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Do I See What You See?

Institutional Quality, Action Observability and Multimarket Contact in the Global Mobile Phone Industry

Research summary

Drawing on signaling theory and the international business literature that addresses the role of institutions, we argue that multinational enterprises (MNEs) that use multimarket contact (MMC) –i.e. meet the same competitors in multiple countries– to reduce rivalry in a given country, will have their actions and performance influenced by the institutional quality of that country. More specifically, we contend that action observability is the mechanism that explains why institutional quality facilitates an MNE's use of MMC with competitors in a host country. We also contend that an MNE's ability to successfully reduce rivalry with host country competitors via MMC is contingent on the institutional quality distance between the MNE's home and host country. We test our hypotheses with data from the mobile phone industry.

Managerial summary

Multinational enterprises (MNEs) often meet the same rivals simultaneously in multiple countries, a phenomenon known as market overlap or multimarket contact (MMC). Prior studies have found that MMC deters rivals from attacking each other in the countries they have in common. However, these studies have not taken into account the heterogeneity of the institutional environments of the countries in which multimarket rivals compete. We contend that the quality of countries' institutions and the institutional quality distance between home and host countries affect the extent to which MNEs can observe each other's actions, which in turn helps rival MNEs to avoid mutually damaging moves for their sales performance in the countries they have in common.

1. INTRODUCTION

Reviewing the research on the relationship between institutions and global strategy, Cuervo-Cazurra, Mudambi, and Pedersen (2019) note that "institutions and their differences across countries are becoming one of the distinguishing characteristics of this field of research in its quest to explain how the country-level context shapes the competitive strategies of firms" (p. 152). By taking a management-based approach to institutions (Cuervo-Cazurra et al., 2019; Khanna & Palepu, 1997; Peng, 2002), which explains the reaction of firms to institutions, and by focusing on how local governments may influence the strategic behaviors of rivals in a country (García-Canal & Guillén, 2008), in this paper we examine how the quality of governance institutions in a multinational enterprise's (MNE) host country affects the extent to which the MNE will try to establish a strategy aimed at deterring rivalry with host country competitors, and in turn protecting its relative performance. Studies in the competitive dynamics literature have noted that firms meeting each other in multiple markets, e.g. two MNEs engaging each other in more than one country (Yu, Subramanian, & Cannella, 2009), can use such multimarket contact (MMC) to establish "mutual forbearance", i.e. a situation that allows firms meeting in multiple markets (e.g., multiple countries) to coordinate their strategies, thereby avoiding mutually damaging moves, and facilitating moves that are mutually beneficial (e.g., Karnani & Wernerfelt, 1985; Yu & Cannella, 2013). The analysis of how the level of institutional quality in an MNE's host country affects the extent to which the MNE will establish mutual forbearance via MMC remains unexplored.

A stable mutual forbearance depends on good *observability* of strategic actions; that is to say an environment that allows rivals to easily observe and accurately interpret each other's actions in order to be confident that their forbearance will be reciprocated (Matsushima, 2001; Thomas & Willig, 2006). In most current MMC research, good action observability is generally taken for granted; it is assumed that firms can observe their rivals' strategic moves

efficiently and reliably (e.g., Gimeno & Woo, 1996, 1999). However, this assumption made by the MMC literature seems to downplay the importance of variations in institutional quality –i.e., changes in the extent to which the laws and regulations in a country facilitate market relationships among economic actors– with its attendant imperfect monitoring (Meyer et al., 2009), and therefore variations in action observability. For example, authors in the international business literature have noted that institutional quality usually varies significantly between developed and developing countries, thereby affecting the way MNEs respond to such variations (De Beule, Elia, & Piscitello, 2014; Khanna, Palepu, & Sinha, 2005), and in turn their performance (Martin, 2014; Wu, Wu, & Zhuo, 2015; Xu and Shenkar, 2002). We contend that lower institutional quality leads to lower action observability, confronting firms with the challenge of gauging the accuracy and reliability of the information needed to establish effective MMC-based forbearance. The challenge is compounded when rivals must contend with MMC across different countries, each with different levels of institutional quality. For MNEs this also means confronting with different pressures and constraints resulting from different institutional quality levels between their home country and the various host countries in which they compete (Hernández & Nieto, 2015; Hernández, Nieto, & Boellis, 2018), thereby affecting the perceptions of MNEs regarding uncertainty and their capabilities required to interpret and respond to their host country rivals' moves (Flores and Aguilera, 2007).

More specifically, we believe that the MMC and international business literatures have paid little attention to address the challenges of how the institutional environment of an MNE's home and host country affects the MNE's MMC decisions and its ability to mutually forbear with its host country competitors. Studies by Domínguez, Garrido, and Orcos (2016), Ma (1998), Yu and Cannella (2007), and Yu, Subramaniam, and Cannella (2009), have noted that institutional quality can enable action observability, and by implication, MMC-based

strategy. However, these studies have not taken into account the variability of institutional environments in which multimarket rivals compete, how the resulting variation in action observability facilitates or limits MMC-based strategies, and finally whether these MMC-based strategies lead to mutual forbearance. Given these gaps, the questions that arise and we wish to examine in this paper are: How does the level of institutional quality in an MNE's host country facilitate the level of MMC with its rivals in that country? How do differences in institutional quality between the MNE's home and host country affect the mutual forbearance between the MNE and its rivals in that country?

We address these questions by bridging the MMC literature with (a) the international business literature centered on the role of counties' institutional quality and institutional quality distance as drivers of firms' global strategy (e.g., Hernández et al., 2018; Khanna & Palepu, 1997; Peng, Sun, Pinkham, & Chen, 2009) and performance (e.g., Martin, 2014; Wu et al., 2015) and (b) signaling theory (Spence, 1973). Signaling theory, which originates in the economic literature but has been later extended in various disciplines, among which strategic management (e.g., Connelly et al., 2011; Heil & Robertson, 1991) and competitive dynamics (e.g., Guo, Yu, & Gimeno, 2017), focuses attention on the observability of signals as a key condition for accurately interpreting the actions of rivals, thereby allowing for selection of actions that deter rivalry, or facilitate cooperation. We argue that the more accurately firms can interpret signals the more they can develop sustainable MMC-based strategies. More specifically, we contend and empirically find that high action observability, which is enabled by high institutional quality in a given host country, will increase the MNE's perception that it has the ability to build up and reinforce a strategy based on MMC with rivals that have operations in the host country as well as in other foreign locations, thus leading to higher levels of MMC with host country rivals. Moreover, we argue and empirically show that an MNE's ability to successfully reduce rivalry with host country rivals

via MMC, and then protect its performance vis-à-vis competitors in the host country, is contingent on the institutional distance between the MNE's home and host country.

With these findings, on the one hand, we contribute to the current international business research centered on how different institutional settings influence the competition among MNEs (e.g., Mutlu, Zhan, Peng, & Lin, 2015; Peng et al., 2009), by disentangling the role of action observability as the key mechanism explaining why institutional quality facilitates an MNE's use of MMC with host country competitors. On the other hand, we complement the extant emerging literature that examines country-level factors moderating the outcomes of MMC (e.g., Yu, Subramanian, & Cannella, 2009, 2013), and respond to calls in the global strategy literature to examine the role that an MNE's home-host country institutional quality distance plays in affecting how the MNE behaves strategically in the host country (e.g., Cuervo-Cazurra & Genc, 2008; Hernández & Nieto, 2015; Hernández, Nieto, & Boellis, 2018). The hypotheses we present are tested with a sample of 85 mobile phone vendors competing in 46 countries from 2003 to 2015.

2. THEORY BACKGROUND AND HYPOTHESES

2.1. Multimarket contact and the international business literature: The missing link

The evolution of MMC research can be traced to work by Edwards (1955) on oligopolistic competition, with formal treatments of multimarket contact and tacit collusion by Bernheim and Whinston (1990). Empirically, the first studies in the strategic management literature that examined MMC employed a competitive dynamics lens to test the mutual forbearance hypothesis. The mutual forbearance hypothesis predicts that firms operating in the same markets will recognize their interdependence and, as a result, will select strategic actions that avoid mutually damaging competitive outcomes. Most of these early studies tested mutual forbearance using the US airline industry as a research site, and they all showed support for the development of MMC-based cooperative strategies (Baum and Korn, 1996;

Baum and Korn, 1999; Kim and Singal, 1993). Studies of MMC-based competition have later focused on the banking industry, a setting where rivalry, similarly to the US airline industry, is geographically defined and strongly regulated (e.g., Fuentelsaz and Gómez, 2006; Greve, 2000).

Greve (2008) and Thomas and Willig (2006) go one step further. They argue that a distinctive feature of the mutual forbearance model is a *full observability* condition, namely that for firms to seek mutual forbearance with rivals, rivals' actions should be clearly visible and accurately interpretable. However, the assumption of full observability is questionable in the context of MNEs, which meet their rivals simultaneously in multiple countries that may have very heterogeneous characteristics. Therefore, the authors argue that empirical studies should attempt to measure action observability, in effect acknowledging that observability may vary depending on the environmental context, and multimarket effects in perfect observability contexts may not be transferrable to imperfect observability contexts. Greve's (2008) study of Norwegian insurance firms linked action observability to the level of a firm's MMC. He showed that rivals may renounce to preserve mutual forbearance, and then have performance gains that are misaligned with those of multimarket rivals, if the potential rewards are high and their strategic behavior is more difficult to detect. Thomas and Willig's (2006) game-theoretical study demonstrates that noise produces informational uncertainty that undermines mutual forbearance. As a result, MMC delivers no performance gains.

In all the above studies, research focused on MMC-based competition within one country, typically the US, with the "market-level" dimension of MMC being a "product/service" category or a "territory within a country" (e.g., a country regions or airlines routes). However, these studies overlook the fact that many of the same firms also compete internationally. Two studies, Yu et al. (2009) and Domínguez et al. (2016), are worth noting, because, in line with the theory we propose in this paper, they deal with international MMC-

based strategies, i.e. MNEs that simultaneously compete in multiple countries. Yu et al. (2009), by drawing on the competitive dynamics and international business literature, examine country specific factors moderating the MMC-competitive aggressiveness relationship. Using a database of automobile companies operating in 27 countries, they show that the deterring influence of multimarket contact on the competitive aggressiveness of an MNE's subsidiaries is contingent upon a number of country specific variables such as the cultural distance from the multinational's home country, the extent of local regulatory restrictions, and the presence of local competitors. Domínguez et al. (2016), adopting an institutional voids lens (Meyer et al., 2009), use a sample of telecommunication companies to test a number of hypotheses on the contingences moderating the MMC-performance relationship, and find that mutual forbearance among MNEs is more complex to obtain when MNEs mainly coincide in emerging markets. However, even these two studies on MMC do not take into account the underlying factors that can influence the observability of actions among multimarket rivals in a country.

In what follows we propose a theory which bridges MMC literature (e.g., Greve, 2008; Thomas and Willig, 2006; Yu et al., 2009) with international business studies on the role of institutions (e.g., Hernández et al., 2018; Khanna & Palepu, 1997) and signaling theory (Connelly et al., 2011; Daley & Green, 2014). In particular, we argue that action observability is the missing link between the international business literature and MMC, and signaling theory may help us to better understand an MNE's (1) strategic intent to seek MMC-based collusion with rivals in host countries characterized by different institutional quality, and (2) ability to successfully mutual forbear with such host countries' rivals.

2.2. Signaling theory and action observability in international markets

The theory we propose in this paper starts from the assumption that, for firms that find themselves in competition with same rivals simultaneously in different countries, to establish

mutual forbearance that ensures the benefits of avoiding mutually damaging actions, firms also need *observability* of actions in these countries.

Signaling theorists discuss the observability of firms' actions in general terms under the rubric of "signal observability". They define signal observability as the extent to which a signal generated by the signaler can be accurately communicated and easily perceived by the signal receiver (Connelly et al., 2011; Daley & Green, 2014). A "signal" typically refers to a "deliberate communication of positive information in an effort to convey positive organizational attributes" (Connelly et al., 2011, p. 44). By drawing on signaling theory (Spence, 1973), strategic management scholars have defined signals as "announcements or previews of potential actions intended to convey information or to gain information from competitors" (Heil & Robertson, 1991, p. 403). Extant research has found that the observability of signals generated by actions is a key prerequisite for creating and maintaining forbearance among competitors (Guo, Yu, & Gimeno, 2017; Heil & Robertson, 1991). Observability allows firms to communicate their intentions via strategic actions, and likewise interpret accurately actions taken by their rivals. It underpins mutual forbearance, and therefore reinforces multimarket-based strategies aimed at mitigating rivalry. If firms know that their moves are easily observed and accurately interpreted, they are more likely to avoid actions that can threaten their rivals' position because they are aware that these actions may trigger costly retaliatory countermoves (Yu & Cannella, 2013).

What does account for low as opposed to high observability? Research suggests that signals that are complex or ambiguous, so called "noisy signals" can lower observability and hence undermine cooperation (Guo, Yu, & Gimeno, 2017; Paruchuri, Han, & Prakash, 2020). Parkhe (1993, p. 801) notes that "noisy, indirect observation vastly complicates" cooperation that is self-enforcing (i.e. cooperation that does not involve formal agreement). Various studies in the economic literature suggests that noisy signals raise monitoring costs, thereby

making stable cooperation, including MMC-based strategic cooperation, difficult if not impossible (Bendor, Kramer, & Stout, 1991; Whinston, 2006). This literature also suggests that noisy signals can arise from signaling environments with high information asymmetries (i.e., low institutional quality, typical of developing countries). Authors have noted that "because emerging markets feature institutional voids that hinder potential transaction partners from credibly signaling, accessing, and validating relevant information" (Gao, Zuzul, Jones, & Khanna, 2017, p. 2148), such institutional voids represents a key structural feature that can directly influence actions available to and behavior of market actors (Harrison, Scheela, & Lai, 2018). For example, often in developing countries there is an abundance of political, social or religious institutions that distort the news published by international media in developed economies about the business environment in such developing countries, creating noisy signals in the form of conflicting information for both incumbents and new entrants, which in turn threaten the efficiency of these markets. In addition to this, authors have recently noted that the extent to which a firm will be capable to compete and sustain its performance abroad, is affected by the institutional characteristics of its home country (Coeurderoy & Verbeke, 2016), and how they differ from those of the host countries in which the firm competes (Hernández et al., 2018; Wu et al., 2015; Xu and Shenkar, 2002). This is because of the "heterogeneity not only in the nature and contents of the interaction with local institutions, but also in the extent and means through which *signals* and resource inputs from local institutions and environments get utilized across the entire MNE" (Martin, 2014, p. 63).

Despite previous studies have recognized the importance of action observability in a business environment as a key prerequisite to establish collusive behaviors, a theory of how an MNE's home country institutional quality affects its MMC decisions, and how home-host country institutional quality differences affect an MNE's ability to mutually forbear with host

country rivals via MMC remains unexplored. In the next sections we develop a set of hypotheses to address these gaps.

2.3. Institutional quality and action observability

The theory we propose in this paper is centered on variations in the quality of governance institutions in a country, and therefore those that cover components of the country environment such as the legal framework, property rights, their enforcement, legal information systems and regulatory regimes (Meyer et al., 2009). Governance consists of the institutions by which an authority in a country is exercised, and includes the process by which governments are selected, monitored and replaced; the government's ability to develop and implement policies in an effective way; and the respect of citizens and the state for the institutions that govern economic and social interactions among them (Kaufmann & Kraay, 2008). We expect lower-quality institutional environments to reduce action observability, whereas higher-quality institutional environments to facilitate greater action observability. The difference is primarily due to the limited operations, or in some cases absence, of organizations and institutions that collect and distribute information, enforce regulations, and maintain a legal system that is efficient and impartial (Khanna & Palepu, 1997; Oehmichen, Schrapp, & Wolff, 2017).

Various studies have shown that low quality institutions can constraint firms from obtaining information about the functioning of a market and its actors (Cuervo-Cazurra et al., 2019). For example, in countries where the press is controlled or censored, not only there will be effective cartels that encompass all journalists restricting the free flow of information, but also private media organizations that have close connections with firms, distorting the information supplied in these firms' disfavor (Besley & Prat, 2006; Brunetti & Weder, 2003; Islam, 2002). Furthermore, authors have noted that in emerging economies where institutional development is fragile, politically connected firms, which often enjoy political

and institutional protection, are likely to be invisible or less transparent in disclosing information on their conducts (e.g., Liedong and Rajwani, 2018). Therefore, in such scenarios it will be harder for firms to obtain accurate information about their rivals' actions. For instance, in technology-intensive industries, like consumer electronics, where the press is one of the main sources firms use to monitor rivals' strategy (Onoz & Giachetti, 2021), when competing in developing countries, an abundance of conflicting information about new technical features, distribution channels used by rival firms, how these products are priced and promoted, whether firms are infringing rivals' intellectual property rights, and whether firms can enforce their intellectual property rights effectively, create noisy signals that may confound MNEs operating in such uncertain environments. In contrast, since in countries with strong rule of law, regulatory quality, and political stability, media is not controlled by any political or economic interest groups, and in the media there will be transparency in reporting information on firms' actions without undue fear of being penalized (Besley & Prat, 2006; Chang, Bai, & Li, 2015; Chen, Chen, Wang & Zheng, 2018; Islam, 2002), we expect that it will be easier for firms to accurately evaluate the intentions behind their rivals' actions. All of the above, therefore, leads to the following hypothesis:

> **Hypothesis 1 (H1).** *There is a positive relationship between the level of institutional quality in an MNE's host country and the observability of rivals' actions in that country.*

2.4. Mediating role of action observability on the institutional quality-MMC relationship

Signaling theory maintains that action observability is central to establishing stable mutual forbearance (Greve, 2008; Thomas & Willig, 2006). However, as we noted earlier, action observability can vary considerably among countries – depending on the level of institutional quality. When high action observability in an MNE's host country prevails, the firm

perceives to have enough information to build an MMC-based strategy aimed at coordinating its actions with rivals in the host country. There are two main reasons why an MNE is likely to increase the level of MMC with its host country rivals when action observability in the host country is high. First, high action observability, enabled by high institutional quality in the host country, causes the MNE to perceive that it has sufficient information to easily warn its host country rivals about the possible consequences of retaliation in the countries they share, should they attack the MNE aggressively in the host country (Mutlu et al., 2015). Second, high action observability provides the basis for allowing the MNE to alert its host country rivals more easily of its willingness to collude in the host country, as well as making collusive MMC in other countries more credible and thus more sustainable. In contrast, low action observability environment due to poor institutional quality, constrains an MNE's ability to accurately evaluate the intentions behind its rivals' actions, and also can lead the MNE to experience problems when communicating its intentions to its rivals in the host country (Thomas & Willig, 2006). In sum, if action observability is low due to poor institutional quality, we expect that the resulting information asymmetry would constrain an MNE's willigness to establish MMC with its host country rivals. In contrast, high institutional quality increases action observability, thereby reducing distortion of signals sent by host country rivals. And this in turn strengthens the MNE's perception that it can interpret the actions of its host country rivals more accurately, and effectively communicate its intentions to its rivals, thereby incentivizing the MNE to increase the level of MMC with its host country rivals to reach collusion.[1] Hence, we posit:

[1] It is worth noting that also game theory approaches have considerably been used for framing similar predictions, since game theoretic decisions are based on selecting optimal strategies according to the information competitors have at the moment they make their own decisions, i.e., perfect or imperfect information (Moorthy, 1985).

Hypothesis 2 (H2). *Observability of rivals' actions in an MNE's host country mediates the relationship between the level of institutional quality in that country and the level of the MNE's MMC with its host country rivals.*

2.5. MMC, relative performance instability and the moderating role of institutional quality distance between home and host country

In Hypotheses 1 and 2 we predicted that the quality of the institutional environment in a country affects the way MNEs use MMC with host country rivals with the aim to establish mutual forbearance, and action observability is the mechanism that explains why high (low) institutional quality facilitates (reduces) MMC. Now we extend our framework, and theorize on how an MNE can *successfully* use MMC to establish mutual forbearance with its host country rivals, i.e., a situation where the focal MNE can preserve its performance vis-à-vis host country rivals. More specifically, we examine whether MMC affects the stability of a focal MNE's performance vis-à-vis host country rivals, and how such relationship is moderated by the institutional distance between the MNE's home and host country.

Various MMC scholars have examined how MMC affects the intensity of rivalry (see Yu and Cannella (2013) for a comprehensive review), with the latter often "captured using constructs such as […] market share instability (Heggestad & Rhoades, 1978; Whitehead, 1978)" (Yu and Cannella (2013, p. 86). When examining intensity of rivalry in terms of a firm's relative performance instability, the logic is that the higher the level of a firm's MMC with its rivals, the greater the rivals' propensity to avoid mutually damaging moves and facilitate moves that are mutually beneficial, thus stabilizing the focal firm's performance vis-à-vis its multimarket rivals. An increase in a firm's relative performance stabilization (i.e., less volatility) is assumed to be the result of a less fierce competition with industry rivals. In our context of MNEs, in order for the mutual forbearance hypothesis to be satisfied, we should expect a negative relationship between an MNE's level of MMC with its host

country rivals and its relative performance instability in that country. Therefore, we offer the following hypothesis, which we include for theoretical completeness rather than for its original contribution:

> **Hypothesis 3a (H3a).** *All the other things being equal, there is a negative relationship between the level of the MNE's MMC with its host country rivals and the MNE's relative performance instability in that country*.

Returning to our main argument, since an MNE's decision to increase its level of MMC with host country rivals is made by considering the quality of the institutional environment –which influences the perceived quality of signals sent by rivals, and in turn the MNE's MMC strategy– it is reasonable to assume that also the extent to which MMC affects an MNE's relative performance instability will be affected by the quality of governance institutions. At this point of the paper, we introduce an additional institutional-level variable to our theory. In particular, international business scholars have manifested an increasing interest in the analysis of how the institutional quality distance between an MNE's home and host country affects its strategy and performance (e.g., Cuervo-Cazurra & Genc, 2011; Hernández et al., 2018; Kostova, 1999; Kostova & Zaheer, 1999; van Hoorn & Maseland, 2016; Wu et al., 2015). In fact, the distance in terms of quality of governance institutions between two countries, defined as the difference/similarity between the regulatory and normative institutions of the two countries, is likely to increase the perceived uncertainty and information asymmetry associated with a firm's foreign operations, thereby affecting both the easiness with which a firm from a country understands and interprets accurately local institutional requirements when competing in another country, as well as the way it strategizes accordingly (Cuervo-Cazurra & Genc, 2008; Kostova & Zaheer, 1999; Trąpczyński, Halaszovich, & Piaskowska, 2020), with inevitable consequences on its performance (Shirodkar & Konara, 2017). For example, Mezias (2002) has shown how

foreign firms from countries that are institutionally distant from the US are more prone to lose lawsuits in the US because of their inability to interpret local legal practices. With the lens of signaling theory, we thus examine how the institutional distance between an MNE's home and host country affects the mutual forbearance hypothesis. More specifically, we theorize on whether and how the institutional distance between an MNE's home and host country shapes the negative relationship between the MNE's MMC with its host country rivals and the MNE's relative performance instability in that country.

Strategy scholars have long argued that firms' conduct and performance are influenced by the structural characteristics of the environment in which the competition takes place (Porter, 1980). International business and competitive dynamics scholars have drawn on this literature and argued that an MNE's competitive behavior in the various host countries in which it operates may change markedly depending on the differences between the MNE's home and host country environment (Yu et al., 2009, 2013). Scholars in the institution-based view of strategy have also shown that governance institutions in particular, as an important component of the host country environment in which an MNE competes, have a significant influence on its competitive moves and performance (Cuervo-Cazurra & Genc, 2008; Khanna & Palepu, 1997). Herein, we contend that the greater the quality difference between the governance institutions of the MNE's home and host country, the harder will be for the MNE to interpret the signals in the host country, and then effectively establish mutual forbearance with its host country rivals aimed at stabilizing its relative performance in the host country. The reason is as follows.

International business scholars have argued that, since organizational structures and strategic orientations tend to reflect the institutional setting in which they have been developed, an MNE will more easily understand and adapt to the legitimacy challenges of a host country that is institutionally similar to its home country than of one that is

institutionally different (De Beule et al., 2014; Kostova, 1999; Kostova & Zaheer, 1999). This means that regulatory authorities in institutionally distant host countries represent a complex environment for the MNE in terms of learning and adaptation costs. For instance, regulations in institutionally distant economies may have very different restrictions for foreign players, such as controlling the size, location, and partner selection of FDI initiatives, as well as controlling for component localization, export levels, distribution, and joint R&D, manufacturing and marketing agreements (Khanna, Palepu, & Sinha, 2005; Luo, 2007). Consequently, MNEs from institutionally distant countries have to interact with very different institutional actors (Meyer & Nguyen 2005), while MNEs from similar institutional environments are better equipped to address such complexities and uncertainties, and have a clear advantage over MNEs from distant institutional settings (Cuervo-Cazurra & Genc, 2008; De Beule et al., 2014; Shirodkar & Konara, 2017; Wu et al., 2015). We argue that such liability of foreignness (Gulati, Nohria, & Zaheer, 2000) is likely to translate in a greater misinterpretation of rivals' actions and hence greater perceived threat by the MNE, which may sense that its survival is at stake, and then be more aggressive against its rivals.

More specifically, from a signaling perspective, the institutional quality distance between an MNE's home and host country reduces the extent to which the MNE is capable of interpreting and understanding accurately information on the behavior of its host country rivals, thus increasing the MNE's understanding that its cooperative signals to rivals in the focal country will be less effective to sustain mutual forbearance. A disrupted or weakened mutual forbearance means that the MNE's performance in that country is under attack, and then likely to change over time. The greater fear of not being comfortable when operating in an institutionally distant environment, makes the MNE more defensive, and then aggressive against its host country rivals (Yu et al., 2009). And this greater focus on competitive response to local rivals rather than rivalry deterrence orientation via MMC is likely to

destabilize the mutual forbearance in the host country and then render more unstable the MNE's performance vis-à-vis host country rivals (which can increase or decrease depending on whether the MNE is capable to defeat its focal country rivals). Thus we posit:

> **Hypothesis 3b (H3b).** *The institutional quality distance between an MNE's home and host country weakens (i.e., makes less negative) the negative relationship between the level of the MNE's MMC with its host country rivals and the MNE's relative performance instability in that country.*

Figure 1 illustrates our research model.

Please insert Figure 1 about here
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3. METHODS

3.1. Research setting

The empirical setting of our analysis is the worldwide mobile phone industry. The global mobile phone industry is a suitable setting for the purposes of this paper for several reasons. First, the majority of mobile phone vendors are MNEs and, as such, confront the same competitors in multiple countries. This gives rise to a higher level of competitive interaction in which competitive moves by a vendor against rivals in a country are often counterbalanced by rivals responding in other countries they have in common. Evidence suggests that in the mobile phone industry such moves are usually based on new product introduction, imitation, pricing, and marketing campaign (Giachetti, Lampel, & Li Pira, 2017; Giachetti & Torrisi, 2018; Paik & Zhu, 2016).

Second, since most mobile phone vendors compete internationally, they have to adapt to the different institutional structures of the countries where they operate, and therefore deal with different regulatory regimes, laws and political systems. The longitudinal, multi-country approach used in this study allows us to capture the impact of these changing environmental dynamics on MNEs' multimarket strategies.

3.2. Sample and data

Our sample includes data about 85 mobile phone vendors that operate in 46 countries from 2003 to 2015.[2] Information about mobile phone vendors' annual market shares and units sold in the various countries was collected from *Euromonitor International* (2003-2015). As for the sampling procedure, we used data on all firms and countries provided by Euromonitor International, none excluded. The cumulative market shares of firms in a country were often greater than 95%, meaning that nearly all vendors in a country were captured. Since only few firms were in operation in this industry throughout our whole observation period (i.e., some vendors entered the mobile phone industry after 2003, others stopped their operations before 2015) and firms had different geographic scopes (i.e., only few firms were operative in all or most of the sampled countries), this resulted in an unbalanced panel of 4,519 firm-year-level observations.[3] Interestingly, we observed many changes in market share leadership over time, with larger players like Nokia and Motorola at the beginning of the 2000s almost disappearing in several countries in the 2010s, dethroned by emerging vendors like Samsung, Apple and Huawei, as well as new players entering in the 2010s like Xiaomi and Oppo, quickly increasing their shares in various geographic areas. With regard to the number of countries, the cumulative volume of mobiles phones sold in the 46 countries considered represents nearly the 100% of handsets sold globally, meaning that only relatively small countries (in terms of population and handsets sold) were not included

[2] Countries available on *Euromonitor International* (i.e., our main source for sales of mobile phone vendors), and then considered in our analysis, are the following: Argentina, Australia, Austria, Brazil, Canada, Chile, China, Colombia, Czech Republic, Denmark, Egypt, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Israel, Italy, Japan, Malaysia, Mexico, Morocco, Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Taiwan, Thailand, Turkey, Ukraine, United Arab Emirates, United Kingdom, USA, Venezuela, Vietnam.

[3] It is worth noting that the number of these firm-year-level observations decreases to 3,398 in those models where the dependent variable is relative performance instability, since computed with a three-year standard deviation of a firm's market share in a country. Moreover, it is important to note that in our dataset, the number of handset vendors varies markedly from country to country, and from year to year. For example, in our observation period, the average number of firms per country is 9.8, the standard deviation is 3.6, and the variable ranges from 3 to 23 firms.

by the *Euromonitor International* database, because lacking sufficient information on units sold (thereby unlikely to bias our results).

Information about countries' institutional environment was collected from the World Bank (2016). Information about action observability was collected form *LexisNexis*. The time frame of our study, from 2003 to 2015, allowed us to capture how firms' MMC-based strategies and performance, countries' institutional environment, and rivals' action observability, evolved dynamically over time in multiple countries, thereby giving great variance to our key variables. In the next section, we explain in detail how we used this information to operationalize our key constructs.

3.3. Measures

Relative performance instability. Consistent with previous multimarket contact studies, a firm's relative performance instability was measured with a three-year standard deviation (SD) of a firm's market share in a country (Heggestad & Rhoades, 1978; Whitehead, 1978). The assumption is that in a country in which a firm is able to mitigate rivalry (e.g., via MMC with its country rivals), its performance vis-à-vis competitors will remain stable, while in case of aggressive rivalry in a country we should observe great performance volatility, since the firm can either gain or lose a lot vis-à-vis competitors.

Multimarket contact (MMC). It is worth noting that in our paper the "market-level" dimension of MMC is the "country" (Yu et al., 2009), and not a product/service category (e.g., Boeker et al., 1997) or a territory within a country (e.g., Barnett, 1993). Thus, in the herein presentation of our MMC variable, the reader should think of multi-market contact in terms of multi-country contact. As noted by Gimeno and Jeong (2001), depending on their theoretical appropriateness, three different levels of MMC analysis were developed by MMC scholars: (1) Dyad level (i.e., overall degree of MMC between two firms across all the markets where both are present), (2) Firm-in-market level (i.e., overall degree of MMC

between a focal firm and its focal market competitors), (3) Market level (i.e., overall degree of MMC among all firms present in a focal market). Since our study considers a firm's market specific strategic behavior that can affect all of its market competitors, thereby taking into account both firm and market contexts, consistent with the extant literature (Yu et al., 2009), we measured an *MNE's firm-in-market level of MMC with its host country rivals* with an indicator that captures the degree of MMC between a focal firm and its competitors in a given market ("country" in our case). We consider that there is a multimarket contact between two mobile phone vendors when they compete in at least two countries at the same time (in a given year *t*). To construct our measure of MMC, following the formula proposed by Baum and Korn (1996), we first calculated the total number of countries where the focal mobile phone vendor encounters the rest of host country rivals. Since in our measure, each pair of vendors should engage in more than one distinct country, if the focal vendor competes with a rival in only one country, then this pair of firms is not included in the measure of MMC of the focal vendor. Next, we divided the total number of countries where the focal mobile phone vendor encounters the rest of host country rivals by the number of multimarket rivals the focal vendor has in that country. More specifically, the MMC for firm *i* in country *m* at time *t* is as follows:

$$MMC_{imt} = \frac{\sum_{j \neq i} \sum_{m} (M_{imt} \times M_{jmt})}{\sum M_{imt} \times N_{MMCt}}, \quad for\ all\ j\ \sum_{m} (M_{imt} \times M_{jmt}) > 1.$$

where *j* refers to a specific multimarket rival and *m* refers to focal country. M_{imt} is a dummy variable which equals to 1 if firm *i* operates in country *m* at time *t* and 0 otherwise. Similarly, M_{jmt} is an indicator variable that equals to 1 if firm *j* operates in country *m* at time *t* and 0 otherwise. N_{MMCt} is the total number of competitors *j* that focal firm *i* meets in country *m* at time *t*. As mentioned before, focal firm *i* and rival firm *j* must meet in at least one country other than *m*. This measure ranges from zero to the number of countries the focal mobile phone vendor *i* operates outside the host country *m*. We considered a mobile phone vendor to

compete in a certain country in a given year *t*, if it sells phones in that country in that year. Consistent with other studies in the strategy literature, we used Euromonitor International as our source of information on vendors' sales by country (Giachetti et al., 2017).[4]

Institutional quality. To measure a country's *institutional quality* we followed studies in the international management literature (e.g., Cuervo-Cazurra and Genc, 2008; van Hoorn and Maseland, 2016) that use the six *worldwide governance indicators* developed and published on a yearly basis by the World Bank (2016): voice and accountability (VA), political stability and absence of violence/terrorism (PV), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), control of corruption (CC) (Kaufmann & Kraay, 2008; Kaufmann, Kraay, & Zoido-Lobatón, 1999). For each of these dimensions the World Bank provides an estimate of the level of effectiveness of the institutional system of a country within a range between 0 (weak) and 100 (strong). Consistent with the suggestions of Kaufmann et al. (1999) and Globerman and Shapiro (2003), we constructed the measure of institutional quality by assigning the average value of the six worldwide governance indicators to each country in which a firm *i* operates at year *t*.

Institutional distance. Consistent with previous studies, to measure *institutional distance* (in terms of the quality of governance institutions) between an MNE's home and host country, we used the absolute value of the home–host country scores difference of our institutional

[4] An example from our country-level data (taken from *Euromonitor International*) can help to clarify the MMC measure. If we take the Chinese vendor Huawei as focal MNE, Spain as the host country, and 2011 as the year of observation, in order to compute MMC for Huawei in Spain in 2011, we first need to count the number of countries where Huawei competed with its host country rivals, taking into consideration the premise of competing in at least two countries at the same time. Accordingly, Huawei in 2011 in Spain competed in 6 countries with TCL (that owned the brand Alcatel), 25 with Apple, 23 with HTC, 25 with LG, 20 with Motorola, 25 with Nokia, 24 with BlackBerry, 25 with Samsung, 24 with Sony Ericsson, 19 with ZTE. Thus, Huawei had a total number of 216 market (country) overlaps with its multimarket rivals in Spain, and this number is the numerator of our MMC variable. Since Huawei had 10 multimarket rivals in Spain at that time, which is the denominator of our MMC variable, we obtained Huawei's level of MMC with its rivals in Spain dividing the total number of market overlaps, i.e. 216, by 10. This means that in 2011 Huawei experienced a level of MMC (MMC_{imt}) with its multinational rivals in Spain equal to 21.6.

quality variable, which is based on the World Bank's worldwide governance indicators (e.g., Gooris & Peeters, 2014; Shirodkar & Konara, 2017).

Action observability. In this paper we define action observability as the degree to which the environment allows firms to observe the actions of their competitors. We used media articles discussing strategic actions undertaken by firms in a country as a measure of action observability. The Appendix A presents an explanation of our reasoning for adopting this approach. This decision is further supported by recent studies by Bednar et al. (2013), Paik and Zhu (2016), Tan (2016) and Zavyalova, Pfarrer, Reger, and Shapiro (2012), that note how media coverage plays a significant role in influencing rivals' action visibility in technology-intensive industries. To build our measure of action observability we integrated two indices, one capturing the volume of signals sent by media articles and the other capturing the extent to which such signals are likely to be accurate. These two components of our action observability variable are described as follows.

The first index was constructed using LexisNexis as the main source of data. Specifically, we count the number of media articles on mobile phone vendors' "strategic actions in a given country" in all major world publications such as the New York Times, Wall Street Journal, Financial Time, Guardian, Independent, Business Times, Korea Times, South China Morning Post and The Australian. LexisNexis provide a number of filters at the "industry-", "subject-" and "geography-" level that serve to orient the search towards articles related to specific topics. We selected "mobile and cellular telephone" as filter at the industry-level, "company strategy" as a filter at the subject-level, while at the geography-level we selected countries in our sample. "Company strategy" included by default several keywords related to several possible strategy variables, like "alliances and partnerships", "mergers and acquisitions", "business development", "business expansion", "covenants not to compete", "competitive intelligence", etc. After having set these search criteria, for each

year, we count the number of articles discussing mobile phone vendors' strategy in each of the sampled countries. We also distinguished between articles that dealt with one country, as opposed to articles that covered developments in multiple countries. To ensure consistency, we adjusted the count for articles that discuss strategic actions undertaken in multiple countries, adding each country noted in the article to the total country count. The first component of our measure of action observability is therefore a country-level variable that captures the frequency of appearance in media articles of mobile phone vendors' strategy pursued in a specific country. Given the high skewness, we winsorized this variable at the 5 percent and 95 percent levels (i.e., the values at the tails of the distribution were not removed, but were replaced with the largest remaining observation at the upper end of the distribution and with the smallest remaining observation at the lower end of the distribution) to mitigate inordinate influence of extreme values (Barnett and Lewis, 1994).

Next, we wanted to account for the extent to which information provided by media articles in a country are likely to be accurate, and then not distorted by the local environment of a country. In fact, as we argued in the theory section, it is not only the volume of signals that makes them visible, but also their noisiness, i.e. the extent to which information about firms in a country are incongruent, inconsistent, and thereby ambiguous (Park & Rhee, 2021; Piazza & Castellucci, 2014). To do this we weighed the count of media articles described above by an index specifically capturing the extent to which the press in a country is free to provide information about companies and report on related business environment (Brunetti & Weder, 2003). For this purpose, we used the *Press Freedom Index*, an indicator developed by Reporters Without Borders, capturing the free flow of information through various media sources, from completely not free to completely free (Li & Filer, 2007). The index between 2003 and 2015 ranges from -10 to 136, with -10 indicating countries with the greatest freedom of information for media. Since, smaller values indicate greater press-related

freedom, we corrected the index's direction by multiplying it by minus one (-1), so to obtain an index ranging from -136 to 10. Next, we transformed the index from ranking to a ratio by adding to it 136 (so to have only positive integers) and dividing it by its new max (i.e., 146). This modified Press Freedom Index ranges from 0 (i.e., minimum press freedom and then minimum signal accuracy) to 1 (i.e., maximum press freedom and then maximum signal accuracy).

Our final measure of action observability is the product between the count of media article and our modified Press Freedom Index. The logic would be that if there are several articles (in major world publications, as we have from Lexis Nexis) discussing firms' strategy in a country with a low press freedom, the signal sent by such media articles into the country could be distorted by other media, like national TV news, local-minor magazines, and national radio, which are likely to send contrasting and different information with respect to those published in major world publications.

Control variables. We controlled for various firm- and country-level characteristics likely to influence the main independent-dependent relationship in several ways. As for firm-level controls, first, we included *firm size (host country)*, measured by taking natural logarithm of a firm's unit sales in a certain country in a given year. Second, we controlled for *market importance*, since it has been shown to affect a firm's MMC behavior in a given market (Chuang, Dahlin, Thomson, Lai, & Yang, 2018). We measured market importance for a focal MNE by taking the ratio of units sold of the focal MNE in a certain country to total unit sold by the focal MNE across all countries in which it competes in a given year (Domínguez et al., 2016). Third, consistent with extant literature, we take account of firms that were involved in *acquisitions* with other vendors over our observation period, and compare pre-acquisition to post-acquisition main effect on MMC (Gimeno & Woo, 1996). We are interested in capturing cases in which, when the acquisition of a rival takes place, the acquirer takes full control of

the acquired firm's mobile phone operations, and thus adds to its country portfolio the countries (and rivals) of the acquired firm, with likely consequences for its MMC-based strategy. We searched LexisNexis for media articles with information about acquisitions in the mobile phone industry, and in order to control for the post-acquisition effect on MMC, we used a dummy variable giving it the value 1 for the year of the acquisition onwards, and 0 for the years before the acquisition. We also controlled for the *market leader* firm in a given country, since the market leader and its challengers may not only have different views on market conditions, but also take different actions in response to these conditions (Giachetti & Torrisi, 2018). We measured the market leader using a dummy variable which takes a value of 1 if an MNE in a year is ranked number one in terms of its units sold in a certain country, and 0 otherwise.

We also added country-level controls to our analysis. We controlled for *industry concentration* in a given country, often used as a proxy of competitive intensity (Giachetti et al., 2017), with the Herfindahl-Hirschman Index (calculated by squaring the market share of each competing mobile phone vendor in a country, and then summing them). We also controlled for *GDP per capita growth* rate and for the *population growth rate* in the host country, as emerging markets, typically experiencing particularly rapid growth of GDP per capita and population, are often characterized by a competitive environment where several local players that do not have significant international operations take a substantial portion of the market. Annual GDP per capita and population growth were measured as reported in the World Development Indicator database. Lastly, the growth rate of the demand can change considerably depending on the host country in which an MNE is competing (Shankar, 1999). Therefore, depending on the level of institutional quality we would expect market growth rates in a country to constrain MNE's MMC-based strategy with its host country rivals in

other countries. We operationalized *market growth* in a certain country by calculating the rate of change of aggregate units sold by all vendors in a country relative to the previous year.

Finally, we included *year dummies* in all models to control for possible changes of MMC due to other time-related factors that we did not directly measure, like product technology evolution and competition among network operators.

3.4. Analytical technique

Given the multiple firms, multiple years structure of our database, we deemed panel data techniques to be the appropriate methods for testing our hypotheses. After applying the Hausman test, we also concluded that the use of fixed-effects regression is preferable to random-effects. We therefore used fixed-effects regression (firm- and country-dummies) to test our hypotheses in order to control for heteroscedasticity and time-series dependence in the data (Cameron & Trivedi, 2009). In order to preserve a temporal sequence of causal relationships in our overall research model, both in the regressions used to the test the mediating effect and in the regressions used to test the effect of MMC on a firm performance instability, all variables were lagged by one year (i.e., *t-1*), with the exception of MMC and institutional distance that were computed at time *t*, and relative performance instability that was computed at time *t+1* but using data also at *t+2* and *t+3* (since it is a three-year SD). This allows us to make realistic assumptions about the fact that, on the one hand MMC is a deliberate response to changing institutional and industry structural factors, on the other hand a firm's performance instability is a consequence of its MMC choices. Moreover, independent variables were standardized to permit comparison of their coefficients and, thus, assess the relative magnitude of predictors' effect on action observability and MMC. Additionally, we calculated variance inflation factors (VIFs) to determine whether there was multicollinearity in the analysis. The average VIF scores in our full models were 1.20, 1.24

and 1.56, thereby less than the recommended threshold of 10 (Chatterjee & Hadi, 2006). Table 1 reports the descriptive statistics of the variables.

Please insert Table 1 about here
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4. ANALYSIS AND RESULTS

4.1. Hypothesis test

Table 2 presents a set of regression models with action observability as dependent variable, Table 3 shows a set of regression models with MMC as dependent variable, while Table 4 presents a set of regression models with performance instability as dependent variable. Model 1 in Table 2, Model 3 in Table 3 and Model 7 in Table 4 include controls, while in the remaining models we added our key regressors to test Hypotheses 1, 2, 3a and 3b.

Hypothesis 1 proposed that institutional quality in an MNE's host country would be positively associated with the observability of actions of the rivals in that country. As shown in Table 2, Model 2, the coefficient for institutional quality is positive and significant (β = 0.39, $p < .001$), thereby supporting Hypothesis 1.

Please insert Table 2 about here

To examine the mediating effect of action observability on institutional quality and MMC as proposed in Hypothesis 2, we followed the procedure outlined by Baron and Kenny (1986). They proposed that a mediating effect exists when (1) the independent variables and presumed mediators each significantly account for the variations in the dependent variable; (2) the independent variables significantly account for the variations in the presumed mediators; and (3) the effects of the independent variables on the dependent variable are reduced significantly when the presumed mediators are incorporated into the examined model. Condition 1 is met, as both institutional quality and action observability are significantly related to MMC (Table 3). Condition 2 is satisfied, as Table 2 showed that

institutional quality is significantly related to action observability. Finally, condition 3 is met, as a comparison between Models 4 and 6 in Table 3 shows that the effect of institutional quality on MMC changes its significance from the *p*-value of 0.004 (Model 4: $\beta = 2.55$; $p < 0.01$) to 0.020 (Model 6: $\beta = 2.05$; $p < 0.05$) when action observability is included. Moreover, we tested the equality of coefficients of institutional quality (between Models 4 and 6) following the procedure of Gupta and Ma (1996). The significance level of the test is 0, so we can strongly reject the equality hypothesis, meaning that the coefficient of institutional quality variable in Model 4 is significantly different than the coefficient of institutional quality variable in Model 6, thus supporting our hypothesis.

Please insert Table 3 about here

Hypothesis 3a states that all the other things being equal, the MNE's MMC with its host country rivals is negatively related to the MNE's relative performance instability in that country. As can be noted in Table 4, Model 11, the coefficient for multimarket contact is negative and significant ($\beta = -0.27$, $p < .10$), thereby supporting Hypothesis 3a.

Furthermore, according to Hypothesis 3b, the negative relationship between the MNE's MMC with its host country rivals and the MNE's relative performance instability in that country is weakened as the institutional distance between the MNE's home and host country increases. The coefficient of the interaction, as evident in Table 4, Model 11, is positive and significant ($\beta = 0.34$, $p < .01$), indicating support for Hypothesis 3b. Figure 2 illustrates the average marginal effect of the interaction.

Please insert Figure 2 about here

Finally, as can be noted in Tables 2, 3 and 4, the size of standardized coefficients of our key regressors, i.e. institutional quality (Tables 2 and 3), action observability (Table 3), and

multimarket contact and its interaction with institutional distance (Table 4) is larger than most of the other variables included in the models, suggesting their effect is not negligible.

Please insert Table 4 about here

4.2. Robustness tests

We run several tests and additional analyses to check the robustness of our findings, which are discussed in this section and whose results are shown in the Appendix B. First, since our measure of institutional quality is a composite index, we repeated in Tables B1 and B2 (of the Appendix B) the analyses presented in Tables 2 and 3 to check whether our results are robust with the separate inclusion of the World Bank's six dimensions of institutional quality. Accordingly, as can be observed in Models 12-29, results are consistent with those presented in Tables 2 and 3 with the only exceptions of the government effectiveness and the rule of law dimensions.

Furthermore, it is worth noting that action observability is the product of a country's institutional environment. The size of the economy, or the size of the market, should not therefore influence action observability. However, arguably the number of media articles published every year in country might be influenced by the size of the economy and the size of the market: The number of news items in the United State, for example, is likely to be much larger than a country such as Denmark. The disparity in volume of reporting may result in a biased measure of action observability. To check whether our results are robust we decided to weigh the action observability variable by measures of country size. In this way, we correct for the effect of economy and market size for countries with similar number of media articles, with countries that are smaller in size showing greater observability of actions. In Tables B3 and B4 we repeated the analyses presented in Tables 2 and 3, but this time we weighed the action observability variable by a *country GDP,* and by the *size of the mobile*

phone market in a country. More specifically, in Models 30, 32 and 33 the variable action observability was divided by the natural logarithm of a country GDP, while in Models 31, 34 and 35 we divided action observability by the natural logarithm of the total number of mobile phones sold in a country. As can be observed, results are very consistent with those presented in Tables 2 and 3.

Moreover, authors have noted that MMC may not necessarily reflect the strategic intentions of the firm, but be unintentional and then happen by coincidence (Yu & Cennalla, 2013). Since previous studies have noted that larger firms are more likely to intentionally seek MMC because the ability to recognize competitive dependence may be linked to organizational size (Greve, 2000), in Table B5 we checked whether our results hold by splitting the sample according to global firm size (i.e., natural logarithm of a firm's unit sales at the worldwide level). The results related to Hypotheses 1 and 2, as shown in Table B5 (Models 36-39), confirm that high action observability, enabled by high institutional quality, causes only larger firms to increase the level of their MMC with their host country rivals. Moreover, the results related to Hypotheses 3a and 3b, as shown in Table B6 (Models 40 and 41), indicate that only larger firms are able to rely on MMC to mitigate rivalry and then stabilize their performance.

Additionally, as in all robustness tests related to the mediating effect we tested the equality of coefficients of institutional quality – as we did for our main model in Table 3. In all cases the significance level of the test remained 0, meaning that the coefficient of institutional quality is significantly different when action observability variable is included, thus supporting our mediation hypothesis.

5. DISCUSSION

5.1. Implications for theory

Institutional Quality, Action Observability and MMC

At present, international business scholars have observed a growing interest around the relationships between the quality of institutions and global strategy (Coeurderoy & Verbeke, 2016; Cuervo-Cazurra, et al., 2019; Martin, 2014), and we have studies that explore the influence of institutions on firm strategies such as entry modes and location choices (e.g., Brouthers, 2002; Henisz & Macher, 2004; Hernández et al., 2018). We also have MMC studies that have been conducted in business environments where high observability prevails. In contrast, to our knowledge there are no studies that explore how the diversity of host country institutional systems and home-host country institutional quality differences influence MMC-based strategy of MNEs. A number of authors have suggested that future MMC research should examine how institutions with different levels of quality influence MNEs' collusive behaviors with rivals in international markets (Domínguez et al., 2016; Yu & Cannella, 2013), but to our knowledge this study is the first to examine the institutional quality-MMC relationship by modifying the assumption that high observability of actions can be taken for granted when rivals are trying to establish mutual forbearance.

First, to theorize on the role that action observability plays as a mechanism explaining the institutional quality-MMC relationship, we turned to the theory of signaling (Connelly et al., 2011), which served us as a way to bridge the international business literature that addresses the institution's role with the literature on MMC. Our findings suggest that the higher the level of institutional quality in an MNE's host country, the more the MNE is likely to take the advantage of the greater observability to increase the level of MMC with its host country rivals. Viewed internationally, one can compare action observability in developed economies that are institutionally mature with that of emerging economies where institutions are still in the process of formation. In institutionally mature economies, well-developed institutions facilitate signaling by an MNE's host country rivals, making competitive or cooperative moves easier to interpret accurately. This allows the MNE to have confidence that increasing

the level of MMC with its host country rivals will yield the desired response from rivals. In contrast, when MNEs operate in host countries with low quality of institutions, information asymmetries and interpretative ambiguity distort signal communication between the rivals, thereby making it far more difficult for firms to monitor and accurately assess each other's intentions. This in turn hampers an MNE's use of MMC-based strategies aimed at establishing mutual forbearance in the host country. This demonstrates how signaling theory and institution-based view of strategy can be combined to produce parsimonious yet strong model of MMC-based strategies.

Moreover, our results that an MNE's ability to successfully reduce rivalry with host country competitors via MMC is contingent on the institutional quality distance between the MNE's home and host country, on the one hand complement the international business literature of competitive dynamics (e.g., Domínguez et al., 2016; Ma, 1998; Yu & Cannella, 2007; Yu et al., 2009), which recently called for more studies providing evidence for the assumption that "the mutual forbearance hypothesis relies on observability among rivals. [In fact,] a more realistic assumption might be that players are uncertain about what actions their rivals have taken" (Yu & Cannella, 2013, p. 103). On the other hand, our results complement the global strategy literature which recently called for more studies (a) on the role that an MNE's home-host country institutional quality distance plays in affecting how the MNEs behave strategically in the host country (e.g., Hernández & Nieto, 2015), (b) using empirical settings including "multi-origin and multi-destination datasets in order to offer more generalizable results" (Hernández et al., 2018, p. 42).

Overall, our results suggest that in competitive environments where monitoring of participants' actions is constrained by unfavorable environmental conditions, given for example by the differences between an MNE's home and host institutional environment (Cuervo-Cazurra & Genc, 2008; Kostova, 1999; Shirodkar & Konara, 2017), the possibility

of mistaken retaliatory punishments is high. Building on these studies, our work sheds light on the institutional-level conditions that can limit action observability in a country, and the resulting MMC-based strategies in international markets. In contrast to single-country studies, in the international business domain MMC among global rivals is often undertaken in countries with heterogeneous institutional environments. These environments can influence the competitive rivalry among MNEs, and the likelihood of their engaging in collusive behaviors via MMC. Yet, as noted by some international business scholars, "the nature of this influence specific to the competition–cooperation nexus in international markets remains to be systematically understood" (Yu et al., 2013, p. 118). Our study is motivated by the belief that the understanding of how various institutional factors in an MNE's host country, and their degree of difference/similarity with the MNE's home country, influence the MNE's decisions to use MMC-based strategies in a host country, is a critical component of global competition, and an essential aspect of managing MNEs.

5.2. Implications for practice

Finally, our research also offers important managerial implications. It has long been accepted that MNEs have to contend with institutional variability of the countries in which they operate. In our paper we argue that institutional quality does not only affect the ease of doing business in a particular country (as noted in previous studies), but also has ramifications when it comes to avoiding destructive rivalry with other MNEs, and possibly even building mutually beneficial coordination. Our paper introduces another level of analysis into the strategy planning of MNEs. In particular, it suggests that strategic planning by managers should include the level of institutional quality in a host country (or set of host countries). For example, MNEs often use scenario planning when analyzing country moves. Our study suggests that institutional quality and associated level of action observability

should be included in establishing the feasibility of different scenarios for competitive interaction (both positive and negative) with rival MNEs across markets.

Our results also alert managers of MNEs that, in order to establish mutual forbearance with multimarket rivals in a host country, differences between the MNE's home and host country institutional environment should be carefully taken into account. For example, many MNEs have their origins in countries that have strong institutional quality, and they also tend to expand beyond their domestic origins to countries with similarly strong institutions. Building an MMC-based strategy during this expansion process may not be particularly challenging because of the relatively high observability of actions of host country rivals. But the relative ease of building an effective MMC-based strategy in countries and regions with strong institutional quality can easily be misled, since when entering countries with low institutional quality the MNE's attempt to build an effective MMC-based strategy is an uphill struggle. In addition, the greater the institutional quality distance between an MNE's home and host country, the more time and resources the MNE will have to spend to properly scan and comprehend the host country's institutional requirements, and thus the greater will be the challenge for the MNE to navigate the host country competitive environment effectively. Therefore, an appreciation for these institutional differences between an MNE's home and host country should help managers not only to be mindful when building an MMC-based strategy in counties with different institutional quality, but also estimate in advance the resources needed to compete and effectively cope with diverse institutional environments in the different countries in which the MNE is planning to enter.

5.3. Limitations and suggestions for future research

Our study has a number of limitations that also highlight the potential for future research. First, our study only deals with a single industry (i.e., mobile phone industry). The key characteristics of this industry are frequent product introductions, rapid technological

imitation, and therefore, in most countries, intense competition. The generalizability of our findings may not hold in other industries where the pace of technology is slower and consumer demand is more stable. Future research could test our theory in industries that are similar to the mobile phone industry in terms of key characteristics, but also extend our framework to other industries, for example natural resources or service industries.

Second, our measure of action observability did not assess whether the actions of some firms attract more attention, for example due to their status or reputation in a country (or at the worldwide level), as noted by other studies drawing on the signaling literature (Park & Rhee, 2021; Piazza & Castellucci, 2014). Information about how firms perceive the level of visibility of rivals' actions may require primary firm data, e.g. in-depth interviews with managers of sampled firms (Basdeo et al., 2006). Obtaining this primary data for all firms in our sample is costly and difficult to obtain even if funds became available. Nevertheless, to further corroborate our theoretical framework and findings, such effort is clearly desirable, and may be practical for researchers undertaking qualitative research using case studies and small sample research.

Third, although our conceptual definition and empirical measure of home-host institutional quality distance is based on the "absolute" distance between home and host country, authors have recently argued and empirically shown that "greater institutional distance does not always constitute a disadvantage, as both the magnitude and direction of the distance have to be taken into account" (Hernández et al., 2018, p. 23). This is because home-host country institutional distance can be positive, when the firm enters a host country with higher level of institutional quality than its home country, or negative, when the firm enters a host country with a lower level of institutional quality than its home country (Hernández & Nieto, 2015). Therefore, an interesting avenue for future research would be to examine how

an asymmetric effect of positive vs. negative institutional distance affects the extent to which MNEs can use MMC to reach mutual forbearance with host country rivals.

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Table 1. Descriptive statistics

		Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Performance Instability	1.833	2.202	0.000	22.253	1.000												
2	Multimarket Contact	26.679	13.159	0.000	44.000	0.226*** [0.000]	1.000											
3	Institutional Quality	64.955	23.042	8.935	97.948	0.041* [0.017]	0.050*** [0.001]	1.000										
4	Action Observability[a]	33.634	80.018	0.000	756.696	-0.069*** [0.000]	-0.179*** [0.000]	0.252*** [0.000]	1.000									
5	Institutional Distance	22.250	19.542	0.000	88.430	0.040* [0.020]	0.248*** [0.000]	-0.583*** [0.000]	-0.203*** [0.000]	1.000								
6	Firm Size (Host Country)[b]	6.056	2.001	-1.609	11.267	0.305*** [0.000]	-0.005 [0.718]	-0.145*** [0.000]	0.286*** [0.000]	-0.028+ [0.061]	1.000							
7	Market Importance	0.121	0.282	0.000	1.000	-0.094*** [0.000]	-0.697*** [0.000]	-0.107*** [0.000]	0.189*** [0.000]	-0.304*** [0.000]	0.193*** [0.000]	1.000						
8	Acquisitions	0.082	0.275	0.000	1.000	-0.098*** [0.000]	-0.132*** [0.000]	-0.020 [0.169]	0.010 [0.510]	0.003 [0.827]	-0.017 [0.241]	-0.029* [0.048]	1.000					
9	Market Leader	0.122	0.327	0.000	1.000	0.406*** [0.000]	0.179*** [0.000]	-0.000 [0.997]	-0.026+ [0.083]	0.133*** [0.000]	0.364*** [0.000]	-0.090*** [0.000]	-0.095*** [0.000]	1.000				
10	Industry Concentration	0.283	0.104	0.097	0.775	0.123*** [0.000]	0.260*** [0.000]	-0.163*** [0.000]	-0.271*** [0.000]	0.220*** [0.000]	-0.181*** [0.000]	-0.246*** [0.000]	-0.112*** [0.000]	0.078*** [0.000]	1.000			
11	GDP Per Capita Growth	0.022	0.038	-0.151	0.162	-0.023 [0.184]	-0.163*** [0.000]	-0.291*** [0.000]	-0.042** [0.005]	0.103*** [0.000]	0.152*** [0.000]	0.171*** [0.000]	-0.054*** [0.000]	0.012 [0.413]	0.068*** [0.000]	1.000		
12	Population Growth	0.009	0.016	-0.129	0.162	0.036* [0.038]	0.166*** [0.000]	-0.097*** [0.000]	-0.045** [0.003]	0.078*** [0.000]	-0.006 [0.681]	-0.089*** [0.000]	-0.038* [0.011]	0.016 [0.296]	0.089*** [0.000]	-0.203*** [0.000]	1.000	
13	Market Growth	0.116	0.241	-0.456	2.904	0.005 [0.755]	0.012 [0.413]	-0.207*** [0.000]	-0.057*** [0.000]	0.157*** [0.000]	0.062*** [0.000]	0.003 [0.855]	-0.091*** [0.000]	0.044** [0.003]	0.283*** [0.000]	0.344*** [0.000]	0.117*** [0.000]	1.000

[a] The media count dimension of the Action observability variable reported here is not winsorized.
[b] Logarithm of a firm's unit sales (thousands of units sold).
All variables are lagged by one year (*t-1*), except multimarket contact and institutional distance that are computed at time *t*, and performance instability that is computed at time *t+1* but using data also at *t+2* and *t+3* (since it is a three-year SD of a firm's market share in a country); *p*-values in square brackets. Mean, SD, Min and Max values are based on unstandardized variables. All correlations are based on standardized variables with the exception of the performance instability variable.
N = 3,398
$^{+}\ p < 0.10$, $^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$.

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Table 2. Fixed-effects regression for the impact of institutional quality on action observability

	Model 1 Action Observability	**Model 2** Action Observability
Constant	-0.257***	-0.260***
	(0.039)	(0.039)
	[0.000]	[0.000]
Independent Variable		
Institutional Quality		0.387***
		(0.053)
		[0.000]
Controls		
Firm Size (Host Country)	-0.023	-0.028
	(0.020)	(0.020)
	[0.240]	[0.155]
Market Importance	-0.056	-0.053
	(0.057)	(0.057)
	[0.325]	[0.348]
Acquisitions	-0.001	-0.002
	(0.007)	(0.007)
	[0.855]	[0.823]
Market Leader	0.003	0.004
	(0.013)	(0.013)
	[0.830]	[0.779]
Industry Concentration	0.037**	0.038**
	(0.012)	(0.012)
	[0.003]	[0.002]
GDP Per Capita Growth	0.018**	0.004
	(0.007)	(0.007)
	[0.007]	[0.520]
Population Growth	0.014*	0.009+
	(0.006)	(0.005)
	[0.028]	[0.089]
Market Growth	0.006	0.002
	(0.008)	(0.008)
	[0.432]	[0.793]
Year Dummies	Included	Included
N	4,519	4,519
Within R-sq	0.162	0.173

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 3. Fixed-effects regression for the impact of institutional quality and action observability on multimarket contact

	Model 3 MMC	**Model 4** MMC	**Model 5** MMC	**Model 6** MMC
Constant	24.376***	24.359***	24.723***	24.691***
	(0.351)	(0.350)	(0.328)	(0.330)
	[0.000]	[0.000]	[0.000]	[0.000]
Independent Variables				
Institutional Quality		2.547**		2.052*
		(0.873)		(0.877)
		[0.004]		[0.020]
Action Observability			1.348***	1.280***
			(0.288)	(0.293)
			[0.000]	[0.000]
Controls				
Firm Size (Host Country)	2.054***	2.023***	2.085***	2.058***
	(0.275)	(0.274)	(0.270)	(0.270)
	[0.000]	[0.000]	[0.000]	[0.000]
Market Importance	-2.645***	-2.624***	-2.569**	-2.556**
	(0.788)	(0.792)	(0.811)	(0.813)
	[0.001]	[0.001]	[0.002]	[0.002]
Acquisitions	-0.045	-0.046	-0.043	-0.044
	(0.094)	(0.093)	(0.093)	(0.093)
	[0.635]	[0.619]	[0.647]	[0.634]
Market Leader	-0.171	-0.166	-0.175	-0.171
	(0.127)	(0.125)	(0.122)	(0.121)
	[0.177]	[0.186]	[0.150]	[0.158]
Industry Concentration	0.930***	0.937***	0.880***	0.888***
	(0.223)	(0.219)	(0.222)	(0.218)
	[0.000]	[0.000]	[0.000]	[0.000]
GDP Per Capita Growth	0.122	0.032	0.098	0.027
	(0.101)	(0.103)	(0.100)	(0.103)
	[0.229]	[0.754]	[0.329]	[0.793]
Population Growth	0.064	0.035	0.045	0.023
	(0.142)	(0.141)	(0.141)	(0.140)
	[0.654]	[0.803]	[0.747]	[0.868]
Market Growth	0.173	0.145	0.164	0.142
	(0.102)	(0.100)	(0.106)	(0.104)
	[0.091]	[0.150]	[0.121]	[0.172]
Year Dummies	Included	Included	Included	Included
N	4,519	4,519	4,519	4,519
Within R-sq	0.236	0.240	0.249	0.251

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 4. Fixed-effects regression for the impact of multimarket contact and institutional distance on performance instability

	Model 7 Performance Instability	**Model 8** Performance Instability	**Model 9** Performance Instability	**Model 10** Performance Instability	**Model 11** Performance Instability
Constant	1.685***	1.672***	1.700***	1.686***	1.590***
	(0.165)	(0.166)	(0.169)	(0.170)	(0.177)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Independent Variables					
Multimarket Contact		-0.298*		-0.298*	-0.267+
		(0.141)		(0.141)	(0.141)
		[0.035]		[0.035]	[0.059]
Institutional Distance			0.098	0.095	0.119
			(0.242)	(0.242)	(0.257)
			[0.686]	[0.696]	[0.644]
Interaction					
Multimarket Contact × Institutional Distance					0.341**
					(0.113)
					[0.003]
Controls					
Firm Size (Host Country)	0.461***	0.505***	0.460***	0.504***	0.501***
	(0.098)	(0.103)	(0.098)	(0.103)	(0.103)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Market Importance	0.185+	0.140	0.178+	0.134	0.131
	(0.105)	(0.099)	(0.107)	(0.102)	(0.107)
	[0.078]	[0.159]	[0.096]	[0.189]	[0.225]
Acquisitions	0.023	0.023	0.023	0.024	0.015
	(0.032)	(0.032)	(0.031)	(0.032)	(0.033)
	[0.475]	[0.475]	[0.459]	[0.459]	[0.647]
Institutional Quality	-0.082	-0.042	-0.031	0.007	0.023
	(0.438)	(0.440)	(0.419)	(0.422)	(0.424)
	[0.852]	[0.924]	[0.941]	[0.986]	[0.956]
Action Observability	-0.152+	-0.122	-0.153+	-0.123	-0.100
	(0.085)	(0.087)	(0.085)	(0.087)	(0.090)
	[0.075]	[0.160]	[0.073]	[0.156]	[0.264]
Market Leader	0.140	0.138	0.141	0.139	0.137
	(0.087)	(0.087)	(0.087)	(0.087)	(0.088)
	[0.109]	[0.114]	[0.107]	[0.112]	[0.120]
Industry Concentration	0.303**	0.316***	0.302**	0.315***	0.330***
	(0.094)	(0.095)	(0.094)	(0.095)	(0.095)
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
GDP Per Capita Growth	0.027	0.027	0.028	0.029	0.041
	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)
	[0.595]	[0.592]	[0.576]	[0.574]	[0.420]
Population Growth	-0.104+	-0.105+	-0.106+	-0.106+	-0.092
	(0.057)	(0.057)	(0.057)	(0.057)	(0.056)
	[0.065]	[0.064]	[0.063]	[0.062]	[0.101]
Market Growth	-0.032	-0.028	-0.032	-0.027	-0.023
	(0.043)	(0.042)	(0.043)	(0.042)	(0.043)
	[0.451]	[0.509]	[0.456]	[0.514]	[0.590]
N	3,398	3,398	3,398	3,398	3,398
Within R-sq	0.112	0.114	0.113	0.114	0.119

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

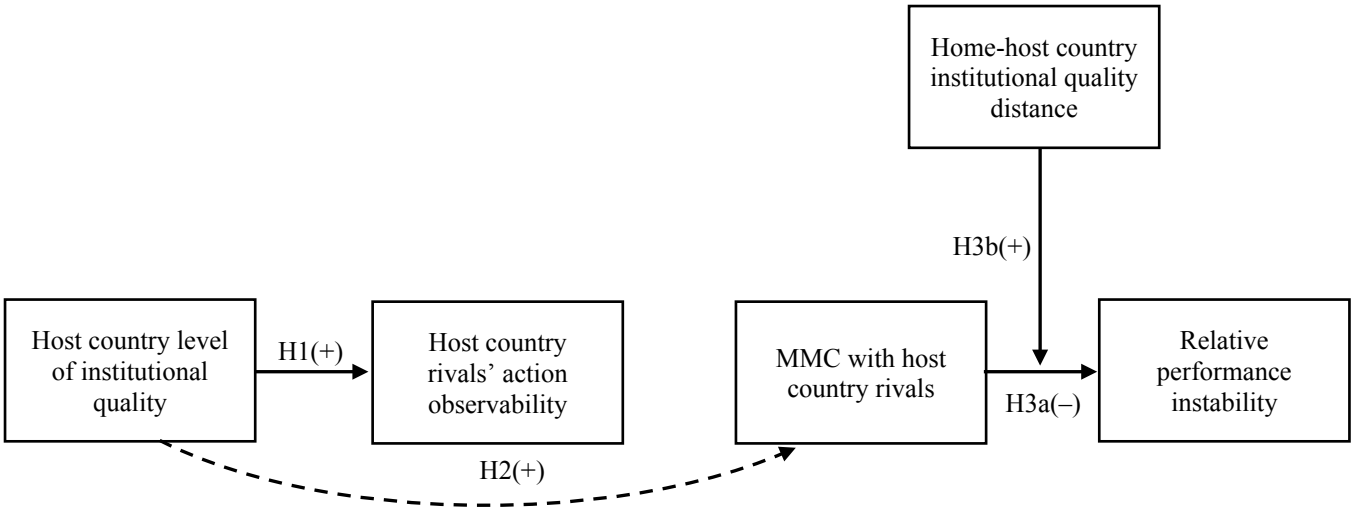

Figure 1. The research model

Note: The dotted line indicates the mediating effect of "host country rivals' action observability" (H2).

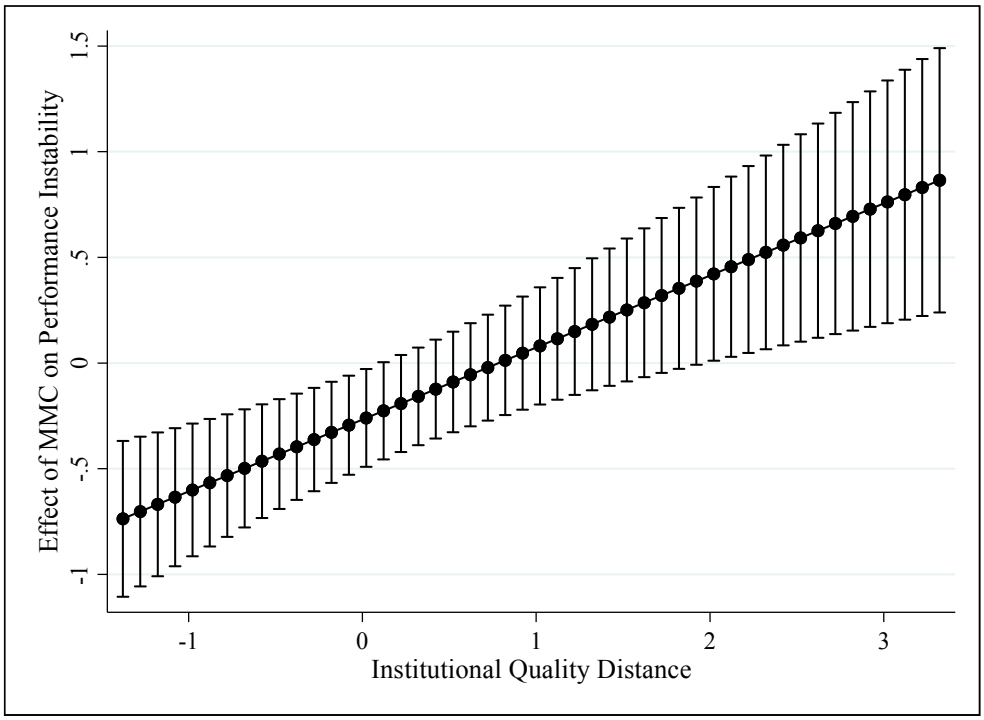

Figure 2. Average marginal effect of MMC on relative performance instability for different levels of home-host country institutional quality distance (with 90% CI).

Note: Results are based on standardized variables.

APPENDIX A. Measure of action observability based on media articles

Measuring action observability requires an approach that separates the property of the signal conducting environment from constraints on the actor's ability to observe. An analogy can be made to measuring the visibility of driving in fog conditions (Mueller & Trick, 2012). Researchers have established measurement scales for reduced visibility in fog conditions, while acknowledging that this may vary depending on the eyesight and driving experience of the individuals involved. Ideally, it would be desirable to measure action observability directly by surveying firms, but the resource expenditures needed to survey observability at the firm level across all the markets are usually far too great. As noted by Bednar, Boivie, and Prince (2013):

> The media are often viewed as a force that can help increase the size and visibility of movements and ultimately affect firm action […] The media are a vehicle through which organizations and stakeholders contend with one another and attempt to influence each other's perceptions. […] The media coverage itself is an important determinant of firm action (p. 912)

We therefore adopted an indirect approach, by using media news reporting to assess action observability. Our reasoning for adopting this approach are as follows: First, the media is in the business of observing and reporting the actions of firms locally and globally. They have the motivation and resources to record actions if they are observable. Second, the variability of individual firms in response to action observability is minimized by media organizations which have a relatively uniform, across the board, criteria for collecting information. Third, firms may or may not be aware of the strategic actions of rivals on their own, but they usually become aware of actions when these are reported in the media. Thus, while the extent to which media organizations collect information on firms' actions is a function of the observability of these actions, the subsequent reporting constitutes an important component of the information about environment in which firms operate.

APPENDIX B. Robustness tests

Table B1. Robustness tests: Fixed-effects regression for the impact of six dimensions of institutional quality on action observability

	GE	CC	PV	RQ	RL	VA
	Model 12 Action Observability	**Model 13** Action Observability	**Model 14** Action Observability	**Model 15** Action Observability	**Model 16** Action Observability	**Model 17** Action Observability
Constant	-0.259***	-0.279***	-0.252***	-0.250***	-0.255***	-0.267***
	(0.039)	(0.040)	(0.038)	(0.038)	(0.039)	(0.039)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Independent Variable						
Institutional Quality	0.073**	0.273***	0.097**	0.186***	0.150***	0.315***
	(0.027)	(0.041)	(0.032)	(0.041)	(0.039)	(0.057)
	[0.007]	[0.000]	[0.003]	[0.000]	[0.000]	[0.000]
Controls						
Firm Size (Host Country)	-0.023	-0.028	-0.024	-0.025	-0.026	-0.026
	(0.020)	(0.020)	(0.020)	(0.019)	(0.020)	(0.020)
	[0.233]	[0.154]	[0.222]	[0.199]	[0.193]	[0.186]
Market Importance	-0.055	-0.053	-0.054	-0.057	-0.056	-0.057
	(0.057)	(0.056)	(0.057)	(0.057)	(0.057)	(0.056)
	[0.333]	[0.340]	[0.346]	[0.319]	[0.328]	[0.308]
Acquisitions	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
	[0.841]	[0.908]	[0.886]	[0.816]	[0.808]	[0.769]
Market Leader	0.003	0.004	0.003	0.003	0.003	0.003
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
	[0.825]	[0.745]	[0.827]	[0.812]	[0.816]	[0.797]
Industry Concentration	0.038**	0.037**	0.036**	0.038**	0.039**	0.038**
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)
	[0.002]	[0.003]	[0.004]	[0.002]	[0.001]	[0.003]
GDP Per Capita Growth	0.016*	0.009	0.013	0.011	0.013	0.013*
	(0.006)	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)
	[0.014]	[0.141]	[0.055]	[0.097]	[0.076]	[0.041]
Population Growth	0.014*	0.011	0.010	0.014*	0.015**	0.008
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
	[0.019]	[0.063]	[0.116]	[0.020]	[0.010]	[0.222]
Market Growth	0.005	0.006	0.006	0.003	0.004	0.005
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
	[0.533]	[0.491]	[0.465]	[0.721]	[0.612]	[0.526]
Year Dummies	Included	Included	Included	Included	Included	Included
N	4,519	4,519	4,519	4,519	4,519	4,519
Within R-sq	0.163	0.173	0.165	0.166	0.164	0.170

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table B2. Robustness tests: Fixed-effects regression for the impact of six dimensions of institutional quality and action observability on multimarket contact

	GE		CC		PV		RQ		RL		VA	
	Model 18 MMC	**Model 19** MMC	**Model 20** MMC	**Model 21** MMC	**Model 22** MMC	**Model 23** MMC	**Model 24** MMC	**Model 25** MMC	**Model 26** MMC	**Model 27** MMC	**Model 28** MMC	**Model 29** MMC
Constant	24.383***	24.733***	24.215***	24.570***	24.415***	24.749***	24.429***	24.757***	24.394***	24.733***	24.306***	24.652***
	(0.353)	(0.330)	(0.357)	(0.335)	(0.344)	(0.323)	(0.345)	(0.324)	(0.349)	(0.326)	(0.356)	(0.335)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Independent Variables												
Institutional Quality	-0.180	-0.279	1.961**	1.615*	0.720+	0.591	1.309+	1.064	1.124	0.925	2.162**	1.755*
	(0.474)	(0.472)	(0.681)	(0.683)	(0.393)	(0.393)	(0.758)	(0.759)	(0.862)	(0.865)	(0.760)	(0.771)
	[0.703]	[0.555]	[0.004]	[0.018]	[0.067]	[0.133]	[0.085]	[0.161]	[0.193]	[0.285]	[0.005]	[0.023]
Action Observability		1.351***		1.269***		1.326***		1.317***		1.330***		1.292***
		(0.289)		(0.293)		(0.288)		(0.289)		(0.291)		(0.294)
		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]		[0.000]
Controls												
Firm Size (Host country)	2.055***	2.087***	2.018***	2.054***	2.048***	2.080***	2.041***	2.074***	2.035***	2.070***	2.035***	2.068***
	(0.275)	(0.270)	(0.270)	(0.265)	(0.276)	(0.271)	(0.274)	(0.269)	(0.276)	(0.271)	(0.277)	(0.272)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Market Importance	-2.647***	-2.572**	-2.621***	-2.554**	-2.630***	-2.558**	-2.647***	-2.573**	-2.643***	-2.568**	-2.649***	-2.576**
	(0.788)	(0.811)	(0.789)	(0.811)	(0.787)	(0.809)	(0.792)	(0.814)	(0.790)	(0.812)	(0.797)	(0.817)
	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]
Acquisitions	-0.044	-0.042	-0.041	-0.040	-0.042	-0.041	-0.047	-0.045	-0.048	-0.046	-0.050	-0.047
	(0.094)	(0.093)	(0.094)	(0.093)	(0.094)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)	(0.093)
	[0.638]	[0.651]	[0.663]	[0.671]	[0.652]	[0.661]	[0.612]	[0.628]	[0.608]	[0.625]	[0.591]	[0.611]
Market Leader	-0.172	-0.176	-0.161	-0.167	-0.171	-0.175	-0.169	-0.174	-0.170	-0.174	-0.168	-0.172
	(0.127)	(0.121)	(0.126)	(0.122)	(0.126)	(0.121)	(0.125)	(0.120)	(0.127)	(0.122)	(0.125)	(0.120)
	[0.176]	[0.149]	[0.201]	[0.171]	[0.175]	[0.149]	[0.176]	[0.150]	[0.182]	[0.155]	[0.180]	[0.153]
Industry Concentration	0.927***	0.876***	0.928***	0.881***	0.919***	0.871***	0.935***	0.885***	0.947***	0.894***	0.935***	0.886***
	(0.222)	(0.221)	(0.224)	(0.223)	(0.222)	(0.222)	(0.219)	(0.218)	(0.217)	(0.217)	(0.218)	(0.218)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
GDP Per Capita Growth	0.126	0.105	0.061	0.049	0.085	0.068	0.071	0.057	0.084	0.067	0.092	0.074
	(0.102)	(0.101)	(0.105)	(0.105)	(0.102)	(0.101)	(0.099)	(0.098)	(0.106)	(0.105)	(0.100)	(0.098)
	[0.215]	[0.298]	[0.562]	[0.638]	[0.406]	[0.502]	[0.472]	[0.561]	[0.432]	[0.525]	[0.358]	[0.450]
Population Growth	0.063	0.044	0.047	0.032	0.035	0.022	0.064	0.046	0.071	0.052	0.023	0.013
	(0.142)	(0.141)	(0.142)	(0.141)	(0.143)	(0.141)	(0.143)	(0.141)	(0.141)	(0.140)	(0.140)	(0.139)
	[0.659]	[0.756]	[0.743]	[0.818]	[0.808]	[0.877]	[0.653]	[0.744]	[0.615]	[0.713]	[0.868]	[0.924]
Market Growth	0.176+	0.169	0.168	0.161	0.168+	0.161	0.149	0.145	0.156	0.151	0.164	0.158
	(0.102)	(0.106)	(0.102)	(0.105)	(0.102)	(0.106)	(0.100)	(0.103)	(0.100)	(0.104)	(0.102)	(0.105)
	[0.084]	[0.110]	[0.101]	[0.128]	[0.099]	[0.129]	[0.137]	[0.162]	[0.121]	[0.148]	[0.107]	[0.135]
Year Dummies	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	4,519	4,519	4,519	4,519	4,519	4,519	4,519	4,519	4,519	4,519	4,519	4,519
Within R-sq	0.236	0.249	0.241	0.252	0.238	0.250	0.238	0.250	0.237	0.250	0.239	0.251

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table B3. Robustness tests: Fixed-effects regression of institutional quality on action observability weighed by a country GDP, and by the size of the mobile phone market

	Model 30 Action Observability / Log Country GDP	**Model 31** Action Observability / Log Mobile Phone Market Size
Constant	-0.266***	-0.268***
	(0.040)	(0.042)
	[0.000]	[0.000]
Independent Variable		
Institutional Quality	0.392***	0.357***
	(0.054)	(0.053)
	[0.000]	[0.000]
Controls		
Firm Size (Host Country)	-0.029	-0.039+
	(0.020)	(0.020)
	[0.146]	[0.054]
Market Importance	-0.049	-0.042
	(0.057)	(0.058)
	[0.391]	[0.469]
Acquisitions	-0.002	-0.002
	(0.007)	(0.008)
	[0.801]	[0.756]
Market Leader	0.004	0.005
	(0.013)	(0.014)
	[0.771]	[0.696]
Industry Concentration	0.039**	0.043**
	(0.013)	(0.013)
	[0.002]	[0.001]
GDP Per Capita Growth	0.004	0.006
	(0.007)	(0.007)
	[0.596]	[0.346]
Population Growth	0.009	0.006
	(0.006)	(0.007)
	[0.139]	[0.355]
Market Growth	0.001	-0.001
	(0.008)	(0.007)
	[0.868]	[0.883]
Year Dummies	Included	Included
N	4,519	4,519
Within R-sq	0.174	0.168

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table B4. Robustness tests: Fixed-effects regression for the impact of institutional quality, and action observability weighed by a country GDP, and by the size of the mobile phone market on multimarket contact

	Action Observability / Log Country GDP		**Action Observability / Log Mobile Phone Market Size**	
	Model 32	**Model 33**	**Model 34**	**Model 35**
	MMC	MMC	MMC	MMC
Constant	24.731***	24.699***	24.748***	24.718***
	(0.328)	(0.330)	(0.327)	(0.329)
	[0.000]	[0.000]	[0.000]	[0.000]
Independent Variables				
Institutional Quality		2.046*		2.069*
		(0.876)		(0.873)
		[0.020]		[0.018]
Action Observability	1.343***	1.276***	1.400***	1.339***
	(0.284)	(0.289)	(0.294)	(0.298)
	[0.000]	[0.000]	[0.000]	[0.000]
Controls				
Firm Size (Host Country)	2.087***	2.060***	2.103***	2.075***
	(0.270)	(0.269)	(0.270)	(0.270)
	[0.000]	[0.000]	[0.000]	[0.000]
Market Importance	-2.574**	-2.562**	-2.582**	-2.568**
	(0.811)	(0.813)	(0.813)	(0.815)
	[0.002]	[0.002]	[0.002]	[0.002]
Acquisitions	-0.042	-0.044	-0.041	-0.043
	(0.093)	(0.093)	(0.093)	(0.093)
	[0.650]	[0.636]	[0.657]	[0.643]
Market Leader	-0.176	-0.171	-0.178	-0.173
	(0.122)	(0.121)	(0.121)	(0.121)
	[0.150]	[0.158]	[0.143]	[0.151]
Industry Concentration	0.879***	0.887***	0.871***	0.880***
	(0.222)	(0.218)	(0.221)	(0.218)
	[0.000]	[0.000]	[0.000]	[0.000]
GDP Per Capita Growth	0.098	0.028	0.095	0.024
	(0.100)	(0.103)	(0.100)	(0.102)
	[0.325]	[0.786]	[0.340]	[0.815]
Population Growth	0.046	0.024	0.049	0.027
	(0.141)	(0.140)	(0.140)	(0.140)
	[0.743]	[0.864]	[0.725]	[0.849]
Market Growth	0.165	0.143	0.169	0.146
	(0.106)	(0.104)	(0.105)	(0.103)
	[0.119]	[0.170]	[0.109]	[0.158]
Year Dummies	Included	Included	Included	Included
N	4,519	4,519	4,519	4,519
Within R-sq	0.249	0.252	0.250	0.253

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table B5. Robustness tests: Fixed-effects regression for the impact of institutional quality and action observability on multimarket contact comparing smaller and larger firms

	Size Below the Median		Size Above the Median	
	Model 36	**Model 37**	**Model 38**	**Model 39**
	MMC	MMC	MMC	MMC
Constant	18.502***	18.690***	29.269***	29.871***
	(0.634)	(0.593)	(1.002)	(1.015)
	[0.000]	[0.000]	[0.000]	[0.000]
Independent Variables				
Institutional Quality	1.494	1.185	2.461*	2.022+
	(1.283)	(1.304)	(1.111)	(1.109)
	[0.245]	[0.364]	[0.027]	[0.069]
Action Observability		0.693		1.426***
		(0.428)		(0.307)
		[0.106]		[0.000]
Controls				
Firm Size (Host Country)	2.661***	2.675***	0.387	0.449
	(0.357)	(0.352)	(0.441)	(0.436)
	[0.000]	[0.000]	[0.381]	[0.305]
Market Importance	-1.780**	-1.762**	-5.019*	-4.436+
	(0.647)	(0.664)	(2.478)	(2.509)
	[0.006]	[0.008]	[0.044]	[0.078]
Acquisitions	-0.164	-0.156	0.050	0.046
	(0.114)	(0.113)	(0.088)	(0.090)
	[0.150]	[0.169]	[0.567]	[0.607]
Market Leader	0.390	0.418	0.021	0.013
	(0.268)	(0.268)	(0.117)	(0.114)
	[0.146]	[0.119]	[0.855]	[0.912]
Industry Concentration	0.830**	0.804*	0.975***	0.934**
	(0.320)	(0.318)	(0.293)	(0.293)
	[0.010]	[0.012]	[0.001]	[0.002]
GDP Per Capita Growth	-0.134	-0.131	0.190	0.181
	(0.157)	(0.157)	(0.128)	(0.127)
	[0.395]	[0.407]	[0.138]	[0.154]
Population Growth	-0.127	-0.133	0.053	0.045
	(0.301)	(0.302)	(0.105)	(0.103)
	[0.673]	[0.658]	[0.613]	[0.666]
Market Growth	0.087	0.076	0.135	0.144
	(0.156)	(0.160)	(0.120)	(0.125)
	[0.577]	[0.635]	[0.262]	[0.250]
Year Dummies	Included	Included	Included	Included
N	2,278	2,278	2,241	2,241
Within R-sq	0.319	0.323	0.237	0.250

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table B6. Robustness tests: Fixed-effects regression for the impact of multimarket contact and institutional distance on performance instability comparing smaller and larger firms

	Size Below the Median	Size Above the Median
	Model 40 Performance Instability	**Model 41** Performance Instability
Constant	1.599***	3.578***
	(0.167)	(0.993)
	[0.000]	[0.000]
Independent Variables		
Multimarket Contact	0.207+	-0.686*
	(0.107)	(0.269)
	[0.052]	[0.011]
Institutional Distance	0.347*	-0.324
	(0.163)	(0.527)
	[0.034]	[0.539]
Interaction		
Multimarket Contact × Institutional Distance	0.109	0.789**
	(0.070)	(0.244)
	[0.123]	[0.001]
Controls		
Firm Size (Host Country)	0.006	0.791**
	(0.091)	(0.271)
	[0.945]	[0.004]
Market Importance	-0.027	3.517
	(0.083)	(2.184)
	[0.745]	[0.109]
Acquisitions	-0.049+	
	(0.027)	Omitted
	[0.075]	
Institutional Quality	0.513	-0.427
	(0.391)	(0.779)
	[0.190]	[0.584]
Action Observability	-0.033	0.043
	(0.079)	(0.189)
	[0.673]	[0.821]
Market Leader	0.489***	0.073
	(0.049)	(0.092)
	[0.000]	[0.431]
Industry Concentration	0.037	0.552**
	(0.076)	(0.177)
	[0.632]	[0.002]
GDP Per Capita Growth	-0.020	0.061
	(0.059)	(0.095)
	[0.740]	[0.524]
Population Growth	-0.051	-0.154+
	(0.058)	(0.090)
	[0.378]	[0.088]
Market Growth	-0.010	-0.024
	(0.030)	(0.086)
	[0.742]	[0.780]
N	1,723	1,675
Within R-sq	0.113	0.155

Estimates are based on standardized independent variables; robust standard errors are reported in parentheses; *p*-values are reported in square brackets.
+ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.