant imitation strategy, below-aspiration firms are comparatively prone to make differentiated foreign entries.

Figures 2 and 3 are based on Model 9 in Table 4 and report the moderating effects of being at the 5th vs. 95th percentile along the below-aspiration and above-aspiration spline, respectively. In Figure 2, given that *performance below aspiration* is reverse coded, the solid line (95th percentile of below aspiration) indicates firms that significantly underperform their aspiration while the dashed line (5th percentile of below aspiration) represents firms that are performing close to aspiration. Consistent with the regression models, Figure 2 shows that the positive relationship between *prior entry by others* and the probability of entry is less pronounced when firms perform far below aspiration. In Figure 3, a parallel pattern is evident: Firms that perform sharply over their aspiration (solid line) are especially prone to the imitation pull, while firms just above aspiration (dashed line) are less so and are comparatively more likely to enter locations where others have not.

Based on Model 1 in Table 4, Figures 4, 5, and 6 plot how the relationship between *prior entry by others* and the probability of entering a specific location is affected by high vs. low levels of the three types of slack resources. Again, consistent with our expectations derived from the variable risk preferences model, firms with the highest levels of slack (solid lines) are comparatively less sensitive to previous investments by home-country peers.

Finally, to explore further whether the information-based mechanism indeed drives the moderating effect of performance feedback and slack on imitation as opposed to a rivalry-based mechanism, we compare the interactive effects of performance feedback and slack with *prior entry by non-rivals* versus those with *prior entry by rivals*. The results are presented in Table 5.

Models 1, 4, 7, and 10 report effects on *prior entry by non-rivals*; Models 2, 5, 8, and 11, on *prior entry by rivals*. The moderating effect of the *performance below aspiration* is found for *prior entry by non-rivals* in historical aspiration models while never significant for *prior entry by rivals*. Results are more elusive for social aspiration even based on *prior entry by rivals*, but this is consistent with what we reported earlier, given that slack is simultaneously controlled for (e.g., Models 8 and 10 in Table 3). The moderating effects of *unabsorbed slack* and *absorbed slack* are also more profound for *prior entry by non-rivals* than for *prior entry by rivals*, except perhaps for Model 12. As for the moderating effect of *potential slack*, it is evident for both *prior entry by non-rivals* and *prior entry by rivals*. However, the interaction magnitudes are stronger for rival imitation than for non-rival imitation. Considering that rival entry generates both information and competitive pressures, this result suggests that potential slack especially discourages head-on imitation, perhaps because it lacks the responsive flexibility of other forms of slack.

----- Insert Table 5 here -----

DISCUSSION AND CONCLUSION

Firms engage in imitation to utilize updated information learned from others to reduce uncertainty and facilitate decision-making (Abrahamson, 1991; Lieberman & Asaba, 2006). Although various theoretical perspectives have been used to explain firms' imitative behaviors, at their core, they all highlight the essential role of uncertainty in the imitation process (Gaba & Terlaak, 2013; Lieberman & Asaba, 2006; Ordanini et al., 2008; Semadeni & Anderson, 2010). However, prior empirical studies have reported mixed results on the direction and form of the association between uncertainty and imitation. For example, Haunschild and Miner (1997) show that uncertainty enhances the use of an imitation strategy, whereas Strang and Still (2006) find

that uncertainty suppresses imitation. Henisz and Delios (2001) consider a possible moderating effect of uncertainty on imitation but fail to find a significant effect.

To shed light on this line of inquiry, instead of focusing on the level of uncertainty *per se*, we explore a firm's *attitudes* towards uncertainty and risk. We emphasize firms' risk preferences because (1) firms' imitative behaviors are not only driven by the nature of uncertainty but also by whether they intend to avoid or reduce uncertainty, and (2) in most imitation models, firms' heterogeneous reactions to imitation pressures are assumed away. Extant imitation studies tend to portray managers as rational decision-makers with a universal risk aversion such that they use imitation to make better-informed decisions and reduce the associated risks (Head et al., 2002). Nevertheless, research following a behavioral tradition has consistently shown that decision makers' risk preferences vary systematically from risk aversion to risk-taking (Bromiley, 1991; March & Shapira, 1987; Miller & Chen, 2004). Integrating these two streams of literature, we examine whether the key predictors of firm risk-taking from the variable risk preferences model – performance feedback and slack – serve as contingencies that explain firm heterogeneity in imitation, more specifically, in their imitative foreign location choice.

Using 1,138 foreign entries in 119 foreign locations by 330 Chinese public firms for ten years, we first show that the larger the local agglomeration of other Chinese firms, the more likely the focal firm also enters that host country. This finding implies that firms adopt a country-of-origin imitation approach to deal with uncertainties of potential foreign locations. Next, we find consistent moderating effects of performance feedback and slack, using both the conditional logit and the WESML Heckman probit models. In particular, we show that firms performing below their historical or social aspirations are less responsive to others' location choices and are more likely to enter where few others have invested before. On the contrary, the opposite tends

to occur for firms that are performing above their rivals. Besides, we find that firms with more slack resources are less likely to engage in imitative foreign entries.

Two interesting results deserve further discussion. First, the moderating effect of performance feedback receives more consistent support in historical aspiration models. Moreover, the effect of the *performance below aspiration* in social comparison models becomes insignificant when slack measures are added. These findings are consistent with March and Shapira (1992), positing that firms' attention may be dominated by slack as they possess more accurate information about such resources. Past BToF research has remained mostly silent on why firms may respond differently to various performance referents. Our results suggest that the respective role of different external reference groups, and perhaps their fuzziness, requires more systematic analysis.

Second, we used the leverage ratio to measure potential slack. However, some have argued that this is a reverse measure of potential slack as highly indebted firms are less able to borrow from outside (Bromiley, 1991). We contend that this is not the case for Chinese firms. China's financial system is dominated by a large but underdeveloped banking system, which is mainly controlled by big state-owned banks (Buckley et al., 2007). As a result, private firms are often discriminated against in the allocation of bank loans (Li, Yue, & Zhao, 2009). Hence, indebted state-owned enterprises, facing soft budget constraints, may continue to receive loans from banks, whereas the debt of less leveraged private firms remains at a low level. Therefore, unlike prior studies using data from developed countries where firms with higher leverage ratios are less able to borrow from outside, for our Chinese sample, a higher leverage ratio may signal a stronger support a firm receives from banks (Zhou & Guillén, 2015).

Research implications

This study was motivated by the observation that not all firms use an imitation strategy when faced with uncertainty. Our findings provide novel insights into the overlooked behavioral assumption of risk aversion in imitation research and have important implications for extant literature.

First, prior research has shown that firms' attitudes toward risk are essential to understanding various strategic behaviors (Greve, 2003; Harris & Bromiley, 2007; Miller & Chen, 2004; Singh, 1986). However, we know relatively little about how they may also affect firms' imitative behaviors, even though uncertainty is a well-documented driver of imitation (Gaba & Terlaak, 2013; Lieberman & Asaba, 2006). Drawing upon the BToF and its extension to organizational risk-taking, our study challenges the common assumption of risk aversion in the imitation models. We theorize and show that a firm's strategic responses to peers' imitation pressures exhibit significant heterogeneity, depending on its performance relative to aspirations and the possession of slack resources. By modeling the role of variable risk preferences in the imitation process, our framework provides a fuller picture to understand the conditions for uncertainty-based imitation.

Second, our study advances a behavioral perspective to explain the interactions between firms and their social environments in foreign entries. Previous studies have mainly analyzed the role of uncertainty from an institutional perspective, highlighting the *need* to engage in imitation (Henisz & Delios, 2001; Jacqueminet, 2020; Jiang et al., 2014). Despite the valuable insights offered by institutional scholars, this line of research has also resulted in some mixed findings (Haunschild, 1994; Strang & Still, 2006). We surmise that this can be remedied with extra attention to firm heterogeneity. Our paper addresses this gap by examining how firms perceive uncertainty and risk differently depending on performance feedback and slack, which change

their *incentive* to react to imitative forces. In other words, these factors do not affect the *level* of uncertainty directly; instead, they alter the *desirability* or *acceptability* of uncertainty. As such, this study answers recent calls for research on firm-level heterogeneity in imitation (Li et al., 2015) and offers a novel way forward for research investigating firms' varied response to institutional pressures.

Third, this study provides a positive explanation of why certain firms decide to enter some foreign locations early, specifically among Chinese firms, thus contributing to research on firms' internationalization process. Early work following the incremental internationalization process model posits that firms use a risk-averse approach when they expand abroad (Johanson & Vahlne, 1977). However, recent studies have shown that firms, especially those based in emerging economies, sometimes make highly risky location decisions and spread quickly across a broad range of countries (Buckley et al., 2007; Lu et al., 2014; Ramasamy et al., 2012). By focusing on the role of risk preferences in foreign location choice, our findings suggest that risk-tolerant firms, driven by below-aspiration performance and the possession of superior slack, are more likely to deviate from the Uppsala model and experiment with riskier underexplored geographic markets.

Limitations and future research

This study also has limitations that open avenues for further research. First, as noted in the introduction, we focus on uncertainty-based theories of imitation while using previous investments by rivals to control for competition-based imitation. This method is consistent with prior research trying to distinguish the two types of imitation (Belderbos et al., 2011; De Beule et al., 2018). Admittedly, this is only a rough distinction in that firms may follow their competitors for information reasons or match the moves by indirect competitors for rivalry purposes. Thus,

we encourage future research to explore other finer-grained ways to separate and model uncertainty- and competition-based imitations, which would provide valuable insights into imitation strategies. Second, our sample contains a large group of potential host countries and foreign entries but is restricted to Chinese firms. Despite the advantages of using this context, as discussed above, there are also generalizability concerns. For example, Chinese firms are still in a relatively early stage of internationalization with limited international experience (Morck et al., 2008). Hence, they need to rely more on others' experiences to compensate for the lack of information and knowledge of potential foreign locations. In contrast, established multinationals from developed economies may have accumulated extensive international experience and become less sensitive to the information cues and signals from other firms. Hence, it would be useful for future research to replicate our analysis with firms at different stages of internationalization to advance our understanding of how firms adjust their imitative and location behaviors over time. Third, this study focused on how performance feedback and slack affect firms' propensity to engage in imitative foreign entries. However, we did not examine the performance consequences. Even though both firms with below-aspiration performance and firms with superior slack are more likely to become the early entrants in a new foreign market, it is reasonable to expect that their performance may vary depending on their capabilities (Eggers & Kaul, 2018; Xu et al., 2018). Therefore, future research is needed to extend our study and examine whether imitating versus non-imitating firms and firms driven by different risk-taking conditions may exhibit divergent performance outcomes. Fourth, in this study, we theorized and examined the uncertainty-reducing effect of imitating peers' location decisions. However, prior research has highlighted that firms investing abroad for different motives may need to deal with different types of liabilities of foreignness (Zhou & Guillen, 2016). For example, culturally

distant countries may pose more challenges to market-seeking internationalization as firms may need to make more product adaptations to meet the local consumer demands. Future research is needed to further investigate how variable risk preferences may affect firms' perception of these different sources of uncertainty and thus their imitative location choice in foreign entries.

In conclusion, using a panel dataset of Chinese public firms, we extend previous research on uncertainty-based imitation by examining the essential yet often neglected role of risk preferences in firms' imitative behaviors. Our results indicate that firms whose performance falls below their aspiration levels or who possess superior slack resources are less likely to emulate location choices by home-country peers when expanding abroad. These findings support the view that firms' risk-taking preferences reduce the information benefits of others' prior actions. The new contingency model helps us gain a more comprehensive understanding of the mechanisms through which firms' uncertainty-based imitation takes place.

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Figure 1. Moderating effect of performance below versus above aspiration

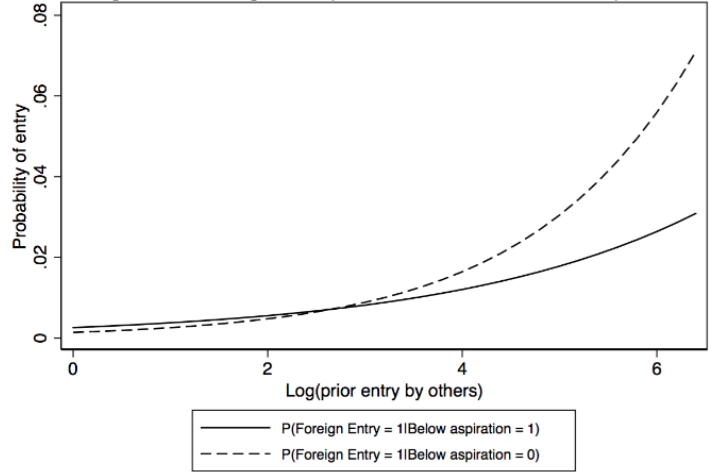


Figure 2. Moderating effect of performance below aspiration

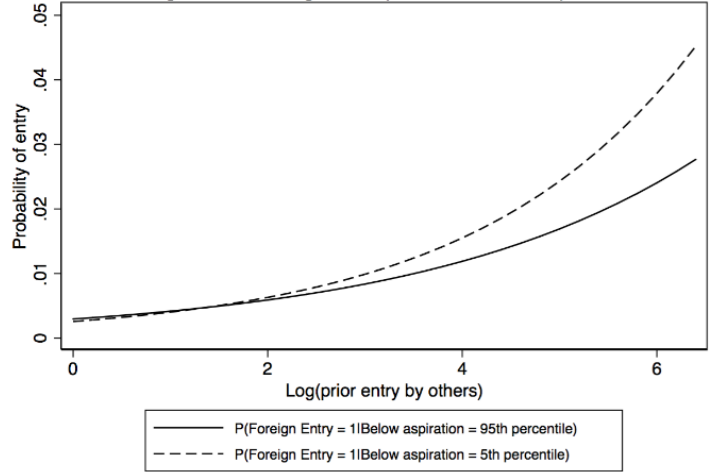


Figure 3. Moderating effect of performance above aspiration

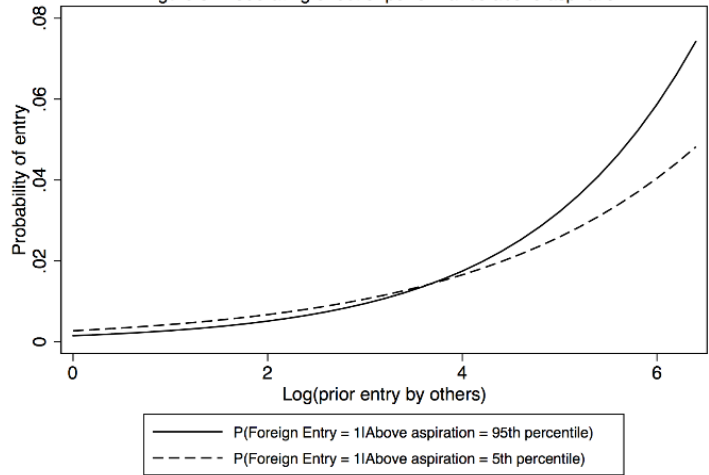


Figure 4. Moderating effect of unabsorbed slack

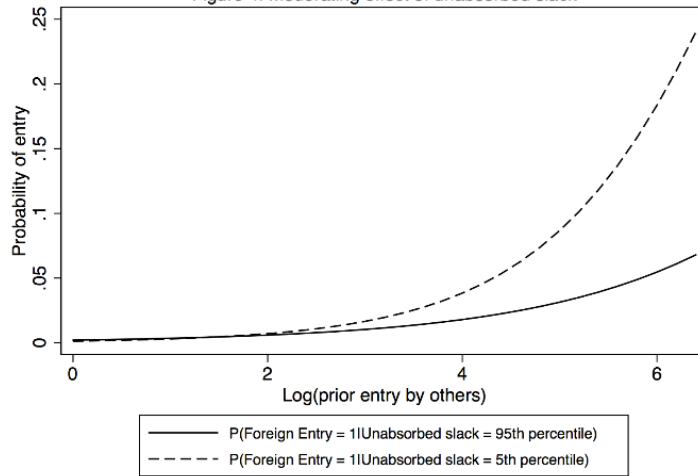


Figure 5. Moderating effect of absorbed slack

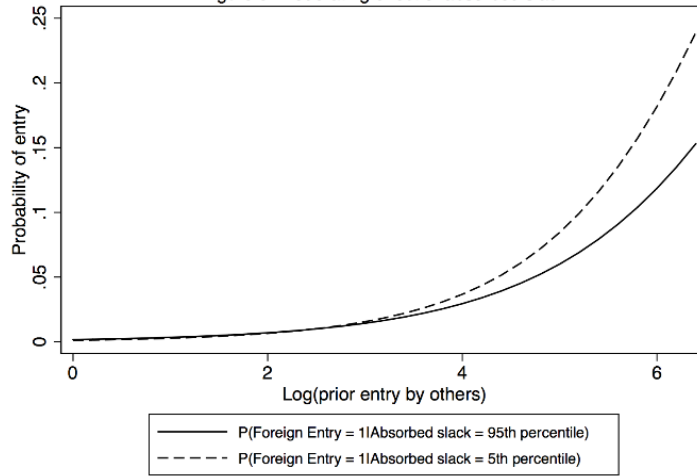


Figure 6. Moderating effect of potential slack

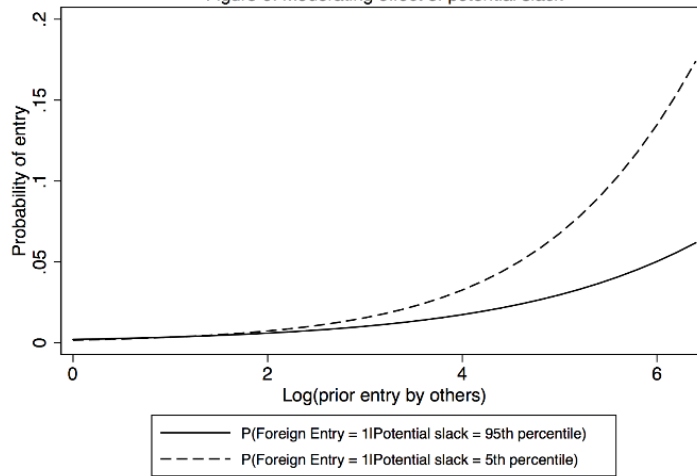


Table 1. Foreign investment locations by Chinese public firms: 1990 – 2013

Location	No.	Location	No.	Location	No.	Location	No.
Afghanistan	2	Ethiopia	3	Malta	1	South Sudan	1
Albania	1	Fiji	2	Marshall Islands	11	Spain	13
Algeria	2	Finland	3	Mauritania	1	Sri Lanka	4
Antigua and Barbuda	1	France	33	Mauritius	6	Sudan	2
Argentina	4	Gabon	8	Mexico	20	Suriname	6
Australia	155	Germany	79	Micronesia	1	Sweden	7
Austria	7	Ghana	10	Mongolia	11	Switzerland	10
Azerbaijan	4	Greece	1	Morocco	4	Taiwan	6
Bahamas	3	Guatemala	1	Myanmar	3	Tajikistan	5
Bangladesh	3	Honduras	4	Namibia	1	Tanzania	2
Barbados	1	Hong Kong	1,454	Nepal	1	Thailand	36
Belgium	18	Hungary	8	Netherlands	58	Congo, Rep	1
Bermuda	24	India	41	New Zealand	8	Togo	1
Bolivia	4	Indonesia	44	Nigeria	9	Tunisia	1
Brazil	36	Iran	3	Norway	14	Turkey	11
British Virgin Islands	325	Ireland	16	Pakistan	7	United States	300
Brunei	1	Israel	2	Panama	107	United Kingdom	45
Bulgaria	5	Italy	39	Papua New Guinea	4	Uganda	1
Burkina Faso	1	Japan	71	Paraguay	1	Ukraine	2
Cambodia	17	Jordan	4	Peru	2	United Arab Emirates	33
Cameroon	1	Kazakhstan	6	Philippines	18	Uruguay	4
Canada	54	Kenya	5	Poland	14	Uzbekistan	4
Cayman Islands	136	Korea, Dem Rep	1	Portugal	3	Venezuela	3
Chile	3	Korea, Rep	31	Qatar	3	Vietnam	28
Colombia	1	Kyrgyzstan	6	Trinidad and Tobago	1	Zambia	1
Cote d'Ivoire	6	Laos	6	Romania	8	Zimbabwe	1
Croatia	1	Lesotho	1	Russia	45	Total	4,010
Cyprus	2	Liberia	68	Saipan	1		
Czech	7	Lithuania	1	Samoa	4		
Congo, Dem Rep	14	Luxembourg	19	Saudi Arabia	3		
Denmark	3	Macau	45	Seychelles	2		
Ecuador	1	Madagascar	2	Singapore	166		
Egypt	8	Malaysia	39	Slovenia	1		
El Salvador	1	Mali	3	South Africa	32		

Note: Based on the subsidiary list of public firms' annual reports

Table 2. Descriptive statistics and correlations: Whole sample for conditional logit models

Variables	1	2	3	4	5	6	7	8	9	10	11
1 Foreign entry											
2 Prior entry by others*	0.15										
3 Prior entry by the firm*	0.16	0.20									
4 Prior entry by rivals*	0.16	0.48	0.23								
5 GDP growth	-0.02	-0.05	-0.03	-0.06							
6 Population	0.09	0.28	0.09	0.21	0.09						
7 GDP per capita*	0.08	0.33	0.10	0.20	-0.40	-0.11					
8 Political ties	-0.10	-0.22	-0.11	-0.19	0.38	0.00	-0.63				
9 Expropriation risk	0.08	0.24	0.09	0.17	-0.38	-0.03	0.77	-0.58			
10 Exchange rate*	-0.04	-0.11	-0.04	-0.07	0.22	0.09	-0.58	0.46	-0.52		
11 Geographic distance	-0.04	-0.28	-0.04	-0.13	-0.16	-0.17	0.06	0.01	0.06	-0.23	
12 Below historical ROA	0.00	0.01	0.02	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00
13 Above historical ROA	0.00	-0.02	-0.01	-0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
14 Below historical ROS	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 Above historical ROS	0.00	-0.01	-0.02	-0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
16 Below social ROA	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
17 Above social ROA	0.01	-0.02	-0.02	-0.06	0.03	0.00	0.00	0.00	0.01	0.00	0.00
18 Below social ROS	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19 Above social ROS	0.00	-0.01	-0.04	-0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00
20 Unabsorbed slack	0.01	0.02	0.03	0.04	-0.03	0.00	0.01	0.00	-0.01	0.00	0.00
21 Absorbed slack	0.00	-0.03	-0.01	-0.01	0.01	0.00	-0.02	0.00	0.01	0.00	0.00
22 Potential slack	0.00	0.03	0.02	0.01	-0.01	0.00	0.01	0.00	-0.01	0.00	0.00
Observations	78,180	78,180	78,180	78,180	78,180	78,180	78,180	78,180	78,180	78,180	78,180
Mean	0.01	1.86	0.03	0.23	4.14	42.4	8.55	0.66	48.7	2.74	8.96
Standard deviation	0.12	1.45	0.21	0.59	4.02	116.2	1.59	0.27	24.9	2.81	0.55

Variables	12	13	14	15	16	17	18	19	20	21	22
13 Above historical ROA	-0.20										
14 Below historical ROS	0.75	-0.16									
15 Above historical ROS	-0.12	0.65	-0.11								
16 Below social ROA	0.53	-0.08	0.47	-0.05							
17 Above social ROA	-0.08	0.42	-0.09	0.19	-0.17						
18 Below social ROS	0.46	-0.04	0.36	-0.03	0.93	-0.09					
19 Above social ROS	-0.06	0.27	-0.02	0.66	-0.12	0.51	-0.07				
20 Unabsorbed slack	-0.06	0.05	-0.09	0.01	-0.12	0.16	-0.09	0.06			
21 Absorbed slack	0.25	0.00	0.21	0.08	0.56	0.01	0.61	0.14	0.05		
22 Potential slack	0.32	-0.06	0.18	-0.06	0.80	-0.16	0.92	-0.15	-0.17	0.47	
Observations	73,659	73,659	73,540	73,540	75,872	75,872	75,872	75,872	78,180	78,180	78,180
Mean	0.02	0.02	0.02	0.03	0.01	0.03	0.02	0.05	0.19	0.13	0.56
Standard deviation	0.04	0.04	0.07	0.09	0.04	0.05	0.17	0.10	0.12	0.12	0.48

* log transformed

Table 3. Descriptive statistics and correlations: Random sample for WESML Heckman probit models

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Foreign entry															
2 Prior entry by others*	0.42														
3 Prior entry by the firm*	0.24	0.28													
4 Prior entry by rivals*	0.36	0.57	0.28												
5 GDP growth	-0.07	-0.10	-0.04	-0.08											
6 Population	0.23	0.32	0.09	0.30	0.07										
7 GDP per capita*	0.23	0.42	0.17	0.27	-0.41	-0.08									
8 Political ties	-0.26	-0.35	-0.16	-0.33	0.38	-0.12	-0.61								
9 Expropriation risk	0.25	0.36	0.17	0.26	-0.39	0.02	0.80	-0.59							
10 Exchange rate*	-0.12	-0.17	-0.08	-0.12	0.25	0.07	-0.61	0.46	-0.56						
11 Geographic distance	-0.10	-0.23	-0.05	-0.11	-0.18	-0.15	0.09	-0.08	0.08	-0.29					
12 Firm size*	0.00	0.04	0.15	0.01	-0.06	-0.03	0.04	0.02	-0.01	0.00	0.01				
13 Ownership concentration	0.00	-0.03	-0.03	-0.06	-0.01	-0.03	0.01	0.00	0.02	-0.01	-0.01	0.18			
14 Firm age*	0.00	0.14	-0.03	0.07	-0.05	0.03	0.06	-0.01	-0.02	0.00	0.00	-0.17	-0.31		
15 Foreign shares	0.00	-0.04	0.12	-0.02	0.00	-0.03	-0.01	0.02	0.00	0.00	0.01	0.46	-0.02	-0.06	
16 SHSE	0.00	0.06	-0.09	-0.01	-0.04	0.01	0.04	-0.03	0.01	0.00	-0.01	-0.03	0.26	-0.17	-0.19
17 Private firm	0.00	0.04	-0.07	-0.04	0.00	0.01	0.01	-0.02	-0.02	0.01	0.00	-0.36	-0.11	0.19	-0.35
18 Central SOE	0.00	-0.03	0.08	0.03	0.00	-0.02	-0.01	0.02	0.00	0.00	0.00	0.36	0.17	-0.17	0.36
19 Below historical ROA	0.00	0.00	0.03	0.00	-0.01	0.00	0.02	-0.02	0.02	-0.01	0.02	0.01	-0.06	-0.03	0.10
20 Above historical ROA	0.00	-0.02	0.00	-0.02	0.03	-0.02	-0.01	0.01	-0.01	-0.01	0.01	-0.11	0.04	-0.07	-0.10
21 Below historical ROS	0.00	0.01	0.03	0.00	-0.01	0.01	0.01	-0.01	0.00	-0.01	0.01	-0.02	-0.03	0.00	0.03
22 Above historical ROS	0.00	0.02	-0.01	-0.02	0.02	-0.01	0.01	-0.01	-0.01	-0.02	0.00	-0.09	0.00	0.04	-0.08
23 Below social ROA	0.00	0.00	0.02	0.00	0.02	0.01	-0.01	0.01	0.00	0.00	0.00	-0.11	-0.08	0.03	0.04
24 Above social ROA	0.00	-0.03	-0.03	-0.08	0.03	-0.01	0.01	-0.03	0.01	-0.01	0.00	-0.05	0.11	-0.06	-0.02
25 Below social ROS	0.00	-0.01	0.00	-0.01	0.01	0.00	-0.01	0.01	-0.01	0.01	0.00	-0.14	-0.05	0.03	0.01
26 Above social ROS	0.00	0.01	-0.04	-0.04	0.04	0.00	0.02	-0.04	0.01	-0.02	-0.01	-0.08	0.05	0.00	-0.07
27 Unabsorbed slack	0.00	0.02	0.02	0.04	-0.04	0.01	0.00	0.00	0.00	0.01	-0.01	-0.05	0.05	-0.21	0.07
28 Absorbed slack	0.00	-0.07	0.01	0.01	0.03	0.00	-0.04	-0.02	0.00	0.00	0.02	-0.24	-0.13	-0.02	0.09
29 Potential slack	0.00	-0.01	0.03	0.01	0.00	0.00	-0.01	0.02	-0.02	0.00	0.00	0.01	-0.07	0.07	0.02
Observations	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828	6,828
Mean	0.17	2.14	0.10	0.37	4.11	55.5	8.72	0.63	51.7	2.61	8.92	23.2	40.1	2.47	0.25
Standard deviation	0.37	1.64	0.40	0.79	3.91	140	1.61	0.32	25.8	2.84	0.56	1.39	16.67	0.49	0.43

Variables	16	17	18	19	20	21	22	23	24	25	26	27	28	29
17 Private firm	0.08													
18 Central SOE	-0.04	-0.52												
19 Below historical ROA	-0.03	-0.04	0.05											
20 Above historical ROA	0.07	0.11	-0.11	-0.21										
21 Below historical ROS	-0.02	0.03	0.01	0.76	-0.16									
22 Above historical ROS	0.09	0.11	-0.09	-0.14	0.60	-0.12								
23 Below social ROA	-0.03	-0.05	0.04	0.53	-0.08	0.47	-0.05							
24 Above social ROA	0.08	0.19	-0.12	-0.11	0.45	-0.10	0.21	-0.19						
25 Below social ROS	0.01	0.00	0.01	0.44	-0.05	0.35	-0.03	0.90	-0.10					
26 Above social ROS	0.18	0.20	-0.15	-0.07	0.32	-0.02	0.68	-0.13	0.53	-0.07				
27 Unabsorbed slack	0.10	-0.02	0.04	-0.02	0.03	-0.06	0.00	-0.11	0.15	-0.07	0.03			
28 Absorbed slack	-0.08	0.05	-0.01	0.17	-0.01	0.14	0.06	0.46	-0.02	0.52	0.12	0.08		
29 Potential slack	-0.06	-0.03	0.01	0.26	-0.07	0.14	-0.07	0.74	-0.18	0.89	-0.17	-0.16	0.39	
Observations	6828	6,828	6,828	6,402	6,402	6,390	6,390	6,618	6,618	6,618	6,618	6,828	6,828	6,828
Mean	0.62	0.32	0.36	0.02	0.02	0.02	0.03	0.01	0.03	0.02	0.05	0.19	0.13	0.57
Standard deviation	0.49	0.47	0.48	0.04	0.04	0.06	0.09	0.03	0.05	0.13	0.09	0.11	0.10	0.38

* log transformed

Table 4. Foreign location choice by Chinese firms: Conditional Logit Models

Dependent variable:	Baseline		Historical Aspirations				Social Aspirations			
	Baseline	Slack	ROA		ROS		ROA		ROS	
	1	2	3	4	5	6	7	8	9	10
Foreign Entry										
Prior entry by others	1.65** (0.06) [0.00]	3.01** (0.34) [0.00]	1.69** (0.07) [0.00]	3.03** (0.36) [0.00]	1.67** (0.06) [0.00]	2.93** (0.34) [0.00]	1.67** (0.07) [0.00]	3.10** (0.40) [0.00]	1.65** (0.07) [0.00]	2.80** (0.35) [0.00]
Prior entry of the firm	1.83** (0.12) [0.00]	1.85** (0.12) [0.00]	1.89** (0.13) [0.00]	1.91** (0.13) [0.00]	1.88** (0.13) [0.00]	1.90** (0.13) [0.00]	1.76** (0.12) [0.00]	1.79** (0.12) [0.00]	1.78** (0.12) [0.00]	1.79** (0.12) [0.00]
Prior entry of rivals	1.43** (0.06) [0.00]	1.47** (0.07) [0.00]	1.42** (0.07) [0.00]	1.45** (0.07) [0.00]	1.42** (0.07) [0.00]	1.45** (0.07) [0.00]	1.43** (0.07) [0.00]	1.45** (0.07) [0.00]	1.43** (0.06) [0.00]	1.45** (0.07) [0.00]
GDP growth	1.00 (0.01) [0.72]	0.99 (0.01) [0.68]	0.99 (0.01) [0.62]	0.99 (0.01) [0.59]	0.99 (0.01) [0.62]	0.99 (0.01) [0.58]	1.00 (0.01) [0.89]	1.00 (0.01) [0.81]	1.00 (0.01) [0.88]	1.00 (0.01) [0.82]
Population	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]	1.00** (0.00) [0.00]
GDP per capita	1.18** (0.07) [0.00]	1.18** (0.07) [0.00]	1.16* (0.07) [0.01]	1.16* (0.07) [0.01]	1.16* (0.07) [0.01]	1.16* (0.07) [0.02]	1.19** (0.07) [0.00]	1.19** (0.07) [0.00]	1.19** (0.07) [0.00]	1.19** (0.07) [0.00]
Political ties	1.65** (0.29) [0.00]	1.75** (0.30) [0.00]	1.66** (0.30) [0.00]	1.75** (0.31) [0.00]	1.65** (0.29) [0.01]	1.73** (0.31) [0.00]	1.60** (0.28) [0.01]	1.68** (0.29) [0.00]	1.62** (0.28) [0.01]	1.69** (0.30) [0.00]
Expropriation risks	1.00 (0.00) [0.32]	1.00 (0.00) [0.28]	1.00 (0.00) [0.15]	1.00 (0.00) [0.13]	1.00 (0.00) [0.15]	1.00 (0.00) [0.13]	1.00 (0.00) [0.49]	1.00 (0.00) [0.47]	1.00 (0.00) [0.48]	1.00 (0.00) [0.47]
Exchange rate	1.00 (0.02) [0.89]	1.00 (0.02) [0.98]	1.00 (0.02) [0.90]	1.00 (0.02) [0.97]	1.00 (0.02) [0.83]	1.00 (0.02) [0.90]	1.00 (0.02) [0.90]	1.00 (0.02) [0.97]	1.00 (0.02) [0.93]	1.00 (0.02) [0.98]
Geographic distance	1.05 (0.11) [0.63]	1.05 (0.11) [0.61]	1.01 (0.10) [0.95]	1.01 (0.10) [0.93]	1.00 (0.10) [0.98]	1.00 (0.10) [1.00]	1.03 (0.11) [0.78]	1.03 (0.11) [0.78]	1.03 (0.11) [0.78]	1.03 (0.11) [0.78]
Prior entry by others * Below aspiration			0.20** (0.11) [0.00]	0.29* (0.18) [0.04]	0.42** (0.14) [0.01]	0.50* (0.17) [0.04]	0.10** (0.08) [0.00]	0.71 (0.69) [0.72]	0.28** (0.12) [0.00]	0.53 (0.29) [0.25]
Prior entry by others * Above aspiration			0.73 (0.44) [0.60]	0.55 (0.33) [0.32]	1.09 (0.27) [0.74]	1.02 (0.25) [0.93]	1.90 (0.90) [0.18]	1.11 (0.57) [0.84]	2.23** (0.64) [0.01]	1.79* (0.52) [0.04]
Prior entry by others * Unabsorbed slack		0.62* (0.12) [0.01]		0.52** (0.11) [0.00]		0.50** (0.11) [0.00]		0.66* (0.13) [0.03]		0.68* (0.13) [0.05]
Prior entry by others * Absorbed slack		0.44** (0.11) [0.00]		0.43** (0.10) [0.00]		0.44** (0.11) [0.00]		0.41** (0.10) [0.00]		0.41** (0.10) [0.00]
Prior entry by others * Potential slack		0.48** (0.07) [0.00]		0.53** (0.08) [0.00]		0.55** (0.08) [0.00]		0.47** (0.08) [0.00]		0.54** (0.09) [0.00]
Host region fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	78,180	78,180	73,659	73,659	73,540	73,540	75,872	75,872	75,872	75,872
Pseudo R-squared	0.2195	0.2243	0.2215	0.2259	0.221	0.2254	0.2239	0.2274	0.2255	0.2281
Log likelihood	-3791	-3768	-3556	-3536	-3552	-3532	-3654	-3637	-3647	-3635
Model fit improvement chi-square test		vs M1 46.3**	vs M1 8.18**	vs M3 39.84**	vs M1 7.83*	vs M5 39.85**	vs M1 16.42**	vs M7 32.88**	vs M1 31.4**	vs M9 24.39**

First line is odds ratio; second line is standard errors (in square brackets); third line is p-value (in parentheses)

** p<0.01, * p<0.05, + p<0.1 for two-tailed tests

Table 5. Determinants of foreign location choice: WESML Heckman probit estimates

	Slack		Historical Aspirations			Social Aspirations			
	1	ROA		ROS		ROA		ROS	
		2	3	4	5	6	7	8	9
2nd step Location model: Dependent variable: 1 / 0 = enter / do not enter a specific country in a given year									
Prior entry by others	0.26** (0.03) [0.00]	0.15** (0.01) [0.00]	0.28** (0.03) [0.00]	0.14** (0.01) [0.00]	0.27** (0.03) [0.00]	0.14** (0.01) [0.00]	0.25** (0.03) [0.00]	0.13** (0.01) [0.00]	0.25** (0.04) [0.00]
Prior entry by the focal firm	0.15** (0.04) [0.00]	0.19** (0.04) [0.00]	0.19** (0.04) [0.00]	0.18** (0.04) [0.00]	0.18** (0.04) [0.00]	0.13** (0.04) [0.00]	0.14** (0.04) [0.00]	0.15** (0.04) [0.00]	0.15** (0.04) [0.00]
Prior entry by rivals	0.06** (0.02) [0.00]	0.05** (0.02) [0.01]	0.06** (0.02) [0.00]	0.05** (0.02) [0.00]	0.06** (0.02) [0.00]	0.06** (0.02) [0.00]	0.06** (0.02) [0.00]	0.06** (0.02) [0.00]	0.06** (0.02) [0.00]
Prior entry by others * Performance below aspiration		-0.64** (0.24) [0.01]	-0.58* (0.24) [0.02]	-0.35** (0.11) [0.00]	-0.30** (0.10) [0.00]	-0.86** (0.33) [0.01]	-0.51 (0.40) [0.21]	-0.47** (0.14) [0.00]	-0.29 (0.19) [0.11]
Prior entry by others * Performance above aspiration		0.01 (0.30) [0.96]	-0.04 (0.29) [0.90]	0.20 (0.13) [0.12]	0.20 (0.13) [0.14]	0.17 (0.21) [0.43]	0.15 (0.22) [0.49]	0.25* (0.13) [0.05]	0.24+ (0.14) [0.09]
Prior entry by others * Unabsorbed slack	-0.16* (0.07) [0.03]		-0.16* (0.08) [0.04]		-0.18* (0.08) [0.02]		-0.14+ (0.07) [0.06]		-0.14+ (0.07) [0.06]
Prior entry by others * Absorbed slack	-0.18* (0.09) [0.05]		-0.26** (0.09) [0.01]		-0.24* (0.09) [0.01]		-0.20* (0.10) [0.04]		-0.23* (0.10) [0.02]
Prior entry by others * Potential slack	-0.13** (0.04) [0.00]		-0.12** (0.04) [0.00]		-0.12** (0.04) [0.00]		-0.11* (0.04) [0.01]		-0.11* (0.06) [0.04]
Inverse Mills' ratio	0.02 (0.05) [0.72]	0.08 (0.05) [0.12]	0.04 (0.05) [0.38]	0.07 (0.05) [0.14]	0.04 (0.05) [0.41]	0.05 (0.05) [0.27]	0.02 (0.05) [0.69]	0.07 (0.05) [0.17]	0.04 (0.05) [0.43]
Country control variables	Included	Included	Included	Included	Included	Included	Included	Included	Included
Firm control variables (see text)	Included	Included	Included	Included	Included	Included	Included	Included	Included
Attainment discrepancy & slack	Included	Included	Included	Included	Included	Included	Included	Included	Included
Host region fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	6,828	6,402	6,402	6,390	6,390	6,618	6,618	6,618	6,618
Wald Chi-square	911.9	856.3	863.8	854.9	862	882.1	893.7	885	898.8
1st step Investment model: Dependent variable: 1 / 0 = make at least one / no foreign investment in a given year									
Number of foreign investments by rivals	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]	0.05** (0.00) [0.00]
Number of foreign investments by other firms	-0.00* (0.00) [0.02]	-0.00* (0.00) [0.03]	-0.00** (0.00) [0.00]	-0.00* (0.00) [0.02]	-0.00** (0.00) [0.00]	-0.00 (0.00) [0.35]	-0.00** (0.00) [0.01]	-0.00 (0.00) [0.42]	-0.00** (0.00) [0.01]
Other variables in the 2nd step	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	79,998	78,618	78,258	78,390	78,162	78,870	78,528	78,750	78,528

First line is estimate coefficient; second line is robust standard error (in parentheses); third line is p-value (in square brackets)

** p<0.01, * p<0.05, + p<0.1 for two-tailed tests

Table 6. Determinants of foreign location choice: Non-rivals versus rivals, conditional logit estimates

Dependent variable:	Historical Aspirations						Social Aspirations					
	ROA			ROS			ROA			ROS		
Foreign entry	1	2	3	4	5	6	7	8	9	10	11	12
Prior entry by non-rivals	3.00** (0.35) [0.00]		2.62** (0.33) [0.00]	2.90** (0.33) [0.00]		2.55** (0.30) [0.00]	3.08** (0.39) [0.00]		2.62** (0.38) [0.00]	2.72** (0.34) [0.00]		2.31** (0.34) [0.00]
Prior entry by rivals		3.87** (0.70) [0.00]	2.24** (0.47) [0.00]		3.86** (0.70) [0.00]	2.25** (0.47) [0.00]		3.71** (0.69) [0.00]	2.21** (0.50) [0.00]		3.60** (0.67) [0.00]	2.35** (0.54) [0.00]
Prior entry by non-rivals * Below aspiration	0.29* (0.18) [0.05]		0.24* (0.16) [0.03]	0.47* (0.17) [0.03]		0.40* (0.16) [0.02]	0.56 (0.54) [0.54]		0.83 (0.93) [0.87]	0.45 (0.24) [0.13]		0.44 (0.25) [0.15]
Prior entry by non-rivals * Above aspiration	0.45 (0.27) [0.19]		0.31 (0.24) [0.13]	0.96 (0.24) [0.87]		0.73 (0.23) [0.31]	0.92 (0.46) [0.87]		0.77 (0.48) [0.68]	1.84* (0.54) [0.04]		1.48 (0.54) [0.28]
Prior entry by rivals * Below aspiration		0.66 (0.64) [0.67]	2.45 (2.71) [0.42]		0.58 (0.31) [0.31]	1.52 (1.02) [0.53]		0.13 (0.23) [0.24]	0.29 (0.59) [0.54]		0.33 (0.32) [0.26]	0.93 (0.99) [0.94]
Prior entry by rivals * Above aspiration		1.44 (1.48) [0.72]	4.65 (6.39) [0.26]		1.75 (0.78) [0.21]	2.58 (1.54) [0.11]		3.18 (2.78) [0.19]	3.43 (3.77) [0.26]		2.32+ (1.03) [0.06]	1.58 (0.91) [0.43]
Prior entry by non-rivals * Unabsorbed slack	0.57** (0.12) [0.01]		0.43** (0.11) [0.00]	0.55** (0.12) [0.00]		0.42** (0.11) [0.00]	0.69+ (0.13) [0.06]		0.59* (0.14) [0.03]	0.71+ (0.14) [0.08]		0.60* (0.14) [0.03]
Prior entry by non-rivals * Absorbed slack	0.48** (0.12) [0.00]		0.57+ (0.17) [0.05]	0.51** (0.12) [0.01]		0.60+ (0.18) [0.08]	0.47** (0.12) [0.00]		0.57+ (0.18) [0.07]	0.47** (0.12) [0.00]		0.62 (0.19) [0.12]
Prior entry by non-rivals * Potential slack	0.58** (0.08) [0.00]		0.70* (0.11) [0.03]	0.60** (0.09) [0.00]		0.72* (0.11) [0.03]	0.52** (0.08) [0.00]		0.61** (0.11) [0.01]	0.62** (0.10) [0.00]		0.72+ (0.14) [0.09]
Prior entry by rivals * Unabsorbed slack		0.75 (0.26) [0.40]	1.68 (0.72) [0.23]		0.75 (0.26) [0.40]	1.75 (0.75) [0.20]		0.77 (0.25) [0.42]	1.29 (0.52) [0.52]		0.85 (0.27) [0.61]	1.37 (0.55) [0.43]
Prior entry by rivals * Absorbed slack		0.28** (0.11) [0.00]	0.49 (0.25) [0.16]		0.27** (0.11) [0.00]	0.46 (0.23) [0.13]		0.29** (0.12) [0.00]	0.48 (0.24) [0.15]		0.25** (0.10) [0.00]	0.40+ (0.20) [0.07]
Prior entry by rivals * Potential slack		0.37** (0.08) [0.00]	0.46** (0.13) [0.01]		0.37** (0.09) [0.00]	0.46** (0.13) [0.00]		0.39** (0.09) [0.00]	0.53* (0.16) [0.04]		0.41** (0.10) [0.00]	0.49* (0.15) [0.02]
Country control variables	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	73,659	73,659	73,659	73,540	73,540	73,540	75,872	75,872	75,872	75,872	75,872	75,872

First line is odds ratio; second line is standard error; third line is p-value. ** p<0.01, * p<0.05, + p<0.1 for two-tailed tests

CHAPTER 4

Board effectiveness and internalization benefits: Theory and evidence from value creation in cross-border mergers and acquisitions

ABSTRACT

The internalization theory of the multinational firm has long posited that foreign direct investment (FDI) occurs when a firm can increase its value by internalizing the market for its knowledge-based intangible assets. This study examines how costs associated with managing activities within the firm influence the value creation potential of technological and marketing intangibles in FDI. Drawing upon the internalization literature and research on corporate governance, we link governance challenges due to managerial bounded rationality and bounded reliability to the board of directors' monitoring and advising roles. We theorize that firms with a more effective board are more likely to benefit from their intangibles in FDI. Our analyses of foreign acquisitions by U.S. public firms (1996 – 2016) support the moderating role of the “quad” elements of board effectiveness, namely independence, expertise, bandwidth, and motivation, in determining the value-creating effect of intangibles.

Keywords:

Internalization; corporate governance; board effectiveness; cross-border mergers and acquisitions

INTRODUCTION

Internalization theory is one of the most important theoretical foundations for studying the multinational enterprise (MNE) in strategy and international business (Buckley & Strange, 2011; Rugman & Verbeke, 2008). Based on a Coasian logic of transaction costs theory, internalization theory posits that MNEs exist because of their ability to reduce transaction costs when replacing an inefficient market transaction with an internal transaction (Buckley & Casson, 1976; Dunning, 2003; Hennart, 1982). Potential cost-minimizing benefits of an internalized market become more salient when transferring firm-specific advantages (FSAs) embodied in technological and marketing intangibles across borders, as transactions involving such knowledge-intensive assets are subject to market failure and entail substantial transaction costs (Buckley & Casson, 2009; Caves, 1996; Hennart, 1982). Thus, firms avoid imperfections in the external market and extract above-average returns by exerting proprietary control over their intangible assets via FDI (henceforth, the internalization strategy) (Morck & Yeung, 1992; Rugman & Verbeke, 2003). However, extant empirical evidence on the relationship between intangibles and value creation in FDI is quite mixed (Kirca, Fernandez, & Kundu, 2016; Pantzalis, Park, & Sutton, 2008; Steigner & Sutton, 2011). To better understand the conditions under which the internal transfer of intangibles contributes to efficiency gains and thus creates value for MNEs, prior studies emphasize factors related to external transaction costs, which increase the benefits of internalizing the imperfect market for intangibles (Contractor, Yang, & Gaur, 2016; Kafouros & Aliyev, 2016; Markides & Ittner, 1994; Steigner & Sutton, 2011).

Despite the valuable insights offered by these earlier works, what remains to be considered is the role of internal transaction costs associated with the governance and organization of intangibles-related activities within the MNE (Buckley, 2016; Buckley &

Strange, 2011). This issue is essential, as value creation in FDI not only varies in different transaction environments, there is also significant heterogeneity among firms (Kirca et al., 2011; Shimizu, Hitt, Vaidyanath, & Pisano, 2004). The focus on external market imperfections has thus masked a distinct pattern of winners and losers in effectively and profitably exploiting their FSAs abroad. As a result, a central yet largely unanswered question in the internalization literature is: *why the possession of intangible assets creates value for some firms when they engage in FDI, while others experience value destruction?*

In this study, we shed light on this question by arguing that the value-enhancing effect of knowledge-based intangibles in FDI is contingent on the overall efficiency of the MNE in managing them across borders. Transferring and organizing intangibles such as know-how internally is subject to considerable information, coordination, and motivation costs (Buckley & Strange, 2011; Hennart, 1982; Tomassen & Benito, 2009). Thus, to maximize the value creation of the internalization strategy, firms must overcome such governance inefficiencies. Informed by recent studies on the micro-foundations of managerial decision-making in international strategy (Kano & Verbeke, 2015, 2019; Verbeke & Greidanus, 2009), we examine two behavioral issues that underpin the governance challenges faced by MNEs.

First, managers' bounded rationality may hamper their ability to efficiently acquire and interpret value-relevant information and exploit knowledge-based FSAs (Kano & Verbeke, 2019; Kogut & Zander, 1993; Rugman & Verbeke, 2003). Managers face formidable information-processing demands and coordination challenges when they transfer, integrate, and deploy intangibles with expanding firm boundaries, especially when operations are dispersed across national boundaries (Foss & Pedersen, 2019; Kirca et al., 2011). Hence, they often fail to cope

with the growing amounts of information from foreign expansions and the resulting need to orchestrate knowledge development activities in overseas markets (Buckley & Strange, 2011).

Second, lack of efforts from boundedly reliable managers may prevent them from fulfilling their commitments, reducing the value creation potential of intangibles. One critical source of bounded reliability related to the internalization strategy is opportunism arising from information asymmetries between managers and shareholders (Benito, Petersen, & Welch, 2019; Kano & Verbeke, 2015), where self-interested managers deviate from maximizing shareholder value (Verbeke & Greidanus, 2009). In one such scenario, managers may opportunistically engage in FDI to extract personal gains at the expense of shareholders (Filatotchev & Wright, 2011). In these managerial-driven investments, the efficient use of intangibles is de-prioritized relative to managers' private goals, resulting in value loss for the firm (Gartenberg & Pierce, 2017; Seth, Song, & Pettit, 2002). In another such scenario, self-serving managers may shirk their responsibilities to facilitate internal knowledge flow and utilize the firms' reservoir of value-creating intangibles (Fey & Furu, 2008; Kano & Verbeke, 2019). Consequently, proprietary knowledge emanating from R&D and marketing activities is not adequately disseminated within the firm (Mudambi, 2011), or its value is dissipated in subsidiaries (Björkman, Barner-Rasmussen, & Li, 2004).

To understand how a firm may guard against the hazards created by managerial bounded rationality and bounded reliability, we build upon research on corporate governance and examine the role of one key governance control mechanism, namely the board of directors, in mitigating the behavioral drivers of governance costs and thus facilitating the value creation of intangibles in FDI. We argue that a firm will be better able to generate value from technological and marketing intangibles via FDI when its board is more effective in fulfilling its monitoring and

advising functions. Specifically, drawing upon the quad model of the board by Hambrick, Misangyi, and Park (2015), we posit that for a board to enhance the value-creating effect of intangibles, it should be characterized by higher independence, greater expertise (i.e., more directors with foreign operational experience), improved bandwidth (i.e., fewer busy directors with multiple directorships), and increased motivation (i.e., a higher equity stake in the firm by the directors). Given the bounded rationality and bounded reliability of managers, all four features will enhance a firm's ability to leverage intangibles via FDI by better assisting managers' information processing and decision making and curbing managerial opportunism.

We test our hypotheses using 3,054 completed cross-border M&As announced between 1998 and 2016 by 883 U.S. public firms. Results based on an event study methodology support that board effectiveness moderates the relationship between knowledge-based intangibles and value creation in acquisitive FDI. Specifically, we first test the baseline prediction from internalization theory and show that on average, acquirers' technological and marketing intangibles, proxied by R&D intensity and advertising intensity and instrumented by industry average values, are indeed positively associated with their abnormal returns of in foreign acquisitions. Moreover, we find that each of the four board effectiveness characteristics, in itself, does not have a direct effect on acquiring firm value. However, subsequent analyses of the *interactive effects* between intangibles and the board suggest that acquirers that possess both R&D intangibles – or to a lesser extent marketing intangibles – and an effective board can better realize internalization benefits and increase firm value via cross-border M&As.

The contributions of this study are threefold. First, it adds to the growing literature on the value-creating mechanism of intangible assets, especially for MNEs (Buckley, 2016; Contractor et al., 2016; Kafouros & Aliyev, 2016; Kirca et al., 2011). Highlighting corporate governance

considerations in the internalization literature, we develop a new contingency model to reconcile the mixed findings in prior studies on the intangibles – value creation relationship (Delios & Beamish, 2001; Kirca et al., 2016; Pantzalis et al., 2008). Our results show that the extent to which these knowledge-intensive assets can increase firm value depends on the MNE's internal transaction costs, where the board of directors plays a vital role in alleviating heightened governance challenges associated with managerial bounded rationality and bounded reliability. By theorizing and testing the essential while often neglected role of internal governance in firms' internalization strategy, we provide a fuller understanding of the value-creating mechanism of FSAs in FDI. The new model not only shows how the board matters in explaining FDI performance but also answers prior calls to examine the significance of management and corporate governance within the internalization framework (Aguilera, Marano, & Haxhi, 2019; Buckley & Strange, 2011).

Second, this paper contributes to research on micro-foundations in the field of international business (Foss & Pedersen, 2019; Kano & Verbeke, 2015, 2019). Though often implicitly, major theoretical perspectives in international business are all based on certain assumptions about human behavior (Kano & Verbeke, 2019). However, extant studies on the behavioral assumptions have primarily focused on their effects on firms' internationalization decisions, such as entry mode or location choice (Elia, Larsen, & Piscitello, 2019; Grøgaard & Verbeke, 2012). In contrast, the associated performance implications are underexplored. We extend this research stream by studying the bounded-rationality- and bounded-reliability-economizing properties of the board of directors and how they contribute to value creation in FDI. Our analyses show that having a more effective board increases firm value via FDI, specifically by enabling the efficient exploitation of knowledge intangibles within the MNE. As

such, we demonstrate a theory-driven mechanism to link the behaviors of boundedly rational and boundedly reliable managers in decision making with value creation in international expansion.

Third, this study sheds light on the ongoing debate on the role of the board of directors (Boivie, Bednar, Aguilera, & Andrus, 2016). Both FDI and the building of intangibles via R&D and marketing are among the most important and complex corporate activities, where governance challenges due to managerial bounded rationality and bounded reliability tend to be amplified (Filatotchev & Wright, 2011; Kano & Verbeke, 2015). Considering the critical role of the board in addressing incomplete information and limited information processing capacity of managers and reducing managerial opportunism (Aguilera et al., 2019; Hillman, Nicholson, & Shropshire, 2008), we operationalize and examine how a board's ability and motivation to fulfill its monitoring and advising duties affects the value creation potential of a firm's internalization strategy. Based on the quad model of the board (Hambrick et al., 2015), our findings suggest that a vigilant and experienced board is a crucial contingency for firms to benefit from their knowledge assets in cross-border M&As. Thus, we explicate the empirical relevance of the quad model and extend it to research on firms' knowledge management and boundary decisions.

THEORY AND HYPOTHESES

Internalization theory and the intangibles – value creation relationship in FDI

The key question addressed by internalization theory is “under what conditions should the interdependent activities be coordinated by the management of a firm rather than externally by market forces” (Buckley & Casson, 1976: 36), and it has been widely used to explain why and how firms expand abroad (Buckley & Casson, 2009; Grøgaard & Verbeke, 2012). According to internalization theory, a firm is motivated to expand into new geographic markets if it possesses some knowledge-based FSAs, such as R&D and marketing intangibles (Buckley &

Casson, 1976; Rugman & Verbeke, 2008). This is because these knowledge assets have some characteristics of public goods in that their value is enhanced proportionally to the scale of the firm's operation while the incremental cost of applying them in new markets is low (Delios & Beamish, 2001; Kirca et al., 2016). However, the non-excludability and proprietary properties of intangible assets often make an arm's length market exchange inefficient (Buckley & Casson, 1976; Dunning, 2003). Following a transaction cost reasoning, profit-maximizing firms engage in FDI to overcome market failures when the expected gains from exploiting intangibles within the firm are sufficient to compensate for the costs associated with managing an internal market across borders (Buckley & Casson, 2009; Hennart, 1982).

Even though the vast majority of the internalization literature focuses on the choice of foreign entry mode (Buckley, 2016; Elia et al., 2019; Grøgaard, Rygh, & Benito, 2019), one stream of research has emphasized and examined the associated value creation, most notably in the context of cross-border M&As (Seth et al., 2002; Shimizu et al., 2004). These studies posit that if internalization theory is valid, when firms possessing significant intangible assets expand abroad via FDI, they create shareholder value by increasing the scale over which such intangibles are applied meanwhile avoiding substantial market transaction costs (Kohli & Mann, 2012; Pantzalis et al., 2008). In other words, internalization theory implies a positive relationship between intangibles and firm value in FDI owing to market frictions that provide opportunities for MNEs to benefit from the efficiency gains of exploiting their value-enhancing intangibles across borders within the firm. Using an event study approach, Morck and Yeung (1992) support internalization as a source of value creation in cross-border M&As by showing that foreign acquisitions by firms with R&D and marketing intangibles yield positive returns. This pioneering work has inspired subsequent studies to validate and refine the relationship between the

intangibles and firm value in FDI (Kohli & Mann, 2012; Markides & Ittner, 1994; Pantzalis et al., 2008; Steigner & Sutton, 2011). Following these studies, in the baseline model, we examine the value-creating effect of R&D and advertising spending, two commonly used indicators for technological and marketing intangibles, respectively. Specifically, we expect that both types of intangibles increase firm value when they are internalized using foreign acquisitions.

Hypothesis 1 (H1) There is a positive relationship between R&D- and advertising-based intangibles and value creation in cross-border M&As.

Internal governance efficiency as a contingency

Although the internalization benefits of minimizing market transaction costs have long been recognized in the literature, recent research advances highlight instead the considerable governance costs involved in organizing the internal market for intangibles (Buckley, 2016; Rugman & Verbeke, 2003; Tomassen & Benito, 2009). Combining these two views, it is quite possible that the efficiency gains from reduced transaction costs will be eroded and outweighed by the increased internal transaction costs due to governance failures (Buckley & Strange, 2011; Gaur, Pattnaik, Singh, & Lee, 2019). Under such circumstances, the internalization strategy becomes less attractive than a market transaction, and exploiting intangibles within the MNE may fail to create net value. Indeed, several studies report a null or negative value-creating effect of R&D and marketing intangibles in foreign acquisitions or FDIs in general (Delios & Beamish, 2001; Kirca et al., 2016; Steigner & Sutton, 2011).

Given these mixed findings, scholars have started to explore the boundary conditions for the value-creating mechanism of intangibles within the internalization framework. Extant studies have mainly focused on contextual factors related to market transaction costs (Contractor et al., 2016; Kirca et al., 2016). For example, Gaur et al. (2019) show that internalization benefits tend to be stronger in countries characterized by greater institutional voids. Despite the insights

offered by this external-oriented perspective, we still know little about why, faced with similar transaction environments, firms possessing intangibles exhibit significant heterogeneities in their abilities to achieve value creation. Building on recent studies on the behavioral assumptions of managerial decision-making in international strategy (Kano & Verbeke, 2015, 2019), we posit that internal governance inefficiency caused by bounded rationality and bounded reliability is the key to understanding why the value-creating effect of intangibles in FDI varies across firms.

Governance costs associated with the internal organization of knowledge activities increase substantially with foreign expansion, due to growing information processing and coordination demands, plus increased difficulties in monitoring internationally dispersed R&D and marketing operations (Carpenter & Sanders, 2004; Contractor et al., 2016; Gaur et al., 2019). As a result, value-enhancing intangibles are not always efficiently transferred and exploited within the MNE (Björkman et al., 2004; Mudambi, 2011). Specifically, two types of managerial challenges and problems may occur in FDI, leading to governance failures and impairing firms' ability to create value with their intangibles.

First, boundedly reliable managers may engage in opportunistic behaviors and seek self-interest when going abroad. Past research has shown that firms' internationalization is often driven by managers' pursuit of personal goals such as power and prestige, resulting in value-destroying consequences (Seth, Song, & Pettit, 2000). In such cases, intangibles are either underutilized for the lack of profit-maximizing motives (Seth et al., 2002), or the value created is appropriated by managers in the form of higher compensation (Ozkan, 2012). Besides, self-serving managers may shirk their responsibilities in internal coordination (Gartenberg & Pierce, 2017), which is especially problematic for the use of intangibles within the MNE (Fey & Furu, 2008). Without the proper control from the headquarter managers, foreign subsidiaries may be

reluctant to share knowledge with other units and behave as rent-seekers to abuse their bargaining power within the firm, jeopardizing the value creation of intangibles for the firm as a whole (Mudambi & Navarra, 2004).

Second, bounded rationality constraints even well-intentioned managers from organizing an efficient internal market for intangibles (Buckley & Casson, 1976; Kano & Verbeke, 2019). On the one hand, to properly develop and transfer intangibles within the firm, MNE managers need to gather and process decision-relevant information, which resides in subsidiaries across multiple overseas markets (Carpenter & Sanders, 2004; Mudambi & Navarra, 2004). On the other hand, an internalization strategy's success depends crucially on the effective coordination of R&D and marketing operations (Björkman et al., 2004; Mudambi, 2011). Nevertheless, managers are faced with numerous challenges due to the increased geographic dispersion of these value-added activities as a result of FDI (Contractor et al., 2016; Fey & Furu, 2008).

Given the bounded reliability and bounded rationality of managers, a natural question is how to mitigate the associated governance challenges and create an optimal organizational context to assist the cross-border utilization of intangibles. Drawing upon the literature on corporate governance, we argue that the effectiveness of the board of directors in disciplining and advising managers serves as an essential contingency.

Board effectiveness and internal governance efficiency

Scholars and practitioners have widely agreed that the board of directors is a crucial governance mechanism to curb managerial opportunism and aid managers' decision-making (Boivie et al., 2016; Filatotchev & Wright, 2011; Hillman & Dalziel, 2003). Both the monitoring and advising functions of the board help overcome governance barriers to the internal organization of intangibles due to bounded reliability and bounded rationality. Recent corporate

governance studies focus on understanding how to structure a board to enhance its effectiveness in oversight and counseling. Some suggest that directors should be adequately motivated in terms of independence and ownership (Dalton, Hitt, Certo, & Dalton, 2007; Desender, Aguilera, Lopezpuertas-Lamy, & Crespi, 2016); while others maintain that directors' attention and experience are essential to board vigilance (Falato, Kadyrzhanova, & Lel, 2014; Kroll, Walters, & Wright, 2008). Synthesizing these insights, Hambrick et al. (2015) provide a new framework to assess board effectiveness, featuring four dimensions of independence, expertise, bandwidth, and motivation. We theorize and test how each dimension conditions the intangibles – firm value relationship in FDI by economizing on bounded reliability and bounded rationality.

Interaction of board independence and intangibles

A large body of corporate governance research has argued that an independently structured board with more non-executive directors is better positioned to carry out its monitoring function for the reduced conflicts of interest and stronger reputation incentives (Boivie et al., 2016; Desender, Aguilera, Crespi, & Garcia-Cestona, 2013). Boards with more outside directors are also more involved in the strategic decision-making process, helping inhibit managers' pursuit of self-interests (Judge & Zeithaml, 1992). Besides, independent directors contribute to firm value creation by advising managers based on their expertise (Desender et al., 2016; McDonald, Westphal, & Graebner, 2008). Thus, a greater proportion of outside directors is recommended for MNEs to deal with the increased information asymmetries and coordination difficulties in foreign expansions (Sanders & Carpenter, 1998). Board independence is especially beneficial in managing knowledge-intensive R&D and marketing activities (Lim & McCann, 2013), as boundedly rational and boundedly reliable managers not only are constrained by the lack of adequate information and their information processing capacities on such activities but

also may make suboptimal decisions on the use of intangibles to maximize personal utility. Consistent with this view, Chung, Wright, and Kedia (2003) find that firms with more outside directors are expected to exploit their R&D assets more profitably. What is more, prior studies suggest that the separation of CEO and board chair positions (conversely, CEO duality) is another effective mechanism to promote board independence and safeguard against managers' value-destructing behaviors (Singla, Veliyath, & George, 2014; Tuggle, Sirmon, Reutzel, & Bierman, 2010). CEO-chairs can comprise the board's ability to mitigate governance hazards in the internalization strategy by curtailing directors' efforts to participate in the decision-making and execution regarding R&D and other knowledge-related activities (Ruigrok, Peck, & Keller, 2006), thus obstructing value creation of intangibles.

Consistent with these arguments, we expect that greater board independence, either through a higher representation of outside directors or a non-executive board chair, deters the inferior use of intangibles by managers in FDI. As a result, the gains from internalizing R&D and marketing activities are amplified for firms with a more independent board.

Hypothesis 2a The value-creating effect of intangibles in cross-border M&As is amplified for firms with a higher level of board independence.

Interaction of board expertise and intangibles

To address governance failures due to managerial bounded rationality and bounded reliability, directors need deep and specialized knowledge and understanding of the domain being monitored and advised (Hambrick et al., 2015). It enables them to discipline management with effective oversight and assess the performance prospects more accurately to provide the most relevant information and advice (Miletkov, Poulsen, & Wintoki, 2017). FDI decisions are prone to be plagued with errors due to imperfect and incomplete information, which becomes even more problematic when exploiting knowledge assets across national boundaries due to their

intangible nature (Buckley & Casson, 1976). For example, managers may misestimate the extent to which their intangibles could be transferred or deployed abroad (Verbeke & Asmussen, 2016). As a result, past research recommends firms adjust their governance structure and include more internationally experienced directors to deal with the newly emerged governance issues in their global expansions (Oxelheim, Gregorič, Randøy, & Thomsen, 2013).

However, directors' foreign expertise does not necessarily increase firm value. In effect, Masulis, Wang, and Xie (2012) report that firms with foreign directors display significantly poorer performance. To shed light on which directors are more capable of helping the MNE create and capture value when implementing an internalization strategy, we focus on directors with expertise specific to the organization of knowledge activities in foreign markets. We expect that directors who have managed an overseas entity before are more likely to contribute to decision-making regarding exploiting intangibles abroad, as they have accumulated first-hand knowledge of R&D and marketing operations in a foreign context. First, benefiting from their experience, these directors are better aware of potential barriers and opportunities to deploy the MNE's intangibles abroad, inhibiting managers' suboptimal practices such as inappropriate knowledge transfer (Hong & Nguyen, 2009). Second, directors with foreign management expertise can also assist managers when they face difficulties processing information from foreign operations or coordinating intangibles-related activities across overseas subsidiaries (Hillman & Dalziel, 2003). The advice by these experienced directors bring strategic knowledge of the best practices from an international perspective (Miletkov et al., 2017), aiding the efficient organization of the internal market for intangibles. Thus, we predict that a board with more directors who have expertise in foreign operations can enhance the proper use of knowledge assets and increase the value creation potential of intangibles in foreign acquisitions.

Hypothesis 2b *The value-creating effect of intangibles in cross-border M&As is amplified for firms with more experienced directors in foreign operations (H2b).*

Interaction of board bandwidth and intangibles

Bandwidth is “the ability to devote the requisite time, attention, and energy to be an effective monitor” (Hambrick et al., 2015: 332). Many directors hold more than one directorship at a given time. The competing demands from various companies cause them to spread their bandwidth too thin to perform their monitoring and advising tasks (Harris & Shimizu, 2004; Hauser, 2018). As a result, these busy or “overboarded” directors – directors serving on three or more corporate boards – are in a particularly weak position to assist managers’ decision-making or detect their opportunistic behaviors. Prior studies have consistently shown that firms with more busy directors exhibit lower governance quality (Falato et al., 2014; Fich & Shivdasani, 2006), which hampers their ability to alleviate governance challenges associated with managing knowledge-intensive activities. For example, Iyer, Sankaran, and Zhang (2020) find that despite the information benefits of directors sitting on multiple boards, board busyness reduces the efficiency of firms’ R&D investments and results in a significant loss in firm value.

The problems associated with a busy board tend to escalate in cross-border M&As where substantial time and efforts from the directors are needed to comprehend large volumes of deal-related specifics and make informed decisions (Hauser, 2018). Besides, given the complexity and specificity of technological and marketing intangibles, the decision of how to optimally exploit them also requires sophisticated and long-term strategic thinking (Tomassen, Benito, & Lunnan, 2012). However, costs and benefits are often assessed under considerable time pressure in foreign acquisitions because of competitive bidding (McDonald et al., 2008). The time constraint is incredibly challenging for busy directors, as they need to balance multiple board duties, reducing the attention they can dedicate to the proposed transaction and curtailing their ability to

oversee and advise management (Ahn, Jiraporn, & Kim, 2010). As a result, opportunistic managers may either exploit inattention from directors to pursue personal goals and appropriate value generated by intangibles in the deal, or they may fail to discern and lessen issues in organizing the internal market for intangibles due to the lack of high-quality information and limited information processing capabilities (Falato et al., 2014; Seth et al., 2002). Accordingly, we expect that a firm with a less busy board can better address governance inefficiencies in foreign acquisitions leveraging intangibles and thus increasing firm value.

Hypothesis 2c The value-creating effect of intangibles in cross-border M&As is reduced for firms with more busy directors holding multiple directorships.

Interaction of board motivation and intangibles

As highlighted in the quad model, “effective monitoring is arduous and risky work” (Hambrick et al., 2015: 333). Hence, directors need to be sufficiently motivated to (1) closely monitor managers’ decisions and actions and (2) exert efforts to analyze value-relevant information and provide the best advice (Bhagat & Bolton, 2013; Desender et al., 2013). Directors’ equity stake in the firm creates a strong incentive for them to vigorously engage in monitoring and resource provision (Hambrick et al., 2015; Hillman et al., 2008). This is because directors with an ownership stake in the company are more likely to identify with shareholders and thus eager to act in their interests (Chen, Goldstein, & Jiang, 2008). Moreover, directors’ shareholding propels them to undertake careful scrutiny of available information as their personal wealth also suffers from managers’ value-deteriorating behaviors (Faulkender & Yang, 2013). Indeed, past research has shown that a higher equity stake in the firm motivates directors to be more generous with their time (Hambrick & Jackson, 2000). Lastly, directors’ ownership also increases their attendance at board meetings (Masulis & Mobbs, 2014), which is a

momentous occasion to ask for additional information from managers and provide expertise and advice on strategic issues (Schwartz-Ziv & Weisbach, 2013).

The motivational effect of board ownership becomes more salient when firms possessing intangible assets use an internalization strategy. In such cases, sufficiently motivated directors are more likely to engage with boundedly rational and reliable managers to optimize R&D and marketing investments and defend shareholders' interests (Kroll et al., 2008). Therefore, we hypothesize that board ownership incentivizes directors to vigilantly exercise their supervisory and advisory duties, ensuring that the internalization of technological and marketing intangibles is effectively targeted to create shareholder value.

Hypothesis 2d *The value-creating effect of intangibles in cross-border M&As is amplified for firms with more shares owned by directors.*
(H2d).

METHODOLOGY

Data

Cross-border M&As provide an ideal setting to examine the moderating role of board effectiveness on the relationship between intangibles and firm value in FDI. First, as discussed above, prior studies testing internalization theory have validated the relevance of R&D-based technological and advertising-based marketing intangibles in the value creation of foreign acquisitions (Kohli & Mann, 2012; Morck & Yeung, 1991; Pantzalis et al., 2008). Second, cross-border M&As are major and complex strategic events that require significant inputs from the board regarding potential benefits and costs, making its role more prominent (Masulis et al., 2012; Miletkov et al., 2017).

We used the SDC Platinum Mergers and Acquisitions database to obtain all completed foreign acquisitions by U.S. public firms between 1996 and 2016. We included deals that meet the following criteria: (1) the acquirer is a U.S. firm, and the target is a non-U.S. firm, (2) the

acquirer has necessary data on Compustat and CRSP, (3) locational characteristics of the target nation are available in the World Development Index (WDI), and (4) the acquirer owned over 50% of the target shares after the acquisition. The last requirement is to ensure that the acquirer had a controlling stake in the target and therefore is likely to transfer and utilize their knowledge assets in the target's post-acquisition operations.¹⁹ We also excluded deals where the acquirer or the target is a financial firm (4-digit SIC codes between 6000 and 6999).

We supplemented the acquisition sample with firm-level financials from Compustat, data on stock price from CRSP, and information on board characteristics from Institutional Shareholder Services (ISS) through the Wharton Research Data Services (WRDS). Two variables on the directors, director expertise and director ownership, are not tracked consistently until 1998 in ISS. Thus, our final sample started in 1998. To alleviate the effect of confounding events, we deleted deals if there was another acquisition (whether domestic or foreign) or a quarterly earnings announcement by the same company within the 3-day event window. The final sample consists of 3,054 foreign acquisitions by 883 U.S. public firms.

Variables

Dependent variable.

Value creation in FDI. Following prior studies, we used the short-term acquirer cumulative abnormal return (*CAR*) to measure value creation in cross-border M&As (Aybar & Ficici, 2009; Morck & Yeung, 1992; Pantzalis et al., 2008; Seth et al., 2002). It was calculated over a 3-day window [-1, +1] where announcements occur on day 0. Daily abnormal returns were calculated using a market model over a 200-day [-210, -10] estimation period. Our findings are robust to *CARs* over other short windows (i.e., [-1, 0] and [-2, 2]).

¹⁹ The results remain the same if we require the acquirer to have a full ownership of the target.

Independent variables.

(H1) Knowledge-based intangibles. Consistent with past research testing the role of intangibles in the internalization literature (Kirca et al., 2016; Morck & Yeung, 1992; Steigner & Sutton, 2011), we measured technological and marketing intangibles as the annual expenditures on R&D and advertising divided by sales (*R&D intensity* and *Advertising intensity*), respectively. Given the substantial missing values in R&D and advertising expenditures, we employed two imputation methods. First, since firms are mandated to disclose R&D and advertising expenses that are deemed material, we replaced missing values with zeros (Chari, Devaraj, & David, 2007), under the assumption that missingness implies inconsequential R&D and marketing activities and thus are unlikely to have contributed to the development of intangibles. Second, we replaced missing values with industry (on the 3-digit SIC level) median (Koh & Reeb, 2015). We used the median values instead of the industry mean because the latter serves as the instrumental variable in our identification strategy (to be explained later). Thus, using industry averages to (1) replace missing values of R&D and advertising intensity and (2) serve as the instrument for the imputed variable could potentially lead to spurious correlation and may overestimate the strength of the instrumental variables. We reported results based on the median-imputation method but they are robust to the zero-replacement method.

Moderators

(H2a) Board independence. Two commonly used indicators for board independence, (1) CEO duality (equals 1 if the CEO is also the board chair and 0 otherwise) and (2) the percentage of outside directors, are factorized into a single independence index (*board independence*) using a principal component analysis to account for the potential substitutive or complementary effect (Goranova, Priem, Ndofor, & Trahms, 2017; McDonald et al., 2008). As expected, the two

proxies are negatively correlated, and they are loaded on one latent factor, where a higher value implies a more independent board.

(H2b) Board expertise. Given that we focus on the role of intangibles in FDI, the most relevant type of expertise is the prior experience of managing R&D and marketing operations abroad. Such experience gives directors first-hand knowledge of foreign markets and enables them to provide valuable insights and advice on potential opportunities and challenges of exploiting intangibles abroad (Adams, Hermalin, & Weisbach, 2010). Thus, we measured *board expertise* as the percentage of directors who worked as senior managers at a foreign company or a foreign subsidiary of a U.S. company. We followed the coding approach described in detail in Masulis et al. (2012). The primary data source is the ISS variable COUNTRY_OF_EMPL, which indicates the country of the director's primary employer.

(H2c) Board bandwidth. To capture directors' ability to devote the requisite time and attention to the company they oversee, we identified directors with three or more directorships in the same fiscal year as busy directors (Chen, Crossland, & Huang, 2016; Fich & Shivdasani, 2006). The variable, *board busyness*, is calculated as the ratio of the number of busy directors to board size.

(H2d) Board motivation. *Board ownership*, which serves as a powerful inducement for directors to carry out their fiduciary duties to shareholders, is calculated as the number of shares owned by all the directors divided by total shares outstanding (Hambrick & Jackson, 2000; Masulis & Mobbs, 2014). Our results are robust to the alternative measure using the natural logarithm of the dollar value of directors' shareholding (Kroll et al., 2008).

Control variables

We included a comprehensive list of the deal-, firm-, board-, and target national-level control variables that may also explain firms' investments in intangibles and affect the value creation of their foreign acquisitions.

Deal-level controls. Firms' acquisition strategy and the associated value creation may vary with deal characteristics. We thus controlled for a set of dummy variables, including *horizontal deal* (equals 1 if the acquirer and the target are from the same 3-digit SIC industry and 0 otherwise), *all cash* (equals 1 if the transaction is 100% financed by cash and 0 otherwise), *all stock* (equals 1 if the transaction is 100% financed by stock and 0 otherwise), *public target* (equals 1 if the target is a public firm and 0 otherwise), *friendly deal* (equals 1 if the deal attitude is flagged as "friendly" in SDC and 0 otherwise), *tender offer* (equals 1 if the deal was a tender offer and 0 otherwise). In addition, we also included a continuous variable of *shares initial*, measured as the percentage of shares of the target owned by the bidder before the announcement, to account for the use of a real-option-based strategy by the acquirer (Xu, Zhou, & Phan, 2010).

Firm-level controls. To rule out some common predictors of firms' strategic decisions and performance outcomes, we controlled for *firm size* (the natural logarithm of the book value of total assets), firm performance with an accounting-based measure of *return on assets* (the ratio of EBITDA to total assets) and a market-based measure of *Tobin's q* (the ratio of the market value of total assets to the book value of total assets), level of slack resources with a measure for unabsorbed slack using the *current ratio* (the ratio of current liabilities to current assets) and a measure for potential slack with the *debt-equity ratio* (the ratio of debt to equity), *capital intensity* (the ratio of capital expenditure to total assets) and *sales growth* (the year-to-year growth rate of revenue).

Board-level controls. Directors' demographic characteristics may also affect their motivation and ability to exercise monitoring and advising duties (Boivie et al., 2016; Chen et al., 2016). Hence, we included *board size* (the natural logarithm of the number of directors), *board age* (the natural logarithm of the average age of directors), and *% of female directors* (the number of female directors normalized by the total number of directors).

Target nation-level controls. Rugman (2010) posits that the relevance of FSAs in FDI also depends on firms' internationalization motives. Moreover, later development of international theory argues that in addition to FSAs, country-specific advantages (CSAs) shaped by institutional elements in different locations also feature prominently in the MNE's decision-making and explain its competitive advantage in the international marketplace, leading to the FSA/CSA framework (Rugman, Verbeke, & Nguyen, 2011). Thus, to examine the value-creating effect of FSAs embodied in intangibles, it is critical to account for the different motives behind firms' FDI and the existence of CSAs. We followed Zhou and Guillén (2015) and controlled for locational advantages of the target's nation. Specifically, for market-seeking FDI, we included the size of the *population*, measured by the natural logarithm of a country's population. For efficiency-seeking FDI, *GDP per capita* was included as a control for the level of labor costs. For strategic-asset-seeking FDI, we added the number of *patents* per million people to capture the stock of technological knowledge in the target's home country. For natural-resource-seeking FDI, we controlled the stock of natural resources in the host country using *resource rent*, measured as the total natural resource rents as a percentage of GDP. All the locational factors are obtained from the WDI.

Lastly, we controlled both *industry* and *year* fixed effects with a host of industry (on the 2-digit level) and year dummies. We added *host region fixed effects* to account for unobserved

characteristics that may drive a firm's decision to invest in a specific foreign region (Flores & Aguilera, 2007). Countries are grouped into seven geographic regions identified in the WDI. All continuous variables are winsorized at the 1% and 99% level to mitigate the effect of outliers.

Estimation model

We used a multivariate OLS regression model to examine the moderating effect of board effectiveness on the intangibles – firm value relationship. We computed industry-clustered standard errors to control possible correlations among firms within the same industry (Rabier, 2017). To mitigate potential multicollinearity, we first mean-centered the constituents of the interaction terms (i.e., *R&D intensity*, *advertising intensity*, *board independence*, *board expertise*, *board busyness*, and *board ownership*), then used the mean-centered first-order terms to calculate the interactions (Lim & McCann, 2013; Tuggle et al., 2010).

Identification strategy

The event study methodology is built on share price changes caused by new information available in the capital market, following the announcement of a foreign acquisition in our case. The use of high-frequency stock data effectively eliminates endogeneity concerns associated with using annual performance metrics as daily stock price changes cannot endogenously affect prior firm conditions (Lin, Morck, Yeung, & Zhao, 2016), such as prior investments in R&D and advertising. Thus, our event study tests and regressions are defensibly free of endogeneity. It is also one of the reasons why prior studies have widely adopted the event study approach to examine the value-creating effect of intangibles in FDI, as “the interpretation of causality running from the possession of intangible assets to the value of international expansion is thus

ambiguous” (Morck & Yeung, 1992: 43).²⁰ Nevertheless, more generally speaking, our key independent variables, *R&D intensity* and *advertising intensity*, can be endogenous to various firm characteristics. First, some omitted variables might be correlated with both firms’ spending in R&D and marketing activities and their acquisition strategies. For example, firms whose organizational culture values innovation tend to spend more in R&D; meanwhile, they are also more likely to become acquirers (Li, Qiu, & Shen, 2018). Another concern is reverse causality, whereby firms will have fewer incentives to invest in the internal development of intangibles if they know those can be acquired externally (Phillips & Zhdanov, 2013). In this case, firms’ investments in R&D and marketing are affected by future acquisition opportunities.

To address these endogeneity issues, we employed an instrumental variable (IV) approach to extract the exogenous component of firms’ intangibles and relate it firms’ value creation of foreign acquisitions. The ideal instruments should be correlated with a firm’s investments in R&D and marketing while independent of other firm-specific factors. Following prior studies (Hu, Jefferson, & Qian, 2005; Sun, Li, & Ghosal, 2017), we used the industry averages of R&D intensity and advertising intensity. The rationale is that a firm’s R&D and advertising spending is likely to be a function of rivals’ investments in related activities due to vicarious learning (Srinivasan, Haunschild, & Grewal, 2007) and/or competitive pressures (Gu, 2016). However, the value creation of the focal firm’s foreign acquisition is unlikely to be directly affected by prior R&D and marketing investments made by peers. This argument is also consistent with Jaffe (1986), positing that proper industry variables could be useful instruments

²⁰ In comparison, studies examining the multinationality-performance relationship have mostly using accounting-based performance measures, such as return on assets or Tobin’s q (Kirca et al., 2011), which are more likely to be subject to endogeneity issues (see Verbeke & Brugman (2009) for a more comprehensive discussion).

to correct for firm-specific effects. We used the Compustat population (on the 3-digit SIC level and excluding the focal firm) to calculate the industry average values.

RESULTS

Table 1 presents descriptive statistics and correlation coefficients for the variables used in the regression models. We inspected the variance inflation factor (VIF) score for all the models estimated (all below 5) and concluded that multicollinearity does not constitute a serious problem (Kalnins, 2018).

----- Insert Table 1 here -----

Table 2 displays the IV regression models that test the hypotheses. Model 1 is the benchmark specification to test the value-creating effect of knowledge-based intangibles in the baseline hypothesis (H1). Subsequent models introduce the interaction terms between intangibles and board effectiveness measures to examine the board's moderating role in H2a – H2d.

The main results are from the second-stage regressions of the two-stage least squares estimations. For the first stage, we present only the results on the two instrumental variables for parsimony reasons. As expected, R&D and advertising spending by industry peers significantly ($p < 0.001$) and positively ($b = 0.439$ and 0.248) predict our key and potentially endogenous variables of *R&D intensity* and *advertising intensity*, respectively. We also checked the validity of our instruments and the strength of our IV-based identification strategy based on commonly used test statistics. First, the Cragg and Donald (1993)'s F -statistic is used to test weak instruments where the null hypothesis is that the instruments are excludable from the first-stage regressions. The test statistics for all the models are well above the critical value of 10 (Favara & Imbs, 2015). The second diagnostic tool is based on a Lagrange-Multiplier test for under-identification using the Kleibergen and Paap rk statistic, and the p -values are all below the 5%

significance level. Hence, we believe that our industry-based instruments for intangibles help alleviate the endogeneity concerns, and the IV procedures provide reliable estimates.

----- Insert Table 2 here -----

Results of the main effect of intangibles

In Model 1, we enter the two main independent variables of *R&D intensity* and *advertising intensity*. H1 predicts a positive relationship between intangibles and value creation in foreign acquisitions. We find support for this hypothesis where the instrumented *R&D intensity*, and to a lesser extent *advertising intensity*, is positively and significantly associated with the 3-day *CAR* ($b = 0.162, p = 0.027$; $b = 0.237, p = 0.069$, respectively). These results are consistent with internalization theory, indicating that firms possessing a higher level of technological and marketing intangibles are more likely to generate above-average returns in their foreign acquisitions due to efficiency gains of exploiting these knowledge assets abroad.

Results of the moderating effect of board effectiveness

Models 2 to 5 report the results of moderated regression models examining the contingency role of board governance in the intangibles – firm value relationship. We find partial support to H2a to H2d, suggesting that the value-creating effects of R&D- and advertising-based intangibles are materially increased when combined with a more effective board in carrying out its monitoring and advising duties. Specifically, the positive effect of *R&D intensity* on *CAR* becomes stronger when the board is more independent (H2a, Model 2, $b = 0.176, p = 0.014$), when there are more directors with foreign expertise (H2b, Model 3, $b = 0.884, p = 0.001$), and when directors have higher financial stakes in the company (H2d, Model 5, $b = 0.372, p = 0.030$). These effects are also economically substantive. If *board independence*, *board expertise*, or *board ownership* increases by one standard deviation (0.19, 0.05, and 0.12, respectively), the

marginal effect of a one percent increase in *R&D intensity* on *CAR* is 0.03%, 0.04%, and 0.04%, which represents 0.75, 1, and 1 of one-standard-deviation increase from the average *CAR*. For *board busyness* (H2c), the moderating effect is negative as predicted but not significant at the conventional levels (Model 4, $b = -0.099$; $p = 0.691$).

As for the relationship between *advertising intensity* and *CAR*, our analyses show that *board busyness* is a negative and significant boundary condition (Model 4, $b = -0.598$; $p = 0.042$), supporting H2c and implying that a board characterized by inadequate attention from directors hampers the firm's ability to profitably exploit its marketing intangibles abroad. Examination of the practical magnitude of this moderator also confirms its economic significance. Specifically, if *board busyness* increases by one standard deviation (0.18), *CAR* decreases by 0.11% (i.e., more than two standard deviations) with a one percent increase in *advertising intensity*. We do not find support for the moderating role of other board qualities (i.e., *board independence*, *board expertise*, and *board ownership*), which suggest the difficulties and challenges facing directors in effectively monitoring and advising marketing activities when firms internationalize.

In Model 6, we jointly test the moderating effects of all the board effectiveness measures. Several interesting results are worth noticing. First, the moderating effect of *board ownership* becomes smaller in terms of both magnitude (effect size changed from $b = 0.372$ to $b = 0.346$) and statistical significance (changed from $p = 0.030$ to $p = 0.063$). These changes indicate that after controlling for directors' *ability* to be an effective monitor and resource provider, the *motivational* impetus of equity ownership becomes less important in addressing governance challenges associated with exploiting intangibles in FDI. Second, the moderating effect of *board independence* also decreases in the full model (effect size changed from $b = 0.176$ to $b = 0.158$,

significance changed from $p = 0.014$ to $p = 0.049$), suggesting that directors' ability to be objective becomes less prominent when their abilities to comprehend the strategic issues at hand and to devote the requisite time and attention are accounted for. This finding is also consistent with Hambrick et al., who argue that even though independence is an important quality for an effective overseer, its explanatory power is limited on "the director's acumen, availability, and eagerness to engage in the challenging task of monitoring on behalf of shareholders" (2015: 331). In comparison, the moderating effects of both *board expertise* and *board busyness* become stronger (from $b = 0.884$ and -0.596 to $b = 1.113$ and -0.659 , respectively) and more significant (from $p = 0.001$ and 0.042 to $p = 0.000$, and 0.025 , respectively). These results imply that directors' deep knowledge and understanding of foreign operations and their lessened time constraints for the lack of competing demands from other directorship positions play a vital role in overcoming governance barriers of organizing the internalized market for intangibles.

Supplemental analyses

One concern about our main analyses is that a firm's board effectiveness is also endogenously determined. First, a firm may adjust its governance structure following its foreign investments (Sanders & Carpenter, 1998), affecting both the propensity and the value creation potential of its subsequent internationalization moves (Masulis et al., 2012; Tihanyi, Johnson, Hoskisson, & Hitt, 2003). Second, past research has highlighted the essential role of the board in knowledge activities, where firms use various governance tools to induce innovation or to incentivize investments in intangibles-development activities (Belloc, 2012; Chung et al., 2003; Iyer et al., 2020). As a result, one may argue that some unobserved firm characteristics drive both the board effectiveness and the spending on R&D and marketing, leading to a spurious correlation between board effectiveness and intangibles' value-creating effect in foreign

acquisitions. If this were true, board effectiveness should have a direct effect on firm value in foreign acquisitions. However, as shown in Table 2, none of the board effectiveness measures directly affects acquirer abnormal return (except for *board ownership*, where the main effect on *CAR* becomes significant after adding the interaction terms with R&D and advertising intensity in Models 5 and 6). These results are consistent with prior research showing that governance measures are not significantly correlated with current or future stock market performance in an efficient market as such information is already incorporated in the stock price (Bhagat & Bolton, 2013). Instead, the significant interactive effects support our hypothesized mechanism that board effectiveness increases firm value in FDI by reducing governance hazards and enhancing the efficient use of knowledge-based intangibles across borders.

Nevertheless, we checked the robustness of our results by instrumenting also for board effectiveness. The instrumental variable we used for each measure is the average value of all the other sample firms (i.e., other U.S. public firms that made a foreign acquisition) in the same year. We constructed the instruments in this way instead of using the industry average values (as with the IVs of R&D and marketing intangibles) because firms engaged in foreign acquisitions may be inherently different from their non-acquiring peers in terms of their board structures.²¹ Our instruments are also in line with prior studies showing that board characteristics are essential predictors of firms' acquisitive and international moves (Chen et al., 2016; Tihanyi et al., 2003). The results of regression models with instrumented intangibles and instrumented board effectiveness are presented in Table 3.

²¹ We also experimented with using the industry averages of the four board effectiveness measures as the instruments and they failed to pass the underidentification test and the weak instrument test, suggesting that these industry-based measures do not serve as strong instruments and using them may lead to unreliable estimates.

First, both the first-stage F -statistic and the under-identification test confirm the validity and strengths of the instruments. Second, the results of the moderating effects are largely similar, with regards to both the effect size and the significance level, to those where only intangibles are instrumented (in Table 2). Thus, we concluded that moderating effects found in the main analyses are unlikely to be endogenously driven by intangibles' correlation with unobserved firm characteristics. However, there is one major difference between Table 2 and Table 3. The main effect of *board ownership* becomes insignificant in the moderated models (Model 4 in Table 3). More importantly, its moderating effect on the relationship between R&D intensity and firm value also becomes slightly smaller (from $b = 0.372$ to $b = 0.352$) and less significant (from $p = 0.030$ to $p = 0.053$). These results suggest that directors' shareholding may be endogenous to firms' intangibles- and acquisition-related decisions. Given that public companies generally require their board members to own the stock within a certain time frame (Hambrick et al., 2015), directors with stock ownership may have more incentives to provide effective oversight and expertise to improve managers' decision-making of long-term-oriented R&D/marketing and acquisition strategies and maximize their future personal wealth.

----- Insert Table 3 here -----

Another endogeneity concern of the baseline relationship between intangibles and firm value in cross-border M&A is that intangibles not only affect value creation in foreign acquisitions but also determine firms' decisions to engage in foreign acquisitions in the first place. Indeed, internalization theory was initially developed to explain why firms engage in FDI (Buckley & Casson, 1976; Rugman & Verbeke, 2003). Besides, some unobserved factors may influence both the decision and the gains of firms' foreign acquisitions. For example, our first robustness check has shown that acquirers are different from their non-acquiring peers regarding

their board effectiveness. We implemented a Heckman two-step approach to alleviate the potential selection bias (Certo, Busenbark, Woo, & Semadeni, 2016). In the first step, we modeled the foreign acquisition decision with a discrete choice model. In the second step, we included the inverse Mills' ratio produced from the first step to correct for the self-selection problem. We used the number of prior acquisitions by other firms in the same industry (on the 3-digit SIC level) for the past three years (*prior deals_{3years}*) as the exclusion restriction for two reasons. Theoretically speaking, research on vicarious learning suggests that others' foreign acquisition experience may increase the focal firm's likelihood to undertake subsequent cross-border M&A deals (Yang & Hyland, 2012). However, it is unlikely that peers' prior experience with foreign acquisitions will directly affect the focal acquisition's value creation, especially after controlling for relevant firm and deal characteristics. Our reasoning also receives some empirical support. In a set of analyses (not reported), we regressed *CAR* on *prior deals_{3years}* with other controls, and the coefficient of *prior deals_{3years}* is never significant. Therefore, we believe that *prior deals_{3years}* serves as a valid exclusion restriction to address the potential selection problem. Table 4 reports the results of the Heckman models.

----- Insert Table 4 here -----

The main results are from the second-step regressions of the Heckman model. For the first step, we present only the results of the exclusion restriction. As expected, *prior deals_{3years}* is positively and significantly associated with the focal firm's probability of undertaking a foreign acquisition ($p < 0.001$). We constructed the inverse Mills' ratio from the first-step regressions and included it as an additional regressor in the second-step equations. As shown, the coefficient of inverse Mills' ratio is insignificant for all the models suggesting that the decision to engage in a foreign acquisition does not necessarily correlate with its value creation. It is in line with prior

studies showing that managers may engage in foreign acquisitions for reasons other than value maximization (Seth et al., 2000; Seth et al., 2002). What is more, our estimates of the main effect of intangibles and the moderating effect of board effectiveness on acquirer abnormal returns remain the same, suggesting that the hypothesized relationship between intangibles and firm value in FDI is not plagued by the selection problem.

In addition to the robustness checks above dealing with endogeneity concerns, we also did a series of supplementary analyses to verify that it is the combination of the internal use of intangibles via cross-border M&As and the existence of an effective board of directors that explains the results. For this purpose, we examined whether the moderating effect of board effectiveness varies under different conditions that alter firms' incentives and abilities to exploit intangibles abroad after their foreign acquisitions.

First, firms may engage in FDI not to transfer their home-developed intangibles in a foreign market but rather acquire knowledge assets from abroad (Dunning, 1980; Zhou & Guillén, 2015). We expect foreign acquisitions in more R&D intensive countries to be knowledge-seeking, whereas investments in countries characterized by low R&D resource munificence are likely to transfer firms' proprietary technological knowledge abroad. Following the internalization logic, the performance effect of acquirers' intangibles and the moderating effect of board effectiveness are more likely to be present in the latter knowledge-exploiting group. In a series of analyses not reported, we find that both the main effect of R&D intangibles and the moderating effect of board effectiveness become stronger in countries that are less R&D intensive compared to the U.S. (based on the R&D expenditure data from the WDI database). In contrast, these effects are no longer significant in the high R&D countries subsample.

Second, the value-creating potential of intangibles also depends on the extent to which they can be readily used by the foreign target. We expect our arguments to be especially relevant to horizontal acquisitions where intangibles from the acquiring firm are also applicable to the target due to the similarities in their businesses (Caves, 1996). In the analyses not reported, we found that the effect size of R&D intensity increases in horizontal deals. Also, the positive performance effect of R&D-based intangibles is further amplified with a greater level of independence, more experienced directors, and higher director stock ownership. On the contrary, for non-horizontal deals, we fail to find a consistent effect of intangibles on firm value or a significant moderating effect of board effectiveness, except for board busyness being a negative moderator of the *advertising intensity* – *CAR* relationship.

DISCUSSION AND CONCLUSION

Drawing upon insights from the corporate governance literature and the internalization literature, we theorize that board effectiveness, being a critical mechanism to mitigate governance challenges arising from managerial bounded rationality and bounded reliability, is an essential boundary condition for the value-creating effect of knowledge-based intangibles in FDI. Using a sample of cross-border M&As by U.S. public firms, we first show that both R&D intensity and advertising intensity are positively associated with acquirers' abnormal returns in foreign acquisitions. This finding is consistent with the internalization prediction, where FDI avoids misappropriations that may occur when transferring knowledge assets abroad through a market mechanism and result in efficiency gains. Moreover, we find strong support for the moderating role of board effectiveness. In particular, our results show that board independence, board expertise, and board ownership all amplify the value-creating benefits of R&D-based technological intangibles in foreign acquisitions. In contrast, board busyness negatively

moderates the relationship between advertising-based marketing intangibles and firm value. Our results are robust to various specifications dealing with multiple endogeneity concerns, including (1) an instrumental variable approach for both intangibles and board effectiveness and (2) a Heckman two-step model to account for the decision of foreign acquisition. Supplementary analyses further illustrate that the valuation effect of intangibles, R&D intangibles in particular, and the moderating effect of board effectiveness is more pronounced in (1) acquisitions of targets from less R&D intensive countries and (2) horizontal acquisitions. In both scenarios, firms are more likely to transfer and exploit their internally developed intangibles abroad and face greater governance hazards in organizing an internal market for intangibles.

Research implications

This research was motivated by the recent criticism of internalization theory, whereby extant internalization research has focused predominantly on external transaction costs, while internal governance has not been sufficiently accounted for (Buckley, 2016; Buckley & Strange, 2011). This study explores the sources of internal transaction costs that prevent MNEs from exploiting their FSAs efficiently within the internalization framework. By taking into account two behavioral assumptions of managers' decision making (Kano & Verbeke, 2015, 2019; Verbeke & Greidanus, 2009), we revisit internalization theory and demonstrate the role of the board of directors in overseeing and advising boundedly rational and boundedly reliable managers, thus moderating the value-creating effect of knowledge-based intangibles in FDI. The new contingency model provides a fuller picture to understand the value-enhancing role of intangible assets, which has important theoretical implications.

First, even though it is widely agreed that FDI is a firm's internal substitute for the failure-prone external diffusion of proprietary knowledge (Buckley & Casson, 1976; Buckley &

Casson, 2009), firms do not function as an approximation to a perfect market. Instead, multiple inherent problems due to managerial bounded rationality and bounded reliability, such as the limited information processing capacity of managers as well as their potential self-serving behaviors, tend to be exaggerated, making the internal organization of intangibles costly and inefficient (Buckley & Strange, 2011; Filatotchev & Wright, 2011). Hence, the existence of external transaction costs *per se* is insufficient to explain the internalization decision or its value creation (Rugman & Verbeke, 2008). Essentially, internalization theory is based on a comparative institutional analysis, where firms will choose and retain comparatively more efficient governance mechanisms to deploy, exploit, and augment FSAs across borders (Kano & Verbeke, 2019; Narula & Verbeke, 2015). The scant attention paid to challenges of managing the internal market has thus limited our understanding of why firms fail to create value through the internalization of FSAs. By considering board effectiveness in fulfilling its supervisory and advisory functions, our study clarifies how internal governance efficiency facilitates the value creation of intangibles in FDI.

Second, our study extends the inquiry of how corporate actors affect firms' internationalization and sheds light on the role of the board in understanding the performance implications of firms' FDI (Aguilera et al., 2019; Aharoni, Tihanyi, & Connelly, 2011). Past studies have offered valuable insights on how managers' preferences, ability, and motivation shape firms' strategic decision-making when going abroad (Buckley, Chen, Clegg, & Voss, 2018; Elia et al., 2019; Tihanyi et al., 2003). However, given the increased difficulties in information processing and coordination and the heightened conflicts of interests between managers and shareholders (Buckley & Strange, 2011), whether and under what conditions international moves increase firm value is less clear. Drawing upon the corporate governance

literature to complement the discussion on governance costs in internalization theory, we theorize and demonstrate how the board effectiveness affects the extent to which knowledge-based intangibles contribute to value creation in FDI. By showing the relevance of the quad model of the board in the context of knowledge management and international strategy, the contingency effects identified also informs how MNEs can restructure their boards along the various dimensions to establish a favorable governance context for FSAs and achieve superior value creation in its entirety.

Third, our study explicates the related yet distinct roles of R&D-based technological and advertising-based marketing intangibles. First, we find that the value-creating effect of R&D intensity in FDI is stronger than that of advertising intensity, supporting the argument that marketing expertise in the home country is less likely to be immediately transferable to foreign markets than technological advantages (Morck & Yeung, 1992). What is more, our analyses of the moderating effect further reveal that when firms possessing significant R&D intangibles engage in foreign acquisitions, they achieve higher returns if their directors are more independent, more experienced in foreign operations, and more motivated to exert themselves on behalf of shareholders. These findings demonstrate the sensitivity of innovative activities and their leverage in international strategies to appropriate corporate governance. As such, we extend the literature on knowledge management by highlighting the essential role of the board in technology-based corporate development activities. On the contrary, our results also show that for a board characterized by more busy directors holding multiple board seats, its ability to effectively monitor and advise management is greatly impaired, reducing the value creation potential of firm-specific marketing capabilities. This finding suggests that to optimize locally sensitive marketing investments given the divergent customers' characteristics and preferences,

directors need to devote sufficient time, attention, and energy to scrutinize and analyze decision-relevant information (Fastoso & Whitelock, 2010). Taken together, our results confirm the critical distinction between location-bounded FSAs (such as R&D) versus non-location-bounded FSAs (such as marketing) (Rugman & Verbeke, 2001; Verbeke & Kano, 2016). The contingency model offers new insights on how an effective board may facilitate the global transferability and profitable exploitation of FSAs with varying degrees of location-boundedness.

Our findings also have important practical implications. When deciding whether to engage in FDI, MNE managers not only need to carefully assess the extent to which their FSAs developed in the home country can be transferred and exploited in the foreign markets, it is also imperative that they consider the information and coordination challenges when managing these knowledge assets across borders. Our analyses suggest that the board of directors serves as an essential governance mechanism to address potential governance failures and assist managerial decision-making, thus facilitating the value creation of internalizing intangibles.

Limitations and future research

This study also has limitations that open avenues for future research. First, our sample is limited to U.S. public firms. Using U.S. firms is consistent with the traditional internalization argument where firms transfer abroad advanced intangibles developed in the home market, which is also supported in our supplemental analysis comparing foreign acquisitions of targets from more R&D intensive versus less R&D intensive countries. However, U.S. MNEs and other MNEs following the Anglo-American corporate governance model, in general, have a relatively high level of governance quality. In contrast, their counterparts based in other countries, especially those from emerging economies, are more likely to suffer from governance failures. In some cases, the associated governance inefficiency might be so substantial that an internalization

strategy turns out to be value-destroying. Thus, it would be interesting for future research to investigate whether and how emerging economies MNEs manage to benefit from internalizing their intangibles. For example, future research could consider how context-specific sources of either governance costs, such as principal-principal conflicts, or governance mechanisms, such as business group affiliation, may influence the cross-border exploitation of knowledge-based intangibles and their value-creating effect in FDI. Second, we used a short-term event study to examine firm value creation via foreign acquisitions, which assumes the informational efficiency of the stock market. Given the U.S. sample, we believe that the efficient market hypothesis generally holds. Besides, the short-term approach is not subject to the methodological concerns that long-term stock return studies raise (Kothari & Warner, 2007). Nevertheless, it would be helpful to use long-term performance measures – whether stock market-based or of an accounting nature – to supplement this paper’s findings. Third, we followed prior studies in the internalization literature and measured technological and marketing intangibles using R&D and advertising intensity. However, corporate knowledge is being increasingly codified (Contractor et al., 2016). As a result, technological know-how and marketing expertise that used to be embedded in the experience and routines of engineers or managers are now written down in documents or articulated in management systems. While R&D and advertising spendings serve as a decent indicator of firms’ overall knowledge activities, they cannot distinguish the firm’s tacit versus explicit proprietary knowledge. Thus, future studies could use more refined measures of intangibles, such as patents, to shed light on the strategic and performance implications of firms’ knowledge assets. Lastly, we focused on the opportunistic aspect of managerial bounded reliability as prior studies have consistently shown and highlighted its value-deteriorating effect in both intangible-related activities and firms’ internationalization (Dalton et al., 2007; Lim &

McCann, 2013; Seth et al., 2002). However, recent studies have argued that bounded reliability may also reflect managers' benevolent preference reversal or identity-based discordance (Kano & Verbeke, 2015, 2019), which may also drive managers' commitment failure when implementing an internalization strategy. For example, organizational changes after FDI may make managers deviate from efforts to facilitate internal knowledge flow. Thus, we encourage scholars to build on these new theoretical developments and further investigate the board of directors' role in addressing other types of bounded reliability.

In conclusion, this study revisits the internalization theory by examining the essential yet often neglected role of internal governance. We theorize and test the moderating effect of board effectiveness, along four dimensions of independence, expertise, bandwidth, and ownership, on the relationship between knowledge-based intangibles and value creation in FDI. The contingency model helps us gain a more comprehensive understanding of the mechanisms through which an internalization strategy leveraging intangibles increases firm value. Our findings also highlight the governance tools that firms can focus on to maximize the value creation of their knowledge assets.

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Table 1. Descriptive statistics and correlations

Variables	Mean	SD	Min.	Max.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
(1) CAR [-1,+1]	0.00	0.04	-0.24	0.45																	
(2) R&D intensity	0.04	0.05	0.00	0.22	-0.01																
(3) Advertising intensity	0.01	0.02	0.00	0.12	0.01	0.03															
(4) R&D intensity _{ind average}	0.04	0.04	0.00	0.18	0.00	0.57*	-0.06*														
(5) Advertising intensity _{ind average}	0.01	0.02	0.00	0.24	0.02	-0.06*	0.46*	-0.13*													
(6) Board independence	0.99	0.19	0.72	1.47	0.02	0.06*	0.05*	0.06*	0.04*												
(7) Board expertise	0.02	0.05	0.00	0.25	-0.02	0.00	-0.06*	-0.06*	-0.06*	-0.12*											
(8) Board busyness	0.17	0.18	0.00	0.75	-0.03	-0.10*	0.08*	-0.14*	0.05*	-0.28*	-0.03										
(9) Board ownership	0.07	0.12	0.00	0.70	0.03	-0.09*	0.09*	-0.04*	0.11*	0.37*	-0.13*	-0.14*									
(10) Horizontal deal	0.42	0.49	0.00	1.00	0.02	0.13*	0.04*	0.11*	0.04*	0.06*	-0.02	-0.10*	0.02								
(11) All cash	0.36	0.48	0.00	1.00	0.03	-0.01	0.04*	0.02	-0.02	0.03	-0.05*	-0.05*	0.02	0.05*							
(12) All stock	0.01	0.12	0.00	1.00	-0.05*	0.10*	-0.02	0.06*	0.00	0.07*	-0.02	0.01	0.06*	0.00	-0.09*						
(13) Public target	0.07	0.26	0.00	1.00	-0.03	0.00	0.00	0.05*	0.00	0.00	0.00	-0.01	0.02	0.04*	0.19*	0.10*					
(14) Shares initial	0.05	0.16	0.00	0.80	0.01	-0.07*	0.05*	-0.07*	0.03	-0.06*	0.03	0.09*	0.00	0.07*	0.08*	0.01	0.08*				
(15) Friendly deal	0.98	0.15	0.00	1.00	-0.01	0.02	-0.06*	0.00	-0.05*	-0.02	0.02	-0.03	-0.05*	-0.06*	-0.05*	-0.04	-0.12*	-0.21*			
(16) Tender offer	0.04	0.20	0.00	1.00	-0.03	0.00	-0.01	0.03	0.02	0.02	-0.01	0.01	0.02	0.03	0.18*	0.06*	0.68*	0.07*	-0.09*		
(17) Firm size	8.22	1.59	4.99	11.8	-0.02	-0.07*	0.09*	-0.08*	0.04*	-0.18*	0.22*	0.38*	-0.17*	-0.05*	-0.04*	-0.05*	0.03	0.10*	-0.02	0.02	
(18) Return on assets	0.06	0.06	-0.18	0.22	0.00	0.01	0.18*	0.04*	0.10*	-0.03	0.05*	0.09*	-0.03	0.02	-0.04*	-0.03	-0.02	-0.03	-0.02	-0.02	0.01
(19) Tobin's q	2.29	1.51	0.91	10.3	-0.03	0.30*	0.23*	0.24*	0.13*	0.13*	-0.06*	0.03	0.15*	0.10*	0.00	0.23*	0.00	-0.03	-0.03	-0.03	0.00
(20) Current ratio	0.08	0.14	0.00	0.75	0.00	-0.18*	0.15*	-0.17*	0.15*	-0.11*	0.00	0.28*	-0.03	0.01	-0.02	-0.04*	-0.02	0.07*	-0.02	-0.03	
(21) Debt-equity ratio	0.31	0.31	0.00	1.80	0.03	-0.30*	-0.05*	-0.23*	0.00	0.03	0.00	0.10*	0.06*	-0.04*	0.05*	-0.05*	0.01	0.06*	-0.04*	0.02	
(22) Capital intensity	0.04	0.03	0.01	0.20	-0.01	-0.06*	0.04*	-0.07*	0.04*	0.09*	-0.04*	0.06*	0.06*	0.02	0.08*	0.03	0.06*	0.07*	-0.03	0.03	
(23) Sales growth	0.12	0.20	-0.37	0.94	0.02	-0.01	-0.02	0.02	-0.04*	0.15*	-0.08*	-0.14*	0.18*	0.04*	0.02	0.14*	0.05*	-0.06*	0.01	0.04*	
(24) Board size	2.24	0.25	1.61	2.77	-0.02	-0.19*	0.11*	-0.17*	0.09*	-0.09*	0.13*	0.35*	-0.09*	-0.04*	-0.01	-0.04*	0.01	0.12*	-0.02	0.01	
(25) Board age	4.10	0.07	3.88	4.23	-0.02	-0.11*	-0.11*	-0.11*	-0.07*	-0.16*	0.08*	0.13*	-0.21*	-0.06*	-0.05*	-0.11*	-0.01	-0.01	-0.01	-0.02	
(26) % of female directors	0.12	0.09	0.00	0.36	0.00	0.05*	0.13*	-0.03	0.10*	-0.21*	0.14*	0.23*	-0.15*	0.01	-0.08*	-0.04*	-0.02	0.03	0.00	-0.03	
(27) Population	17.6	1.3	15.1	21.0	0.02	-0.08*	0.02	-0.07*	0.02	-0.07*	0.03	0.06*	-0.03	-0.01	0.00	-0.01	-0.04*	0.14*	0.01	-0.05*	
(28) GDP per capita	10.2	0.9	6.9	11.3	-0.03	0.12*	-0.06*	0.09*	-0.07*	0.05*	-0.03	-0.11*	-0.04*	-0.06*	-0.02	0.03	0.02	-0.22*	0.03	0.03	
(29) Patent	620	587	15	3308	0.00	0.06*	0.00	0.04*	-0.04*	0.00	-0.05*	-0.02	-0.03	0.00	0.03	0.02	0.11*	0.02	-0.04*	0.05*	
(30) Resource rent	0.02	0.03	0.00	0.16	-0.01	-0.12*	0.04*	-0.12*	0.06*	-0.04*	0.04*	-0.02	-0.01	0.05*	0.01	-0.03	0.05*	0.04*	-0.02	0.03	

Table 1. Continued

Variables	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
(18) Return on assets	0.15*												
(19) Tobin's q	-0.03	0.43*											
(20) Current ratio	0.25*	0.04*	0.01										
(21) Debt-equity ratio	0.08*	-0.21*	-0.16*	0.36*									
(22) Capital intensity	0.00	0.05*	0.09*	0.08*	0.14*								
(23) Sales growth	-0.07*	0.06*	0.29*	-0.05*	0.13*								
(24) Board size	0.57*	0.06*	-0.10*	0.24*	0.10*	0.05*	-0.13*						
(25) Board age	0.17*	0.03	-0.26*	0.09*	0.03	-0.13*	-0.24*	0.19*					
(26) % of female directors	0.45*	0.10*	0.02	0.11*	-0.06*	-0.09*	-0.18*	0.33*	0.05*				
(27) Population	0.04*	-0.08*	-0.07*	0.02	0.02	-0.01	-0.06*	0.07*	0.03	0.04*			
(28) GDP per capita	-0.08*	0.07*	0.04*	-0.10*	-0.10*	-0.07*	0.06*	-0.13*	-0.02	-0.05*	-0.64*		
(29) Patent	-0.04*	0.02	0.04	-0.05*	-0.07*	0.06*	0.08*	-0.08*	-0.07*	-0.03	-0.23*	0.36*	
(30) Resource rent	0.07*	0.03	-0.04*	0.05*	0.02	0.03	-0.03	0.05*	0.10*	0.02	0.15*	-0.34*	-0.02

N = 3,054. * = significant at the 5% level

Table 2. Moderating effect of board effectiveness on the intangibles-firm value relationship: IV for intangibles

Second-stage regressions	(1)	(2)	(3)	(4)	(5)	(6)
DV: CAR [-1,+1]	Baseline	Independence	Expertise	Busyness	Motivation	Full
R&D intensity	0.162* (0.071) [0.027]	0.163* (0.070) [0.024]	0.166* (0.072) [0.025]	0.152* (0.073) [0.042]	0.169* (0.069) [0.018]	0.162* (0.073) [0.033]
Advertising intensity	0.237+ (0.128) [0.069]	0.253* (0.126) [0.050]	0.213+ (0.126) [0.096]	0.305* (0.133) [0.026]	0.231+ (0.131) [0.084]	0.297* (0.130) [0.027]
Board independence	-0.105 (0.301) [0.728]	-0.100 (0.281) [0.725]	-0.153 (0.295) [0.606]	-0.107 (0.291) [0.716]	-0.072 (0.308) [0.816]	-0.136 (0.278) [0.628]
Board expertise	-0.544 (1.101) [0.624]	-0.692 (1.095) [0.530]	-0.800 (1.493) [0.595]	-0.529 (1.249) [0.674]	-0.612 (1.109) [0.584]	-0.846 (1.500) [0.576]
Board busyness	-0.109 (0.516) [0.833]	-0.094 (0.513) [0.856]	-0.089 (0.499) [0.859]	-0.224 (0.545) [0.682]	-0.096 (0.507) [0.851]	-0.110 (0.533) [0.838]
Board ownership	1.039 (0.737) [0.165]	1.134 (0.739) [0.131]	1.061 (0.733) [0.155]	0.887 (0.740) [0.236]	1.469+ (0.733) [0.051]	1.450* (0.712) [0.047]
R&D intensity * Board independence		0.176* (0.069) [0.014]				0.158* (0.078) [0.049]
Advertising intensity * Board independence		0.073 (0.218) [0.739]				0.018 (0.175) [0.917]
R&D intensity * Board expertise			0.884* (0.260) [0.001]			1.113** (0.292) [0.000]
Advertising intensity * Board expertise			-0.243 (1.266) [0.849]			-0.134 (1.310) [0.919]
R&D intensity * Board busyness				-0.099 (0.249) [0.691]		0.024 (0.255) [0.925]
Advertising intensity * Board busyness				-0.598* (0.286) [0.042]		-0.659* (0.284) [0.025]
R&D intensity * Board ownership					0.372* (0.166) [0.030]	0.346+ (0.182) [0.063]
Advertising intensity * Board ownership					-0.081 (0.307) [0.792]	-0.275 (0.280) [0.330]
Horizontal deal	0.078 (0.125) [0.536]	0.072 (0.125) [0.565]	0.065 (0.127) [0.612]	0.100 (0.121) [0.416]	0.074 (0.126) [0.558]	0.087 (0.129) [0.506]
All cash	0.136 (0.182) [0.459]	0.138 (0.182) [0.453]	0.143 (0.182) [0.437]	0.146 (0.187) [0.440]	0.144 (0.180) [0.430]	0.160 (0.184) [0.388]
All stock	-1.261 (0.913) [0.174]	-1.384 (0.889) [0.126]	-1.242 (0.938) [0.192]	-1.208 (0.926) [0.198]	-1.421+ (0.820) [0.090]	-1.476+ (0.874) [0.098]
Public target	-0.109 (0.621) [0.861]	-0.111 (0.618) [0.858]	-0.111 (0.619) [0.858]	-0.109 (0.616) [0.861]	-0.086 (0.622) [0.891]	-0.094 (0.606) [0.877]
Shares initial	0.156 (0.413) [0.708]	0.171 (0.415) [0.682]	0.172 (0.410) [0.676]	0.145 (0.403) [0.720]	0.191 (0.422) [0.652]	0.224 (0.403) [0.580]
Friendly deal	-0.269 (0.634) [0.674]	-0.265 (0.618) [0.670]	-0.273 (0.624) [0.664]	-0.257 (0.623) [0.682]	-0.274 (0.618) [0.659]	-0.294 (0.592) [0.621]
Tender offer	-0.640 (0.812) [0.435]	-0.642 (0.802) [0.427]	-0.636 (0.804) [0.433]	-0.667 (0.800) [0.409]	-0.652 (0.812) [0.426]	-0.679 (0.780) [0.388]

Table 2 (continued)

Firm size	-0.078 (0.066) [0.237]	-0.081 (0.065) [0.213]	-0.075 (0.063) [0.236]	-0.063 (0.058) [0.276]	-0.078 (0.061) [0.209]	-0.071 (0.054) [0.200]
Return on assets	3.416+ (1.828) [0.068]	3.579+ (1.939) [0.071]	3.352+ (1.823) [0.072]	3.279+ (1.870) [0.086]	3.735+ (2.008) [0.069]	3.356 (2.104) [0.117]
Tobin's q	-0.325* (0.139) [0.023]	-0.342* (0.141) [0.019]	-0.311* (0.140) [0.031]	-0.302* (0.139) [0.035]	-0.341* (0.151) [0.029]	-0.303* (0.151) [0.050]
Current ratio	-0.156 (0.703) [0.825]	-0.206 (0.703) [0.771]	-0.155 (0.714) [0.830]	-0.106 (0.715) [0.883]	-0.147 (0.690) [0.832]	-0.120 (0.733) [0.870]
Debt-equity ratio	1.054* (0.382) [0.008]	1.116* (0.363) [0.003]	1.037* (0.374) [0.008]	1.090* (0.364) [0.004]	1.061* (0.369) [0.006]	1.096* (0.341) [0.002]
Capital intensity	-4.727 (3.343) [0.164]	-4.796 (3.345) [0.158]	-4.511 (3.308) [0.179]	-4.508 (3.388) [0.190]	-4.966 (3.349) [0.145]	-4.650 (3.360) [0.173]
Sales growth	1.008+ (0.556) [0.076]	1.061+ (0.550) [0.060]	0.967+ (0.557) [0.089]	1.007+ (0.537) [0.067]	0.919 (0.558) [0.106]	0.898 (0.551) [0.110]
Board size	-0.038 (0.531) [0.944]	-0.001 (0.533) [0.998]	-0.018 (0.540) [0.973]	-0.040 (0.523) [0.939]	-0.001 (0.527) [0.999]	0.046 (0.541) [0.932]
Board age	-0.431 (0.958) [0.655]	-0.362 (0.924) [0.697]	-0.586 (0.992) [0.557]	-0.191 (1.020) [0.852]	-0.429 (0.991) [0.667]	-0.258 (1.087) [0.813]
% of female directors	0.113 (1.313) [0.932]	0.046 (1.326) [0.972]	0.075 (1.338) [0.955]	-0.032 (1.209) [0.979]	0.103 (1.322) [0.938]	-0.116 (1.267) [0.928]
Population	0.067 (0.091) [0.464]	0.065 (0.094) [0.493]	0.073 (0.091) [0.425]	0.062 (0.094) [0.514]	0.059 (0.091) [0.522]	0.059 (0.094) [0.536]
GDP per capita	-0.198 (0.120) [0.105]	-0.198 (0.121) [0.109]	-0.196 (0.120) [0.109]	-0.215+ (0.127) [0.097]	-0.207+ (0.119) [0.088]	-0.211 (0.126) [0.102]
Patents	0.000 (0.000) [0.270]	0.000 (0.000) [0.276]	0.000 (0.000) [0.245]	0.000 (0.000) [0.314]	0.000 (0.000) [0.274]	0.000 (0.000) [0.295]
Resource rent	-0.032 (0.036) [0.377]	-0.031 (0.036) [0.384]	-0.030 (0.036) [0.405]	-0.033 (0.034) [0.336]	-0.033 (0.035) [0.349]	-0.032 (0.032) [0.324]
Year/Industry/Region fixed effects	Included	Included	Included	Included	Included	Included
Observations	3,054	3,054	3,054	3,054	3,054	3,054
First-stage regressions	(1)	(2)	(3)	(4)	(5)	(6)
DV: R&D intensity	Intangibles	Independence	Expertise	Busyness	Motivation	Full
R&D intensity _{ind average}	0.439** (0.082) [0.000]	0.436** (0.078) [0.000]	0.436** (0.081) [0.000]	0.433** (0.073) [0.000]	0.430** (0.087) [0.000]	0.414** (0.075) [0.000]
Advertising intensity _{ind average}	0.047 (0.080) [0.551]	0.053 (0.084) [0.524]	0.054 (0.081) [0.508]	0.033 (0.072) [0.650]	0.051 (0.080) [0.521]	0.050 (0.078) [0.525]
DV: Advertising intensity						
R&D intensity _{ind average}	-0.010 (0.021) [0.644]	-0.007 (0.022) [0.743]	-0.008 (0.020) [0.685]	-0.005 (0.018) [0.779]	-0.006 (0.021) [0.777]	0.003 (0.016) [0.840]
Advertising intensity _{ind average}	0.248** (0.061) [0.000]	0.253** (0.062) [0.000]	0.241** (0.056) [0.000]	0.233** (0.061) [0.000]	0.245** (0.065) [0.000]	0.220** (0.058) [0.000]
Other variables in the 2nd stage	Included	Included	Included	Included	Included	Included
First-stage <i>F</i> statistic	91.77	95.86	89.47	80.59	92.87	77.30
Underidentification test	0.029	0.029	0.024	0.012	0.038	0.013

The first-stage *F*-statistic is the Cragg and Donald's (1993) statistic, test statistics are reported

The underidentification test is based on the Kleibergen-Paap rk LM statistic, p-values are reported

Industry-clustered standard errors in parentheses. P-values in square brackets. ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$ for two-tailed tests

Table 3. Moderating effect of board effectiveness on the intangibles-firm value relationship: IV for intangibles & board

Second-stage regressions	(1)	(2)	(3)	(4)	(5)
DV: CAR [-1,+1]	Independence	Expertise	Busyness	Motivation	Full
R&D intensity	0.164* (0.070) [0.024]	0.165* (0.072) [0.026]	0.150* (0.074) [0.049]	0.168* (0.069) [0.018]	0.157* (0.075) [0.042]
Advertising intensity	0.253* (0.125) [0.050]	0.206 (0.130) [0.121]	0.306* (0.133) [0.026]	0.235+ (0.129) [0.074]	0.296* (0.130) [0.028]
Board independence	-0.001 (0.003) [0.655]	-0.002 (0.003) [0.579]	-0.001 (0.003) [0.688]	-0.000 (0.004) [0.994]	-0.002 (0.003) [0.586]
Board expertise	-0.007 (0.011) [0.532]	-0.017 (0.018) [0.369]	-0.005 (0.013) [0.670]	-0.006 (0.011) [0.571]	-0.017 (0.017) [0.340]
Board busyness	-0.001 (0.005) [0.849]	-0.001 (0.005) [0.842]	-0.003 (0.005) [0.572]	-0.001 (0.005) [0.833]	-0.003 (0.005) [0.618]
Board ownership	0.012 (0.007) [0.107]	0.010 (0.007) [0.158]	0.009 (0.007) [0.239]	0.010 (0.012) [0.394]	0.010 (0.010) [0.349]
R&D intensity * Board independence	0.176* (0.069) [0.014]				0.159* (0.078) [0.047]
Advertising intensity * Board independence	0.072 (0.216) [0.741]				0.006 (0.168) [0.970]
R&D intensity * Board expertise		0.884* (0.272) [0.002]			1.104** (0.312) [0.001]
Advertising intensity * Board expertise		-0.334 (1.228) [0.787]			-0.191 (1.266) [0.881]
R&D intensity * Board busyness			-0.103 (0.254) [0.686]		0.012 (0.258) [0.965]
Advertising intensity * Board busyness			-0.599* (0.286) [0.041]		-0.665* (0.279) [0.021]
R&D intensity * Board ownership				0.352+ (0.177) [0.053]	0.317+ (0.187) [0.097]
Advertising intensity * Board ownership				-0.068 (0.299) [0.820]	-0.254 (0.269) [0.349]
Other variables in Table 2	Included	Included	Included	Included	Included
Observations	3,054	3,054	3,054	3,054	3,054
First-stage F statistic	63.88	59.38	53.78	61.55	25.43
Underidentification test	0.028	0.024	0.012	0.039	0.014

The first-stage F-statistic is the Cragg and Donald's (1993) statistic, test statistics are reported

The underidentification test is based on the Kleibergen-Paap rk LM statistic, p-values are reported

Industry-clustered standard errors in parentheses. P-values in square brackets.

** p<0.01, * p<0.05, + p<0.1 for two-tailed tests

Table 4. Moderating effect of board effectiveness on the intangibles-firm value relationship: IV for intangibles & Heckman

Second-step regressions						
DV: CAR [-1,+1]	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Independence	Expertise	Busyness	Motivation	Full
Inverse Mills' ratio	-0.003 (0.009) [0.715]	-0.002 (0.008) [0.847]	0.001 (0.008) [0.936]	-0.005 (0.008) [0.532]	-0.000 (0.008) [0.969]	-0.005 (0.008) [0.541]
R&D intensity	0.161* (0.071) [0.029]	0.162* (0.070) [0.025]	0.167* (0.072) [0.024]	0.150* (0.073) [0.045]	0.169* (0.068) [0.017]	0.160* (0.074) [0.035]
Advertising intensity	0.240+ (0.132) [0.076]	0.253+ (0.126) [0.051]	0.213+ (0.126) [0.097]	0.306* (0.133) [0.026]	0.231+ (0.130) [0.084]	0.299* (0.130) [0.027]
Board independence	-0.001 (0.003) [0.817]	-0.001 (0.003) [0.788]	-0.002 (0.003) [0.615]	-0.001 (0.003) [0.841]	-0.001 (0.003) [0.834]	-0.001 (0.003) [0.786]
Board expertise	-0.007 (0.011) [0.531]	-0.008 (0.011) [0.490]	-0.008 (0.014) [0.579]	-0.008 (0.013) [0.559]	-0.006 (0.011) [0.580]	-0.011 (0.015) [0.452]
Board busyness	-0.001 (0.005) [0.832]	-0.001 (0.005) [0.856]	-0.001 (0.005) [0.858]	-0.002 (0.005) [0.689]	-0.001 (0.005) [0.851]	-0.001 (0.005) [0.851]
Board ownership	0.010 (0.007) [0.169]	0.011 (0.007) [0.132]	0.011 (0.007) [0.153]	0.009 (0.007) [0.244]	0.015* (0.007) [0.045]	0.014* (0.007) [0.046]
R&D intensity * Board independence		0.176* (0.069) [0.015]				0.162* (0.073) [0.032]
Advertising intensity * Board independence		0.069 (0.220) [0.756]				0.001 (0.181) [0.994]
R&D intensity * Board expertise			0.888* (0.262) [0.001]			1.091** (0.292) [0.000]
Advertising intensity * Board expertise			-0.244 (1.268) [0.848]			-0.133 (1.300) [0.919]
R&D intensity * Board busyness				-0.073 (0.241) [0.765]		0.052 (0.243) [0.831]
Advertising intensity * Board busyness				-0.591* (0.276) [0.038]		-0.654* (0.276) [0.022]
R&D intensity * Board ownership					0.372* (0.168) [0.032]	0.348+ (0.183) [0.064]
Advertising intensity * Board ownership					-0.081 (0.310) [0.795]	-0.261 (0.289) [0.372]
Other variables in Table 2	Included	Included	Included	Included	Included	Included
Observations	3,054	3,054	3,054	3,054	3,054	3,054

First-step regressions						
DV: Acquisition	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline	Independence	Expertise	Busyness	Motivation	Full
Prior acquisition _{3years}	0.114** (0.008) [0.000]	0.114** (0.008) [0.000]	0.114** (0.008) [0.000]	0.115** (0.008) [0.000]	0.114** (0.008) [0.000]	0.115** (0.008) [0.000]
Other variables in the 2nd step	Included	Included	Included	Included	Included	Included
Observations	17,674	17,674	17,674	17,674	17,674	17,674

Two-step consistent standard errors in parentheses. P-values in square brackets

** p<0.01, * p<0.05, + p<0.1 for two-tailed tests

CHAPTER 5

CONCLUSION

This dissertation examines various information-related factors in firm growth strategy by drawing upon research on information asymmetry and information processing (Bergh, Ketchen, Orlandi, Heugens, & Boyd, 2019; Guo, Yu, & Gimeno, 2017; Smith, Grimm, Gannon, & Chen, 1991), acquisition motives (Chatterjee, 1986; Clougherty & Duso, 2011; Eckbo, 1983), inter-organizational imitation (Gupta & Misangyi, 2018; Lieberman & Asaba, 2006; Ozmel, Reuer, & Wu, 2017), behavioral theory of the firm and organizational risk-taking (Cyert & March, 1963; March & Shapira, 1987; Miller & Chen, 2004), internalization theory (Buckley & Casson, 1976; Buckley & Strange, 2011; Morck & Yeung, 1992), and corporate governance (Boivie, Bednar, Aguilera, & Andrus, 2016; Filatotchev & Wright, 2011; Hambrick, Misangyi, & Park, 2015). Specifically, it investigates (1) what explains firms' decision to hold an M&A conference call and the use of vague language in the call, (2) what motivates firms to emulate or deviate from others' location choice in foreign entries, and (3) how firms may maximize the value creation of their knowledge-based intangibles in cross-border M&As. Together, the three main essays provide insights into different aspects of firms' international and acquisitive activities.

In the first essay (Chapter 2), I theorize and test the competitive antecedents of corporate communication via conference calls in M&As. Based on a sample of 6,861 domestic acquisitions by U.S. public firms and 1,269 conference calls transcripts of a subset of these deals, the results first show that the acquirer's decision to hold an M&A conference call and the use of vague language by managers in the call are both affected by its motive to undertake the acquisition. Specifically, for market-power-driven deals to reduce rivalry intensity and facilitate inter-firm coordination, the acquirer is more likely to hold an M&A conference call and its managers tend

to make less vague statements when addressing questions from the audience. Both signal to rivals its intention to cooperate and provide incremental information that they can use for further consolidation. On the contrary, when value creation is enabled by unique efficiency gain due to productivity improvement or cost-saving, the acquirer limits the spillover of strategic information to rivals by shunning away from an M&A call and using more vague language in the call to protect its information advantage and competitive position. Second, I examine the moderating effect of the industry structure on the main relationship between acquisition motives and the use of M&A conference calls. The results demonstrate that corporate communication via M&A conference calls becomes more salient in more consolidated industries or industries with fewer competing firms, both arguably increasing the benefits while reducing the costs of gathering and processing information of others' competitive moves. Overall, these findings illustrate how the acquirer's communication strategy is shaped by the efficiency-based versus market-power-based mechanisms for value creation in acquisitions and how it may strategically use M&A conference calls to influence rivals' competitive engagements.

The second essay (Chapter 3) examines how performance relative to aspiration and slack resources affect Chinese firms' decisions to imitate prior location choices by their home-country peers. I test the hypotheses using 1,138 foreign entries in 119 potential foreign locations by 330 Chinese public firms from 2002 to 2013. Consistent with prior studies on imitative location choice (Belderbos, Olffen, & Zou, 2011; Henisz & Delios, 2001; Tan & Meyer, 2011), I first establish the baseline prediction and show that the probability of a Chinese firm to enter a specific foreign market is positively associated with the number of previous investments made by other firms from China. I then test the moderating role of the performance below versus above aspiration and different types of slacks. The results reveal that Chinese firms are less

likely to be affected by others' location choices when they experience performance shortfalls either with respect to their industry peers (i.e., social aspiration) or compared to their past performance (historical aspiration). In contrast, the positive effect of peers' prior entries in a foreign market tends to be amplified when a firm performs above its rivals. Besides, I also find that all three types of slack resources, namely absorbed slack, unabsorbed slack, and potential slack, will make a firm less responsive to others' prior location decisions. Together, these results suggest that firms' variable risk preferences, as determined by performance feedback and slack, are important contingencies for their imitative location choice in foreign investments.

While the first two essays focus on strategic decisions made by firms when they pursue growth opportunities using M&A and FDI respectively, the third essay (Chapter 4) examines the value creation of firms' cross-border M&As, the nexus of these two activities. In this study, I use a sample of 3,054 foreign acquisitions by 883 U.S. public firms between 1998 and 2016 to test how board effectiveness may influence the value-enhancing effect of knowledge-based intangible assets in FDI. The results show that first, on average, acquirers' technological and marketing intangibles, proxied by R&D intensity and advertising intensity and instrumented by industry average values, are indeed positively associated with their abnormal returns in foreign acquisitions. Moreover, I find that each of the four board effectiveness characteristics, in itself, does not have a direct effect on acquiring firm value. Importantly, subsequent analyses of the interactive effects between intangibles and the board suggest that acquirers that possess both R&D intangibles – or to a lesser extent marketing intangibles – *and* an effective board, characterized by higher independence, more directors with expertise in foreign operations, fewer directors holding multiple directorships (i.e., busy directors), and greater director ownership, can better realize internalization benefits and increase firm value via cross-border M&As. These

results support the idea that whether multinationals can benefit from the efficiency gain of the internal exploitation of knowledge assets depends crucially on their internal governance efficiency where the board of directors serves as the key mechanism to mitigate challenges associated with managerial bounded rationality and bounded reliability.

General contributions

In addition to the specific contributions discussed in each of the three essays, this dissertation's general contribution is to theorize and examine some hitherto overlooked factors in firms' FDI and M&A strategies by focusing on the role of imperfect information in their decision-making. Consequently, the findings of this dissertation provide incremental insights into firm growth via various corporate development activities.

First, this dissertation advances research on firms' organic and acquisitive growth by highlighting the role of various competitive, behavioral, and governance factors. M&A and FDI are among the most critical forms of corporate development strategy (Haleblian, Devers, McNamara, Carpenter, & Davison, 2009; Kirca et al., 2011). Substantial research has been devoted to understanding the antecedents, boundary conditions, and consequences of these activities (see reviews by Devers et al. (2020) and Matysiak and Bausch (2012)). This dissertation is positioned at the intersection between strategy and international business and aims to shed light on the motivation and the ability for firms to undertake and benefit from investing abroad or acquiring another firm. Chapter 2 focuses on how firms influence the level of information frictions in the M&A market by adjusting their communication strategy. The results suggest that constrained by the information needs from capital market participants, M&A conference calls enable managers to strategize their information disclosure to reveal or conceal proprietary information they possess regarding the proposed transaction. What is more, informed

by the observation that not all firms engage in imitative location choice when expanding abroad, Chapter 3 of this dissertation identifies a behavioral condition of attitudes toward risk, which determines firms' perception of information benefits from peers' previous actions and underpins their imitation under uncertainty. As for Chapter 4, I answer the calls from prior studies (Buckley & Strange, 2011; Filatotchev & Wright, 2011) to account for the role of corporate governance in the internalization paradigm. Drawing upon the new quad model of the board (Hambrick et al., 2015), I show that the incentive and ability of directors to fulfill their monitoring and advising roles are essential to deal with governance hazards due to managers' bounded rationality and bounded reliability, and serve as a critical contingency for firms to benefit from their knowledge-based intangibles in foreign acquisitions.

Second, this dissertation broadens research on corporate growth strategy by considering some unexamined relationships in each of the essays. In Chapter 2, I complement prior studies on corporate communication and language, which focus predominantly on how they are assessed by investors and analysts (Kimbrough & Louis, 2011; Loughran & McDonald, 2016; Pan, McNamara, Lee, Haleblian, & Devers, 2018), by examining to what extent information disclosed is targeted and can be consumed by rivals. The findings suggest that the use of M&A conference calls is indeed influenced by the competitive pressure from rivals. For Chapter 2, the variable risk preferences model from the behavioral literature has been applied to explain the firm strategy in various corporate domains, such as M&A (Iyer & Miller, 2008), innovation (Eggers & Kaul, 2018), and illegal or unethical activities (Harris & Bromiley, 2007; Xu, Zhou, & Du, 2019). However, despite the prominent role of uncertainty in the imitation process (Lieberman & Asaba, 2006) and in foreign investments (Delios, Gaur, & Makino, 2008), how firms with different attitudes toward risk perceive and react to the uncertainty-reducing benefits of peers'

previous location decisions is yet to be thoroughly examined. I address this research gap by theorizing and demonstrating how performance relative to aspiration and slack, two situational determinants of firm risk-taking, may moderate firms' imitative location choice in foreign entries. Finally, extant literature on managerial bounded rationality and bounded reliability problems have primarily focused on their effects on firms' strategic decision making in the internationalization process, such as entry mode or location choice (Elia, Larsen, & Piscitello, 2019; Grøgaard & Verbeke, 2012). In contrast, the associated performance implications have attracted comparatively little attention. Chapter 4 of this dissertation extends this research stream by studying the bounded-rationality- and bounded-reliability-economizing properties of the board of directors and showing that having a more effective board can increase firm value in FDI, specifically by facilitating value creation from technological or marketing intangibles.

Managerial implications

The three main essays of the dissertation support the idea that firms' strategic decisions in FDI and M&A activities and their value-creating potential are influenced by their motivation and ability to exploit information advantages or overcome information barriers. The findings provide novel insights into how firms should assess not only their own corporate development strategies but also the growth trajectory of others.

First, the dissertation has important implications for firms that are approaching and evaluating various growth strategies. To begin with, findings from Chapters 2 and 3 suggest that firms should be aware that their rivals or non-rivalry peers are sophisticated users of information which either is inferred based on their actions (Ozmel et al., 2017) or interpreted from their corporate communications (Guo et al., 2017). The distinction between rivals versus non-rivals as information recipients and strategic actors is critical. The former group of rivals can make use of

the information to counterattack the competitive moves by the firm and undercut its competitive position (Keil, Laamanen, & McGrath, 2013), while for the latter group of non-rivalry peers, the direct competitive consequence is less a concern and firms may instead benefit from increased legitimacy if more non-rivals undertake similar actions (Tan & Meyer, 2011). In addition to being mindful of potential information spillovers, it is also vital for firms to organize activities and design strategies to exploit their information or resource advantages. The results of Chapter 2 exemplify circumstances under which the acquirer can protect its proprietary information by using vague language in the communication to hamper rivals' ability to interpret the information, or it can share strategically relevant information to induce accommodating behaviors from rivals and maximize value creation. What is more, despite the value-creating potential of knowledge-based intangibles, firms' ability to profitably exploit such assets is impeded by managers' bounded reliability and bounded rationality. Chapter 4 highlights the essential role of the board of directors in curbing managerial opportunism and assisting managers' decision-making, helping create an efficient internal market for intangibles. More importantly, given the various obstacles faced by the board to effectively fulfill their monitoring and advising functions, firms need to structure their board by balancing multiple qualities of the directors. The findings of Chapter 4 validate the relevance of board independence, expertise, bandwidth, and motivation in explaining the value creation of technological and marketing intangibles in cross-border M&As. Thus, when deciding whether to engage in FDI, MNE managers not only need to carefully assess the extent to which their firm-specific advantages developed in the home country can be transferred and exploited abroad, it is also imperative that they work closely with the board to deal with information and coordination challenges of managing knowledge activities across national boundaries.

Second, the findings also have implications for firms observing and assessing the growth strategies by peers. Various theoretical perspectives have highlighted the vital role of information in firms' decision-making. In the imitation literature, one key mechanism for imitation is by leveraging the information inferred from others' actions to reduce the uncertainty associated with making the same decision (Lieberman & Asaba, 2006; Ozmel et al., 2017). This view is also consistent with the vicarious learning mechanism in the organizational learning literature (Baum, Li, & Usher, 2000). From the competitive dynamics perspective, information can be linked to the awareness, motivation, and capability (i.e., the AMC framework) of firms to act or react to rivals' actions (Chen & Miller, 2012). There has also been a renewed interest in the information processing perspective to understand managers' motivation and ability to initiate a competitive action or respond to rivals' strategic moves (Guo et al., 2017; Smith et al., 1991). Due to the significant uncertainty involved in FDI and M&A and the lack of information in these activities, managers must develop a systematic approach to gather and process information and understand the strategies by other firms. The results in Chapter 2 and Chapter 3 suggest that interpreting and deciphering cues and signals from others' actions and public communications can help firms make informed decisions and maintain competitive parity.

Limitations and future research

Despite its merits of rigorously examining three prominent corporate growth strategies, namely domestic M&A, FDI, and cross-border M&A, from a variety of theoretical perspectives and with three different large samples, this dissertation is subject to several limitations that can be fruitfully addressed by future research.

First, even though I have used both a Chinese sample and a U.S sample to examine the different corporate development activities, the findings for each essay are based on firms in a

single country, either China or the U.S., over a specific period. This was a necessary tradeoff to identify the most appropriate empirical setting for the research questions to be answered. Nevertheless, it also raises the concern that the results may reflect some factors specific to the country or time, limiting their generalizability. For Chapter 3, Chinese firms are still in a relatively early stage of internationalization with limited foreign experience (Morck, Yeung, & Zhao, 2008). Hence, the role of others' location choices may be more prominent in their decision-making. In contrast, multinationals from developed countries have accumulated extensive international experience and may become less sensitive to information cues from peers. In comparison, for Chapter 4, a U.S. sample is chosen as these firms are more likely to possess knowledge-based intangibles when entering foreign markets. As a result, their FDI decisions are more likely to be consistent with the internalization prediction where firms transfer abroad advanced intangibles developed in the domestic market. However, the quality of corporate governance for U.S. firms has improved significantly for the past decades, especially since the Sarbanes-Oxley act in 2002. In contrast, their counterparts based in other countries, especially those from emerging economies, are more likely to suffer from governance failures. Thus, it would be interesting for future research to investigate whether the findings of the three essays hold for firms at different stages of internationalization and from countries with varying levels of economic and institutional development.

Second, while I hypothesize on a variety of mechanisms through which different competitive, behavioral, or governance factors may affect strategic decisions in the context of FDI and M&A, some of them are assumed while not directly observed or tested. In both Chapter 2 and Chapter 3, the key mechanism to affect the interaction between information-seeking firms and information-sharing firms is the information asymmetry between them. In the supplemental

analysis of Chapter 2, I use the number of M&A conference calls by prior acquirers as an indicator for the amount of information available to rivals; whereas, in Chapter 3, I use the number of prior entries by compatriot firms as a proxy for the availability of information regarding the potential location. Nonetheless, I do not have direct evidence on how firms perceive the quantity and the quality of information after observing prior actions or accessing public communications by peers. Therefore, I see ample opportunities to advance our understanding of firms' strategic interdependencies by delving into their information acquisition and processing activities and the decision-making process. Similarly, in Chapter 4, while I refine the internalization prediction by examining how it is moderated by governance-related factors, I also do not observe how knowledge-based intangibles are being transferred and exploited in the foreign markets after the cross-border M&A. Thus, it would be interesting for future research to examine the specific information-related challenges that prevent the value creation and capturing when managing knowledge assets abroad, which may reveal additional contingencies for the intangibles – FDI performance relationship.

Third, despite the effort to compile large-sample datasets for the three essays, they are still subject to some data issues which future research could address. The primary data issue concerns the coarseness of some of the measures. Chapter 2 adopts a theory-based classification of acquisition motives and uses an event study methodology to operationalize efficiency and market power motives. However, under each motive, there might be multiple mechanisms for value creation. For instance, the efficiency gain can either arise from productivity improvement or due to cost-saving. Although both result in a competitive advantage for the acquirer and thus align with the theoretical argument, rivals' ability to replicate such efficiency-enhancing benefits might differ. Chapter 3 uses a simple count measure to quantify information cues from previous

investments by firms with the same country of origin. While this approach is consistent with prior studies on imitative location choice, it nevertheless fails to capture the heterogeneity in prior entries. However, I am limited in my ability to examine other trait- and outcome-based imitative mechanisms (Henisz & Delios, 2001; Ozmel et al., 2017) as some key subsidiary-level variables, such as its size, type of business, and performance, are not available from the annual reports or any public source. Chapter 4 follows prior studies in the internalization literature and measures technological and marketing intangibles using R&D and advertising intensity. However, corporate knowledge is being increasingly codified (Contractor, Yang, & Gaur, 2016). As a result, technological know-how and marketing expertise that used to be embedded in the experience and routines of engineers or managers are now written down in documents or articulated in management systems. While R&D and advertising spendings serve as decent indicators of firms' overall technological and marketing activities, it cannot distinguish tacit versus explicit proprietary knowledge. Given these different measurement problems, one promising direction for future studies is to develop finer-grained and more direct measures of the theoretical constructs in different essays, possibly by taking a qualitative approach such as surveys or interviews, which will enable them to unpack more explicitly the mechanisms of interest and could potentially offer interesting insights into understanding firm growth strategy.

Concluding remarks

By focusing on the internal and external information challenges faced by firms, this dissertation uses three empirical essays to offer new insights into the role of some key competitive, behavioral, and governance factors in firm growth strategy, specifically via FDI and M&A. It contributes to various streams of literature on imitation and foreign location choice,

corporate communication and language, corporate governance of multinationals and value creation in FDI, which opens up fruitful avenues for future research.

The concept of imperfect information is central to multiple management theories. After examining it in different corporate growth activities from various theoretical lens, I believe it could serve as the nexus to connect different theories and provide rich opportunities for new conceptual development and synthesis.

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TAO HAN (Shandong, China, 1990) obtained his Bachelor degree in Economics from Guanghua School of Management and a double degree in Law from Peking University Law School, both in 2013. After receiving a Research Master degree in Management in 2015 from Tilburg University, Tao joined the Department of Management at Tilburg School of Economics and Management to pursue his Ph.D. in Management. He continued his research journey at the STORM research center of emlyon business school, where he now works as an assistant professor.

This dissertation uses three empirical essays to address a series of research questions regarding imperfect information in firm growth strategy, focusing on firms' merger and acquisition (M&A) and foreign direct investment (FDI) activities. Chapter 2 builds upon the literature on acquisition motives and explores the acquirer's strategic use of M&A conference calls to influence rivals' information processing. Chapter 3 focuses on the information benefits of emulating peers' previous foreign location choices and examines the role of variable risk references in the imitation process. Chapter 4 highlights internal governance challenges associated with managerial bounded rationality and bounded reliability and investigates how the board of directors may help overcome information barriers and contribute to the value creation of knowledge-based intangible assets in cross-border M&As.

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