

RIVALRY DETERRENCE IN INTERNATIONAL MARKETS: CONTINGENCIES GOVERNING THE MUTUAL FORBEARANCE HYPOTHESIS

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The mutual forbearance hypothesis states that when the same competitors meet in multiple markets, rivalry is deterred. Our study highlights how pressures for local responsiveness impact the veracity of this hypothesis for multinational corporations (MNCs) in host countries. We develop theory to explain how subsidiary ownership, home-host cultural distance, host country regulatory restrictions on MNC activities, and the presence of local competitors affect the rivalry-dampening impact of multi-market contact. We tested our hypotheses with a sample of 13 global automobile companies operating in 27 countries and report strong support for our hypotheses.

Understanding the circumstances that deter inter-firm rivalry is important to scholars' comprehension of competitive strategy. Many of the most common prescriptions for formulating and implementing competitive strategies involve the creation and/or maintenance of rivalry-detering market imperfections such as barriers to entry, switching costs, and asymmetrical power over buyers and suppliers (Porter, 1980). Further, resources and capabilities that are causally ambiguous and hard to imitate are often argued as central to a firm's acquiring economic "rents" primarily because of their rivalry-detering attributes (Barney, 1996; Peteraf, 1993). Strategy scholars widely accept the notion that rivalry deterrence is a cornerstone of competitive advantage. The focal question of interest is no longer *whether* rivalry deterrence influences competitive advantage, but *how* firms effectively deter rivalry to enhance their performance. This question is important not only to strategy scholars but also to those who formulate public policies designed to ensure appropriate levels of rivalry between large and powerful oligopolistic competitors.

One approach to understanding rivalry deterrence entails the conceptual lens of multimarket competition, with its central premise that when the same rivals meet each other in multiple markets, the intensity of rivalry is reduced (Chen, 1996; Karnani & Wernerfelt, 1985). The rationale, based on what is widely referred to as the "mutual forbearance hypoth-

esis" (Edwards, 1955), is that firms are less likely to act aggressively when they perceive that rivals can counterattack. As Gimeno put it, "Since the retaliatory power is reciprocal, the forbearance is mutual" (1999: 103). Accordingly, the higher the level of multimarket contact among competitors, the more one can expect to observe rivalry deterrence and the corresponding higher industry profitability.

Evidence in support of the mutual forbearance hypothesis comes from several studies. For example, Heggstad and Rhoades (1978) found that intermarket linkages among bank holding companies deterred rivalry. Evans and Kessides (1994) showed that multimarket contact was closely associated with high prices (collusion) in the U.S. airline industry. Parker and Roller (1997) found that multimarket contact led to collusive conduct in the U.S. cellular telephone industry. Building on the mutual forbearance hypothesis, scholars have recently called for further study of the conditions that may either strengthen or weaken the association between multimarket contact and the intensity of rivalry. For example, Haveman and Nonemaker (2000) argued that mutual forbearance is stronger in markets dominated by a few large firms. Similarly, Ma (1998) noted that mutual forbearance is more likely to be present between multimarket rivals with heterogeneous resources and capabilities. Finally, Gimeno (1999) showed that multimarket contact reduces competitive intensity more in markets that are strategically important to firms—that is, in their "spheres of influence."

Our study follows this line of thinking and develops a contingency view of mutual forbearance.

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We highlight a separate and hitherto unexamined set of contingencies governing the mutual forbearance hypothesis by focusing on multimarket competition among multinational companies (MNCs) in international markets. Specifically, we examine how the relationship between multimarket contact across international markets (countries) and rivalry within each market (country) is contingent upon several host country and local subsidiary factors—specifically, factors that reflect increased pressure for local responsiveness.

In our study, we capture the rivalry among competitors with the concept of competitive aggressiveness, defined as the propensity of a firm to directly and intensely challenge rivals in order to maintain or improve its market position (Ferrier, 2001). As will be seen below, we assess competitive aggressiveness at the subsidiary level (i.e., at the host-country level) and build our research framework on the broad premise that factors enhancing the difficulty for MNC headquarters to coordinate subsidiary actions will weaken the influence of multimarket contact as a rivalry deterrent.

In focusing on competitive aggressiveness at the subsidiary (host country) level, our study makes two contributions. First, by examining multimarket competition among MNCs in a global setting, we extend the contingency perspective on mutual forbearance, which has thus far been essentially limited to single-country settings (see Ma [1998] for a notable exception in the strategy literature). Second, because we explicitly recognize that for MNCs, competitive activity occurs at the subsidiary level, our study adds new insights into the role subsidiaries play in implementing global strategies, particularly the extent to which subsidiaries tend to be responsive to local conditions.

BACKGROUND: MULTIMARKET COMPETITION AND GLOBAL STRATEGY

The literature on global strategy outlines a long history of MNCs engaging in multimarket competition. Early inferences were that this behavior constituted “oligopolistic reaction,” or attempts by MNCs to either “follow the leader” into host countries (Caves, 1971; Knickerbocker, 1973; Vernon, 1971) or “exchange the threat” of reciprocal invasion to stop rivals from entering their home countries (Casson, 1987; Graham, 1990). In explaining the international expansion patterns of MNCs, these studies highlighted that MNCs are aware of their mutual interdependence and follow their competitors’ market entry behavior to maintain competitive parity. Overall, early studies of multi-

market competition clarified understanding of where and why MNCs enter foreign markets.

Later studies refined prior research by characterizing multimarket competition as a central feature of global industries, wherein competing firms face several disadvantages unless they match their rivals’ presence in international markets (Porter, 1986). These disadvantages could stem from several sources. For instance, Hout, Porter and Rudden (1982) highlighted the significance of economies of scale in global businesses and suggested that firms that are unable to match their rivals’ presence and market share in worldwide markets can expect to face significant cost disadvantages. Similarly, Hamel and Prahalad (1985) described how companies can become vulnerable to cross-subsidization unless they match rivals’ presence in multiple countries. Finally, Porter (1986) highlighted the importance for firms of matching their rivals’ presence in countries possessing location-specific advantages, such as sophisticated and knowledgeable customers, talented pools of specialized labor, and a cluster of specialized suppliers. Building on these insights, some scholars have characterized MNCs as knowledge networks (Ghoshal & Bartlett, 1990; Kostova, 1999) with subsidiaries acting as both sources and receptacles of specialized resources and expertise that drive corporate-level transnational innovative capabilities (Bartlett & Ghoshal, 1988; Subramaniam & Venkatraman, 2001). In this view, new ideas and breakthroughs are expected to stem from multiple geographic areas. As a result, matching the international presence of rivals across countries is critical for MNCs as they seek to develop knowledge networks that can either initiate technological advances or keep up with the technological advances of rivals.

The prevailing views on multimarket competition in the global strategy literature are thus multifaceted but broadly understood through the general rubric of maintaining competitive parity by matching presence and position across international markets. Missing, however, is a specific understanding of how such actions influence the intensity of global rivalry (Ma, 1998). Moreover, most of the presumed actions and counteractions underlying multimarket competition are seen from a “corporate” level—in other words, competitive parity is perceived as emanating from the execution of a corporate global strategy. How this corporate-level approach plays out at the subsidiary level has largely been ignored (see Golden and Ma [2003] for a notable exception), despite the realization that subsidiaries, influenced by idiosyncratic conditions, may each exhibit unique and diverse competitive behavior (Subramaniam & Venkatraman, 2001). As a consequence, how an MNC’s corporate-level decisions affect rivalry deterrence among its subsid-

aries in host countries remains poorly understood. This lapse is of concern, given that much of what MNCs expect to achieve through their global strategy depends on effectively implementing that strategy through their subsidiaries (Birkinshaw & Hood, 1998).¹

Our research addresses this gap by examining some specific conditions in international markets that influence the linkage between multimarket contact and interfirm rivalry (competitive aggressiveness). In doing so, we highlight a new set of contingencies governing the mutual forbearance hypothesis. Moreover, we complement the insights generated by prior research at the corporate level with insights at the subsidiary level. We underline precisely how corporate-level coordination for achieving mutual forbearance is affected by subsidiary and host-country factors, especially those factors that lead to local responsiveness.

THEORY DEVELOPMENT AND HYPOTHESES

We build our research framework on the premise that factors making it more difficult for MNC headquarters to coordinate a given subsidiary's actions will weaken the influence of multimarket contact on rivalry deterrence in that subsidiary's country. We derive this premise by integrating insights from the literature streams on both multimarket competition and international business. The literature on multimarket competition informs us that the capacity of a firm to achieve mutual forbearance primarily rests on its ability to effectively coordinate actions across its various subunits.² It is largely by

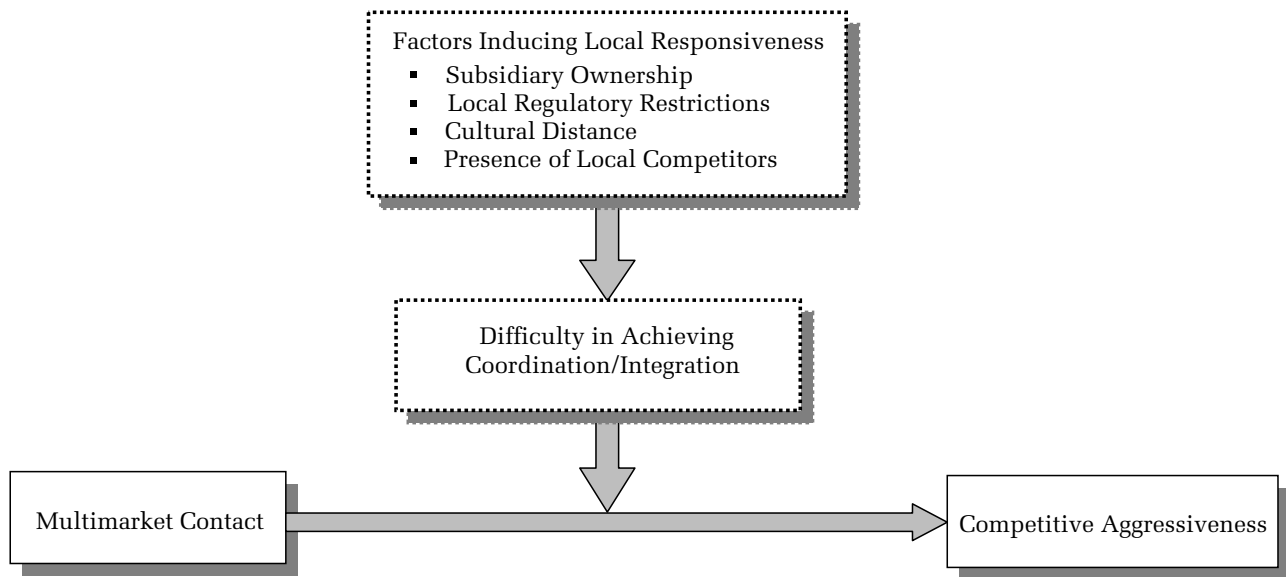
such coordinating that a firm is able to swiftly and surely respond to its rivals and thus credibly signal to those rivals the futility of initiating aggressive moves (Golden & Ma, 2003; Jayachandran, Gimeno, & Varadarajan, 1999). Drawing on this logic, Ma noted, "Cross market integration and coordination serve as a necessary internal basis for mutual forbearance with outside multimarket rivals" (1998: 137). Similarly, Jayachandran, Gimeno, and Varadarajan argued that "multimarket competition will lead to mutual forbearance and lower intensity of competition only if each firm achieves effective coordination between the administrative units that manage the operations in different markets. In the absence of such intra-firm coordination, competition converges to market-by-market competition" (1999: 58). Such competition hinders a corporation's ability to deter rivals in a multimarket context. For example, one business unit, in its attempt to maximize its performance within its geographic market, may initiate competitive actions that lead to multimarket retaliation by a rival, potentially causing losses for the corporation in several other markets.

Supplementing these insights, studies in international business have specified how and why subsidiary coordination is made difficult in MNCs because of several factors that incline subsidiaries not to integrate their actions with those of the parent corporation but lead them to follow their local interests. In other words, MNCs often find it hard to coordinate actions across international markets because subsidiaries feel pressure to be *locally responsive*—adaptive to the specific requirements of different country markets—rather than globally integrated (Prahalad & Doz, 1987). The need for local responsiveness usually stems from diversity in the market conditions and the social and political environments found in MNCs' various countries of operations. To the extent that each market demands special attention to its unique conditions, the execution of a uniform, consistent, and integrated strategy across markets is hindered (Roth & Morrison, 1990). The need for local responsiveness also enhances subsidiaries' preferences for operating independently, in turn making it hard for MNCs to coordinate their actions across markets. The more subsidiaries prefer to act independently, the more likely they will be to devise their own approaches to attacking or defending their local turf, and the less willing they will be to implement mutual forbearance strategies formulated at the corporate level. Thus, the specific characteristics of international markets that influence the need for local responsiveness not only make coordination across subsidiaries difficult (Subramaniam & Watson,

¹ Some may argue that as long as there are subsidiaries that are willing to follow corporate directives (or subsidiaries whose actions are easy to coordinate), a multinational corporation can always achieve deterrence by using those subsidiaries to signal retaliation capabilities against global rivals. We believe that even if this is the case, it is still important to know which subsidiaries best qualify as effective for deterrence purposes.

² It is important to note that intra-MNC coordination and integration have important implications for a wide range of MNC activities (Chen & Stucker, 1997), such as foreign investment performance (Root, 1987; Woodcock, Beamish, & Makino, 1994), knowledge transfer capability (Kogut, 2000), and level of product differentiation (Anderson & Coughlan, 1987; Caves, 1982). Our study, however, only focuses on difficulties in coordination and integration as the internal basis for mutual forbearance. These difficulties in coordination, often accentuated by the need for local responsiveness, play a prominent role in determining whether an MNC's corporate competitive strategy can be consistently executed across markets (Ma, 1998, 1999).

FIGURE 1
Factors Governing Mutual Forbearance in Host Country Markets



2006), but also affect the rivalry-dampening influence of multimarket contact on competitive aggressiveness.

After a systematic review of prior research, we selected four factors that induce local responsiveness in international markets. Although it is possible other factors also influence local responsiveness, research has shown that the following factors are the primary drivers of local responsiveness in international markets (Johnson, 1995; Prahalad & Doz, 1987; Roth & Morrison, 1990): (1) the extent of subsidiary ownership (Delios & Beamish, 1999); (2) the cultural distance between a host country and an MNC's home country (Kogut & Singh, 1988); (3) the degree of regulatory restrictions in the host country (North, 1990); and (4) the presence of local competitors in the host country (Haveman & Nonnemaker, 2000). As we highlight in the ensuing section, theory suggests that these factors are key sources of local responsiveness in international markets, and we believe that they will moderate the rivalry-dampening effects of multimarket contact through their impacts on the coordination of actions across subsidiaries within an MNC. Figure 1 graphically summarizes these relationships.

Our study focuses on factors that moderate the rivalry-dampening impact of multimarket contact, yet our four factors are also likely to have important main effects. We expect that subsidiary ownership will have the main effect of increasing subsidiary competitive aggressiveness, because greater control implies tighter MNC integration, leading to greater overall competitive aggressiveness (Chen & Stucker, 1997). We expect that the cultural dis-

tance between a host country and an MNC's home country will reduce competitive aggressiveness, as the MNC will have a weaker understanding of local market conditions and confront some difficulty in formulating and implementing aggressive strategies (Chen & Stucker, 1997). We expect that the level of regulatory restrictions in the host country will dampen the aggressiveness of MNC subsidiaries, as they will confront problems in acting aggressively toward competitors in the face of restrictions on operations (Yu & Cannella, 2007). Finally, we expect the presence of local competitors in the host country will increase competitive aggressiveness, because the presence of strong local competitors should increase the overall level of rivalry in host markets. Again, these main effects are outside the focus of our study, which is how these factors moderate the impact of multimarket contact on rivalry in host countries.

Our first hypothesis draws from the research on multimarket competition and mutual forbearance, underscoring the significance of shared markets in shaping competitive behavior. We predict that as the degree of multimarket contact between any two firms increases, their mutual aggressiveness will be tempered by the threat of cross-market retaliation. For example, in the airline industry, when America West offered low discounted fares from its Houston hub, it directly confronted Continental, the dominant airline entrenched in that hub. Continental swiftly retaliated, reducing its prices for several of its flights from Phoenix, a major hub for America West. Reeling under the effects of the price war, America West ultimately withdrew its low fares to

and from Houston, prompting Continental to respond by raising its own fares from Phoenix and thus bringing back the earlier prevailing competitive equilibrium (Gimeno, 1994; Nomani, 1990). Essentially, Continental's contact with America West in more than just the Houston market highlighted, for America West, the wider ramifications of a price war, thus deterring its competitive aggressiveness.

Applying this logic to international markets, we contend that as multimarket contact among MNCs enables credible threats of retaliation against one another across different international markets, their subsidiaries are less likely to exhibit competitive aggressiveness. In fact, the greater the level of multimarket contact an MNC has with its rivals, the greater the number of countries it can retaliate in if one or more of those rivals behaves aggressively (Hamel & Prahalad, 1985). Multimarket contact in international markets thus broadens the scope of potential retaliation to any action, raises the stakes of the competitive game, and makes it more likely that rivals will conclude that the expected gains from aggressive moves are lower than the expected losses that will follow from retaliation. Accordingly, the motivation to compete aggressively is hampered. Hence, we propose:

Hypothesis 1. The greater the multimarket contact between an MNC and its rivals in a given host country, the lesser the competitive aggressiveness of the MNC's subsidiary in that country.

The mutual forbearance argument rests on several premises. First, mutual forbearance is more likely to occur in an oligopolistic setting, in which firms, aware of their strategic interdependence, imitate rivals' moves quickly in order to maintain competitive parity (Knickerbocker, 1973). Second, a mere aggregation of multimarket contacts might not lead to mutual forbearance. Bernheim and Whinston noted that "when identical firms with identical constant-returns-to-scale technologies meet in identical markets, multimarket contact does not aid in sustaining collusive outcomes" (1990: 5). More specifically, Simmel (1950) argued that the critical premise for mutual forbearance is that each firm involved must have dominance in certain jointly contested markets; that is, there must be reciprocal dominance relationships among multimarket rivals for the mutual forbearance hypothesis to hold (Ma, 1998). Hence, the key to mutual forbearance is asymmetry between markets, rivals, and the competitive positions of the rivals in

the markets (Gimeno, 1994).³ Finally, the mutual forbearance hypothesis implies that MNC headquarters can effectively control and coordinate the competitive actions of their subsidiaries across international markets—that is, subsidiaries, like pawns on a chessboard, can be directed to credibly signal the MNC's capability to retaliate at will, in any or all of its contested countries. Since the first two conditions have already been extensively discussed in prior research (Gimeno, 1999; Ma, 1998), we limit our study to the third. Focusing on the importance of internal coordination for achieving mutual forbearance, we recognize that MNC headquarters may not have tight control over subsidiaries. This will particularly be the case when subsidiaries face significant pressures to be locally responsive rather than globally integrated, and when local conditions make it difficult for subsidiaries to align their actions with the interests of the larger corporation. Based on the assumption that headquarters' control over subsidiaries is imperfect, our remaining hypotheses build the case for how and why the basic relationship between multimarket contact and rivalry deterrence is contingent upon factors such as subsidiary ownership, cultural distance, local regulatory restrictions, and the strong presence of local competitors. As illustrated in Figure 1, these factors comprise the key sources of local responsiveness and hence have a major impact on an MNC's capacity to achieve internal coordination/integration. We discuss each of these factors in turn.

Subsidiary Ownership

The extent to which a parent MNC "owns" a subsidiary is not only an important determinant of how much the parent can coordinate the subsidiary's actions with the rest of the corporation, but also an indicator of the extent to which the subsidiary is likely to emphasize local responsiveness over global integration. Significant local ownership in foreign subsidiaries places substantial constraints on the way the subsidiaries are managed. Almost certainly, local owners will oppose decisions that reduce subsidiary profits for the sake of maximizing total company profits. Child (1974) contended that different goal configurations will result in less integrated efforts, as there will be more conflict among senior managers over objectives. Not surprisingly, with greater local rather than parent ownership, the primary interests of a

³ These are also key reasons why we chose the global auto industry as our empirical setting.

subsidiary are more likely to be dominated by host country concerns. For example, Fuji Photo Company's majority ownership in Xerox Corporation's Japanese subsidiary, Fuji-Xerox, pressured Fuji-Xerox to focus on manufacturing small copiers, as doing so was a primary interest of the local owner. Xerox's objectives, on the other hand, were mostly to use Fuji-Xerox as a marketing outpost for its large copiers. With only minority ownership, Xerox could do little to integrate Fuji-Xerox's role with its worldwide operations, a fact accentuated by Fuji-Xerox's local owners preventing its interests from coinciding with Xerox's overall global interests (Gomes-Casseres & McQuade, 1991).

Furthermore, according to agency theory, with decreasing ownership, subsidiary managers may have more freedom to pursue objectives that maximize local gains rather than the profits of a whole corporation (Fama & Jensen, 1983; Jensen & Meckling, 1976). Low levels of ownership also make it challenging for MNC headquarters to monitor the behavior of subsidiaries. As a result, we expect that the headquarters will be less motivated to transfer resources to these subsidiaries in support of their competitive actions, which will make the subsidiaries even more unwilling to work in conjunction with the strategic objectives of the headquarters.

In sum, the degree of subsidiary ownership influences an MNC's ability to coordinate operations across markets (Ma, 1998, 1999). Since such cross-market integration and coordination serve as a necessary basis for mutual forbearance, we expect that, with lower ownership, a subsidiary is less likely to engage in a mutual forbearance strategy formulated by the MNC headquarters.

Hypothesis 2. The greater the level of ownership an MNC has in a host country subsidiary, the greater the rivalry-dampening influence of multimarket contact, leading to lesser competitive aggressiveness of that subsidiary.

Cultural Distance

In much of the mainstream organization theory literature, scholars view organizational action as constrained or determined by the environment in which it occurs (Hannan & Freeman, 1977; Meyer & Rowan, 1997; Pfeffer & Salancik, 1978). MNC researchers have adapted this perspective by proposing that each subsidiary of an MNC operates in its own unique task environment, which constrains or determines the activities of that subsidiary (Ghoshal & Bartlett, 1991; Ghoshal & Nohria, 1989; Rosenzweig & Singh, 1991; Westney, 1994). Culture, as an important component of the task envi-

ronment in which an MNC subsidiary operates, has been shown to have a significant influence on its competitive activities (Ma, 1998). In the next hypothesis, we explain how cultural distance has a dampening effect on the implementation of a mutual forbearance strategy, primarily because distance increases the need for local responsiveness, creating organizational impediments for MNC headquarters to coordinate subsidiaries' actions.

First, subsidiaries operating in culturally distant countries often face a high "liability of foreignness" (Gulati, Nohria, & Zaheer, 2000). These costs of doing business stem from foreign firms' unfamiliarity with basic business practices, information networks, and political influences that are deeply embedded in local cultures (Kostova & Zaheer, 1999). Cultural distance also leads to unique consumer preferences requiring customization of product features, marketing programs, and distribution channels (Egelhoff, 1982). To survive and prosper in such conditions, MNC subsidiaries may have to focus more on local responsiveness than on global integration. They may feel compelled to initiate competitive actions that maximize local gains but jeopardize the implementation of the mutual forbearance strategy desired by the corporation.

Next, differences in national cultures result in different organizational and administrative practices and employee expectations (Kogut & Singh, 1988). The more culturally distant the country of an MNC's subsidiary is from its headquarters' home country, the more likely that the key organizational characteristics of that subsidiary will differ from those of its headquarters, and the more difficult it is for the headquarters to effectively communicate with and transfer knowledge to the subsidiary. As a result, with large cultural distance, it is hard for the headquarters to centrally monitor and coordinate the actions of the subsidiary to meet the goal of mutual forbearance formulated at the corporate level (Ma, 1998, 1999). Along the same line, from a transaction cost perspective, each MNC is a series of contracts. Cultural distance increases the contractual difficulty of headquarters pricing know-how or writing, executing, and enforcing restrictions governing technology transfer arrangements (Buckley & Casson, 1975; Teece, 1985). Hence, the contractual agreement between a headquarters and its subsidiaries often contains vague and difficult-to-enforce performance clauses, a condition that makes it even more challenging for the headquarters to dictate the strategic decisions of the subsidiaries.

Hypothesis 3. The greater the cultural distance between an MNC's home country and a given

host country, the weaker the rivalry-dampening influence of multimarket contact, leading to greater competitive aggressiveness of its subsidiary in that country.

Local Regulatory Restrictions

Prahalad and Doz (1987) noted that needs for national responsiveness usually stem from diversity in market conditions and in the social and political environments in which an MNC operates. As some of the most important players in international markets, governments can use a variety of regulations to affect how MNCs function and act. Government regulations can impose economic, political, or trade impediments that affect an MNC subsidiary's cost of doing business (Buckley & Casson, 1976) and hamper the flexibility of its operations (Ma, 1998). Such regulations may include policies that hinder the transfer of financial assets into and out of a host country through tight credit and fiscal control, those that restrict competition by providing government support to local companies, and those that constrain MNC parent corporations in negotiating the terms of their operations with local partners or suppliers. These impediments significantly constrain an MNC subsidiary's capacity to coordinate its actions with other subsidiaries and force the subsidiary to primarily focus on exploiting competitive advantages in its local market (Davidson, 1980; Henisz & Delios, 2001; Loree & Guisinger, 1995).

Moreover, by imposing restrictive regulations, a host government increases the complexity an MNC subsidiary must deal with in its daily operations (Tyson, 1992). For example, Volkswagen (VW), after pioneering an innovative loan plan in its Chinese subsidiary, was perplexed by a sudden announcement from the People's Bank of China that banned the loan scheme. VW had to rely heavily on the political connections and expertise of First Automobile Works (their local partner in Changchun) to plan a strategy for coping with the sudden policy change. In essence, such uncertainties motivate subsidiaries to follow local rather than corporate guidelines, to compete aggressively in local markets rather than coordinate actions with other subsidiaries, and to be more concerned about local conditions than about mandates, such as mutual forbearance, from headquarters. Hence, we propose:

Hypothesis 4. The greater the regulatory restrictions on MNCs in a given host country, the weaker the rivalry-dampening influence of multimarket contact, leading to greater com-

petitive aggressiveness of MNC subsidiaries in that country.

The Presence of Local Competitors in Host Countries

Rugman and Verbeke (1992) suggested that one strong incentive for MNCs to develop location-based, firm-specific advantages is local market conditions. Similarly, Johnson (1995) argued that MNCs feel more local responsiveness pressures when the levels of local competition are high. By our definition, local competitors are firms whose production and sales are limited to a single country—their home country. In countries where MNCs face strong local competition, it is imperative for them to differentiate themselves from local competitors. Such differentiation may take place through customization in product offering, marketing strategy, and the use of distribution channels, all of which require subsidiary autonomy in making strategic decisions. Thus, when the strength of local competition is high, we expect that an MNC subsidiary will have to spend most of its efforts responding to local competitive pressures and naturally care less about the corporation's mutual forbearance strategy.

Furthermore, as is well established in the multimarket competition literature, the key to mutual forbearance lies in the asymmetry among the positions of rivals (Bernheim & Whinston, 1990). That is, the effect of multimarket contact resembles a transfer of enforcement power from one market to another, as the threat of retaliation becomes stronger when an aggressive move in one market can be countered in several other markets. The role of multimarket contact is thus to pool the incentive to collude across markets, thereby sustaining the underlying reasons for not initiating competitive wars and maintaining a balance in favor of mutual forbearance over competitive aggressiveness. However, in countries where MNC subsidiaries face strong local competition, this balance can be upset. For local competitors, the gains or losses of competition are restricted to that market alone. When such competitors have strong positions in their (only) market, they will compete vigorously to defend or maintain their local advantages (Casson, 1987; Haveman & Nonnemaker, 2000). Furthermore, in most cases, such competitors possess some unique home-based resources that allow them to tailor their aggressive actions to local conditions more adeptly than their multinational rivals. Relative to multimarket competitors, these firms do not share the concern that the competitive war will be extended to other markets. As a result,

MNC subsidiaries competing in these countries often get pulled into competitive wars initiated by local competitors. For example, when Tata Motors (a local competitor with a substantial share of the Indian automobile market) introduced low-priced, fuel-efficient cars in India, it also dragged Ford, Honda, Fiat, Daewoo, Hyundai, and Mitsubishi into offering comparable models or cutting the prices of their existing models. Although each of these multimarket competitors may have initially intended to retaliate only against Tata Motors, their actions spiraled into a much wider flurry of competitive aggression. Thus, the effect of multimarket contact on an MNC's rivalry deterrence will be reduced in markets in which the MNC confronts vigorous local competitors. Hence, we propose:

Hypothesis 5. The greater the presence of local competitors in a given host country, the weaker the rivalry-dampening influence of multi-market contact, leading to greater competitive aggressiveness of MNC subsidiaries in that country.

METHODS

The data for this study involve competitive actions undertaken by the 13 largest global automobile manufacturers identified from *Ward's Automotive Yearbook* between 1995 and 2001, inclusive. The firms are DaimlerChrysler, Fiat, Ford, General Motors, Honda, Hyundai, Mitsubishi, Nissan, PSA Peugeot Citroen, Renault, Suzuki, Toyota, and Volkswagen. The ownership structure of our sample MNCs was stable during the period 1995–2001, with the exception of DaimlerChrysler, which was formed by a merger in 1998. Considering the difficulty of merging two organizations in a short time, we considered DaimlerChrysler as a firm dominated by American culture. Our results, however, remained unchanged when we (1) dropped DaimlerChrysler from the sample or (2) treated DaimlerChrysler as a German company. In the period 1995–2001, our sample firms accounted for 76 to 88 percent of annual world motor vehicle production. We chose the global automobile industry primarily because it entails strategic interdependency among a clearly identifiable set of oligopolistic competitors. Moreover, reciprocal dominance relationships often exist between key automakers across a range of international markets (Ma, 1998). Firms from Japan, North America, and Western Europe dominate the global auto market, and each firm has its significant sphere of influence in one of the regions (Tallman, 1991). Finally, for most competitors, this industry represents the major line of business at the

corporate level, thus minimizing the potential for confounding influences from diversification (Rumelt, 1974).

To identify competitive actions, we used structured content analysis—an approach widely employed by competitive dynamics researchers (Chen & MacMillan, 1992; Ferrier, 2001; Miller, Lant, Milliken, & Korn, 1996). Using a list of 65 keywords such as “rivalry,” “competition,” and “war” (a full list of keywords is available from the first author upon request), we identified every *Automotive News* article published between 1995 and 2001 that mentioned one or more of our keywords and at least one of our 13 companies. We selected *Automotive News* because it is a specialized industry periodical and is more exhaustive in its reporting of automakers' competitive actions than other sources such as *Automotive Industries*, *Automotive Marketing*, *AutoWeek*, and *BusinessWeek*.⁴

Through a keyword search of 6,648 news articles, followed by a careful reading by one author when a keyword was found, we identified 1,778 subsidiary-level competitive actions in 27 host countries. We coded these actions into seven categories: pricing actions, product actions, marketing actions, technology innovations, capacity actions, improvements in distribution and after-sales service, and changes in organizational structure and management systems. We undertook a series of steps before selecting the above seven categories. First, we read all the articles published by *Automotive News* in 1995 to familiarize ourselves with the types of competitive actions commonly initiated by automakers. Then, we refined our categories by comparing them with those used in other competitive dynamics research (e.g., Ferrier, Smith, & Grimm, 1999; Miller & Chen, 1996). Finally, to double-check the reliability of our categorization, we read several other industrial periodicals, including *Mergent* and *Ward's AutoWorld*.

To check the reliability of our coding, we asked an expert in strategic management to separately recode a random subsample of 50 competitive actions into each of the seven action categories. The two coding sources were in agreement for 46 of the 50 actions. We also carefully screened the data for duplicate competitive actions. Only the earliest

⁴ As a test of *Automotive News* as our key data source, we drew a random sample of 30 competitive moves published in *Automotive News* and searched for them in other publications. We found 26 (87%) of these moves reported in other publications and confirmed the details reported by *Automotive News* in every case.

chronological appearance of a particular competitive action was retained.

When *Automotive News* reports an action, it typically specifies the country or countries in which the action was undertaken. When *Automotive News* indicated that an action involved several countries, we coded the action separately for each country (once for every country in which the action occurred). When *Automotive News* only mentioned the region in which an action was made, we considered the action as having occurred in all the important markets in that region. For example, when a new model was introduced in Western Europe, we counted the action once for each of the five key auto markets in Western Europe—the United Kingdom (U.K.), Germany, France, Italy, and Spain. When *Automotive News* did not provide any information regarding the location of an action (as occurred very rarely), we used the geographic classification of the news article to identify the country or countries to which it applied.

Measures

Competitive aggressiveness. We developed a composite measure of competitive aggressiveness based on two dimensions: competitive activity and competitive complexity.⁵ We measured competitive activity as the total number of competitive actions initiated by an MNC subsidiary in its host country during a given year. We measured competitive complexity as the extent to which that subsidiary carried out a broad range (as compared to a narrow range) of competitive actions in that host country during that year. Following previous re-

search (Ferrier et al., 1999; Miller & Chen, 1996), we calculated competitive complexity as follows:

$$\text{Competitive complexity} = 1 / \sum_a (N_a / NT_L)^2,$$

where NT_L is the total actions a subsidiary initiates in a given year, and N_a / NT_L is the proportion of competitive actions in the a th action category. We performed a factor analysis on the two underlying dimensions of competitive aggressiveness and derived a composite measure using the average of their standardized values. A high Cronbach's alpha (.91) confirmed the internal consistency of this construct. We also ran separate analyses using competitive activity and competitive complexity as dependent variables, and the results were qualitatively similar to those obtained using the composite measure.

Multimarket contact. Previous research has used three major ways of measuring multimarket contact. Market-level measures capture the overall degree of multimarket contact among the firms serving a focal market (Evans & Kessides, 1994; Feinberg, 1985; Hughes & Oughton, 1993; Jans & Rosenbaum, 1996; Singal, 1996). Firm-in-market-level measures represent the overall degree of multimarket contact between a focal firm and its focal market competitors (Amburgey, Kelly, & Barnett, 1993; Baum & Korn, 1996; Boeker, Goodstein, Stephan, & Murmann, 1997; Gimeno & Woo, 1996; Haveman & Nonnemaker, 2000). Finally, dyad-level measures reflect the overall degree of multimarket contact between two firms in all the markets in which both are present (Baum & Korn, 1999). Given the theoretical focus and unit of analysis of our study, we used Baum and Korn's (1996) measure, which calculates multimarket contact for firm i in market m at time t as follows:

$$\text{Multimarket contact}_{imt} = \frac{\sum_{j \neq i} \sum_m (D_{imt} \times D_{jmt})}{\sum D_{imt} \times N_{MMCt}}$$

for all $j \quad \sum_m (D_{imt} \times D_{jmt}) > 1$.

N_{MMCt} is the number of multimarket competitors (j) that focal firm i encounters in market m (firm i and firm j must meet in at least one market other than m). D_{imt} is a dummy variable that equals 1 if firm i is active in market m at time t and 0 otherwise. Similarly, D_{jmt} is an indicator variable set equal to 1 if firm j is active in market m at time t and to 0 otherwise. The raw measure can vary from 0 (when there is no multimarket contact between firm i and any of the other firms in market m) to 1 (when firm

⁵ Competitive activity and competitive complexity have frequently been used as proxies for firm competitive aggressiveness and are considered the most robust measures in the competitive dynamics literature (Ferrier, Phionnlaoich, Smith, & Grimm, 2002). For instance, research has shown that a firm that is aggressive in carrying out more competitive actions than its rivals will be exploiting more opportunities and closing off the potential for those rivals to retaliate (Chen & MacMillan, 1992; Kirzner, 1997; Schumpeter, 1934). Similarly, regarding the linkage between competitive complexity and competitive aggressiveness, Miller and Chen (1996) found that firms that undertake a broader set of actions than their rivals are generally viewed as more aggressive in the market. It is important to note that, constrained by our approach of identifying competitive actions, we were not able to know the real intention behind each competitive action, such as, for instance, whether an action was a mild signal or a harsh retaliation.

i encounters all the other firms it meets in market m in all of its other markets). To scale this measure, we multiplied it by 100.

Extent of subsidiary ownership. Following Curhan, Davidson, and Suri (1977) and Delios and Henisz (2000), we measured the degree of subsidiary ownership as the percentage of each MNC subsidiary's equity held by its headquarters. We collected equity ownership data from *Who Owns Whom: The Directory of Corporate Affiliation*.

Cultural distance between home and host countries. Following Kogut and Singh (1988), we measured cultural distance using four primary dimensions of the Hofstede index: power distance, uncertainty avoidance, masculinity/femininity, and individualism. Accordingly, our measure of cultural distance is:

$$\text{Cultural distance}_{jk} = \sqrt{\sum_{i=1}^4 (I_{ij} - I_{ik})^2}$$

$\text{Cultural distance}_{jk}$ is the cultural distance of country j from country k ; I_{ij} stands for the i th cultural dimension for country j , and I_{ik} is the i th cultural dimension for country k .

Although important reservations have been voiced about the validity of Hofstede's measures (McSweeney, 2002), we were unable to find a better alternative with complete coverage for our 27 countries. For instance, we sought to use Ronen and Shenkar's (1985) culture cluster measure and Schwartz's (1994) cultural value measure, but neither was available for many of our 27 countries.

Local regulatory restrictions. We assessed the degree of regulatory restrictions on MNCs in a given market using the Executive Opinion Survey conducted each year by the World Economic Forum. We chose five variables from the survey to measure MNC managers' perceptions of host government regulatory restrictions on MNCs' entry decisions and daily operations.

The first variable, *access to credit*, is the average response to the statement, "Local capital markets are equally accessible to domestic and foreign companies." The second variable, *effectiveness of anti-trust policy*, is the average response to the statement, "The anti-monopoly policy effectively promotes competition." The third variable, *ease of establishing cross-border ventures*, is the average response to the statement, "Cross border ventures can be negotiated with foreign partners without government imposed restraint." The fourth variable, *freedom to acquire corporate control*, is the average response to the statement, "Foreign inves-

tors are free to acquire control in a domestic company." The last variable, *interest rate controls*, is the average response to the statement, "Deposit and lending interest rates are freely determined by the market." We reverse-coded the above variables to reflect the MNC managers' perceived restrictions to their businesses. We factor-analyzed the five variables and created a composite measure for host country constraints. A reasonably high Cronbach's alpha (0.85) confirmed the internal reliability of our regulatory restrictions measure.

Local competitor. By our definition, local firms are auto producers whose production and sales are limited to a single country—their home country. We measured the presence of local competitors in a host country as a dummy variable, which we coded as 1 when the local firms in a given country held over 30 percent of the market⁶ and 0 otherwise.

Control variables. To rule out plausible alternative explanations that may influence MNC subsidiary competitive actions, we controlled for several country-level and firm-level characteristics. Prior studies have suggested that firms in countries with low economic growth engage in more aggressive actions than firms in high-growth countries (Caves & Porter, 1978; Mueller, 1986). To control for this concern, we included three variables in our analysis: (1) the annual percent *growth rate of GDP*, as reported in the World Development Indicator database; (2) *market size*, measured as the log of annual vehicle sales in a given country, as reported in *Ward's Automotive Yearbook*; and (3) *host market concentration*, measured as the percentage of a host country's total sales represented by the four largest competitors in that country.

At the firm level, we first controlled for *MNC size*. Larger firms may have greater resources and hence a higher propensity to take competitive action than smaller firms. MNC size was measured as the log of a given MNC's world production in a given year. Second, we controlled for *MNC age*, as age also has an impact on an MNC's aggressiveness and intensity of actions (Delacroix & Swaminathan, 1991). Young MNCs may lack the market knowledge that older MNCs have and hence may be biased toward maintaining a status

⁶ Constrained by the data availability, we arrived at the 30 percent figure because our data seemed to be clearly demarcated at that point. Many countries (e.g., the United States and Japan) have virtually no local competitors, and others have 30 percent or more. There were very few countries between less than 1 percent and 30 percent.

TABLE 1
Descriptive Statistics and Correlations^a

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. MNC age ^b	4.22	0.38																	
2. MNC size ^b	14.95	0.57	.37																
3. Subsidiary market share	6.73	8.27	.18	.29															
4. MNC international experience	41.61	13.68	.20	-.13	.07														
5. MNC strategy	0.29	0.30	-.12	.21	-.06	.13													
6. GDP growth	3.05	3.19	.01	.01	-.01	-.01	.01												
7. Host market size ^b	13.69	1.30	-.02	-.01	-.16	-.02	-.01	.01											
8. Host market concentration	0.66	0.15	.01	.07	.05	.02	.03	-.04	.26										
9. Multimarket contact	83.42	5.16	-.19	-.35	.01	.05	-.10	.02	-.06	.12									
10. Subsidiary ownership	87.09	22.77	.10	-.01	-.01	.02	-.09	-.13	.06	-.14	-.07								
11. Home-host cultural distance	6.32	21.52	-.16	-.02	-.19	-.02	.21	.10	-.13	.10	.05	-.29							
12. Local regulatory restrictions	2.99	0.78	.01	.09	-.05	.01	.02	.11	.03	.20	.24	-.60	.30						
13. Local competitors	0.13	0.34	.00	.01	-.12	.01	.03	.30	.00	-.06	.08	-.48	.26	.62					
14. Competitive aggressiveness	0.00	0.96	.10	.23	.07	-.01	.08	-.05	.33	-.03	-.24	.09	-.15	-.14	-.08				
15. Subsidiary ownership × multimarket contact	-0.07	1.10	.12	.11	-.13	-.02	.05	.07	.06	-.01	-.12	.09	.06	-.08	-.04	-.02			
16. Cultural distance × multimarket contact	0.05	0.98	-.02	-.05	.05	.01	.01	-.04	.04	-.02	-.01	.07	-.13	-.09	.01	.09	-.35		
17. Local regulatory restrictions × multimarket contact	0.24	0.96	-.06	-.06	.12	.01	-.01	-.07	-.04	.00	-.01	-.09	-.09	.07	.07	.04	-.58	.36	
18. Local competitors × multimarket contact	0.03	0.34	-.10	-.15	.03	.01	-.06	-.01	.00	.00	.35	-.07	.03	.16	.20	-.05	-.39	.22	.50

^a Means and standard deviations are for unstandardized values. Correlations > |.04| are significant at $p < .05$; $n = 1,778$.

^b Logarithm.

quo in their operations (Aldrich & Auster, 1986; Baker & Cullen, 1993). We measured MNC age as the log of the number of years since an MNC's founding. Third, we controlled for the *market share* of a given subsidiary in the host country, as stronger market presence might increase aggressiveness. Fourth, we controlled for *international experience*, as MNCs with more experience may be capable of implementing a wider array of competitive actions (Anand & Khanna, 2000; Delios & Beamish, 2001; Erramilli, 1991; Li, 1995). We measured international experience using the transnationality index developed in the *United Nation's World Investment Report*. The measure is an average of three ratios: (1) foreign sales to total sales, (2) foreign assets to total assets, and (3) foreign employment to total employment. Finally, we controlled for *MNC strategy*, as an MNC's international strategy determines its awareness of multimarket interdependence (Ma, 1999). An MNC that pursues a global strategy generally views the entire world market as an integrated chessboard and therefore is more likely to achieve mutual forbearance with its multimarket rivals (Yip, 1995). In contrast, for an MNC that pursues a multidomestic strategy, there is usually less coordination among the operations in multiple national markets within the firm (Yip, 1995). Each national subsidiary has autonomy in formulating its competitive strategy, which aims primarily at better exploiting the lo-

cal market. As such, the interdependence of multiple country markets and multimarket contact with a rival MNC are less likely to be recognized (Ma, 1999). We measured MNC strategy using the total number of R&D centers of a given MNC located in foreign countries divided by its total number of R&D centers.

Analysis

The unit of analysis in our study is the MNC-country-year (or subsidiary-year). Theoretically, a sample of 13 auto companies observed in 27 countries (markets) over 7 years would generate a data set of 2,457 observations ($13 \times 27 \times 7$). However, as many sample firms did not have a subsidiary in a given country-year, our final sample consisted of 1,778 MNC-market-year observations.

Because we observed each MNC subsidiary up to seven times (once per year), we pooled the observations over years. Pooling repeated observations may violate the assumption of observation independence, leading to autocorrelation in a model's residuals and incorrect variance estimates. In this situation, ordinary least squares (OLS) coefficient estimates are unbiased, but their variance estimates are not, and hence the tests for statistical significance are hampered (Greene, 2003). To check for autocorrelation, we followed Wooldridge (2002), who derived a simple test for autocorrelation in panel data models. Using this approach (see Druk-

TABLE 2
Results of GLS Analyses of Global Automaker Subsidiaries' Competitive Aggressiveness^a

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	-5.29***	-4.80***	-5.11***	-5.37***	-4.89***	-5.54***	-5.05***	-5.29***
MNC age ^b	0.07*	0.09**	0.04	0.05 [†]	0.02	0.02	0.04	0.04
MNC size ^b	0.17***	0.13***	0.19***	0.20***	0.19***	0.22***	0.19***	0.20***
Subsidiary market share	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***
MNC international experience	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MNC strategy	0.10*	0.10*	0.14**	0.11**	0.13**	0.14**	0.13**	0.10*
GDP growth	-0.01***	-0.01***	-0.01***	-0.01***	-0.004***	-0.01***	-0.004***	-0.004***
Host market size ^b	0.16***	0.17***	0.14***	0.14***	0.13***	0.14***	0.14***	0.14***
Host market concentration	-0.26***	-0.28***	-0.29***	-0.33***	-0.32***	-0.40***	-0.29***	-0.34***
Multimarket contact		-0.09***	-0.08***	-0.10***	-0.09***	-0.08***	-0.09***	-0.10***
Subsidiary ownership			0.04**	0.02	0.03 [†]	0.02	0.04*	0.02
Home-host cultural distance			-0.07***	-0.06***	-0.07***	-0.06***	-0.07***	-0.07***
Local regulatory restrictions			-0.06***	-0.07***	-0.05***	-0.09***	-0.06***	-0.06***
Local competitors			0.09*	0.10**	0.09*	0.17***	0.12**	0.11**
Subsidiary ownership × multimarket contact				-0.05***				-0.04***
Cultural distance × multimarket contact					0.05***			0.04***
Local regulatory restrictions × multimarket contact						0.03***		0.00
Local competitors × multimarket contact							0.08**	-0.01
Log-likelihood	-844.6	-944.2	-916.5	-913.5	-899.6	-914.9	-904.5	-899.5
Chi-square	379.58***	445.55***	514.41***	534.02***	473.66***	746.59***	472.86***	533.92***
df	8	9	13	14	14	14	14	17

^a $n = 1,778$.

^b Logarithm.

[†] $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

ker [2003] for more details), we found that autocorrelation was present in our data set. Furthermore, scatter plots of standardized predicted values and standardized residuals indicated that heteroscedasticity was also a concern.

To resolve these problems, we used a generalized least squares (GLS) approach. GLS allows estimating reliable statistics even in the presence of autocorrelation within panels and heteroskedasticity across panels (Parks, 1967). An alternative to GLS is the fixed-effects panel model. However, we could not use a fixed-effects approach as several of our hypothesized variables did not vary or varied very slightly over time (e.g., cultural distance, subsidiary ownership, local regulatory restrictions). To test the robustness of the GLS model, we ran a Prais-Winsten regression with panel-corrected standard errors and an OLS regression with robust

standard errors. All three models yielded very similar results.⁷

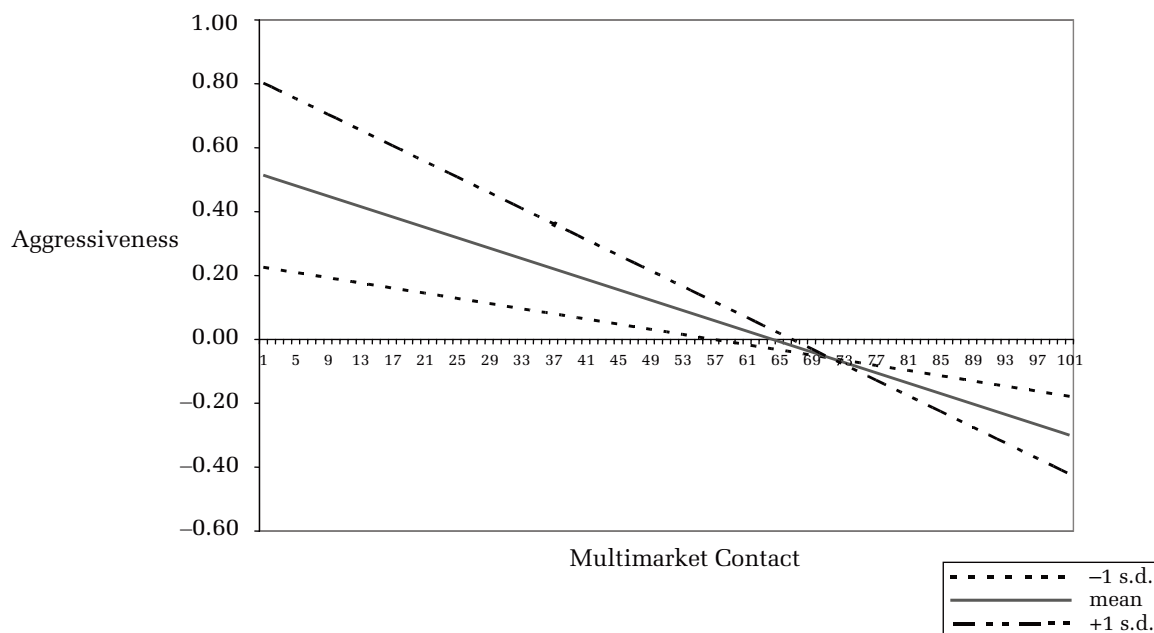
RESULTS

Table 1 provides means, standard deviations, and correlations for all variables used in our analyses. To test for multicollinearity, we calculated variance inflation factors (VIFs) for our independent variables, using OLS. All VIF values were within the acceptable range (from 1.08 to 2.15). However, the inclusion of multiple interaction terms in the same model, as we will discuss below, did lead to concerns about multicollinearity.

Table 2 summarizes the GLS regression results of

⁷ These analyses are available from the first author upon request.

FIGURE 2
Interaction of Multimarket Contact and Subsidiary Ownership



our hypothesis tests. Model 1 reports the influence of all the control variables on the competitive aggressiveness of MNCs. Overall, our control variables are estimated as expected. For instance, regarding the effects of firm-level characteristics, it appears that MNCs compete more aggressively when they are older and larger, and when they have significant market share and pursue a multidomestic strategy. This evidence is consistent with prior research (Chen & MacMillan, 1992; Gimeno, 1999; Ma, 1998). In terms of country-level characteristics, also in line with previous studies (Chen & MacMillan, 1992; Porter, 1980), we found that MNCs compete more aggressively in host countries with larger auto markets and lower GDP growth rates. We did not observe a significant effect for MNC international experience.

Model 2 provides a test of the basic mutual forbearance hypothesis (Hypothesis 1). The significant and negative coefficient for multimarket contact ($\beta = -0.09$, $p < .001$) indicates that as multimarket contact increases, the competitive aggressiveness of MNC subsidiaries declines. This provides strong support for Hypothesis 1.

In model 3, we added the main effects of all our moderating variables. Models 4–8 provide sequential tests of Hypotheses 2–5. All interactions were computed by multiplying variables after standardization, as suggested by Jaccard, Turrisi, and Wan (1990) and Aiken and West (1991). Standardization reduces the multicollinearity inherent in interaction terms and facilitates interpretation of the coef-

ficients. Model 4 provides a test of the predicted negative moderating influence of subsidiary ownership on mutual forbearance (Hypothesis 2). As shown in model 4, the interaction between multimarket contact and subsidiary ownership is negative and significant ($\beta = -0.05$, $p < .001$), thus supporting Hypothesis 2. That is, with greater subsidiary ownership, the dampening influence of multimarket contact on subsidiary aggressiveness is even stronger. Put another way, with less subsidiary ownership, the dampening influence of multimarket contact on competitive aggressiveness is weakened further, leading to greater aggressiveness. Figure 2 illustrates this interaction effect, indicating further support for Hypothesis 2.

Model 5 provides a test of the moderating effect of cultural distance on mutual forbearance (Hypothesis 3). In model 5, the interaction between multimarket contact and cultural distance is positive and significant ($\beta = 0.05$, $p < .001$), indicating that the deterring influence of multimarket contact on subsidiary competitive aggression is weakened in host countries that are culturally distant from an MNC's home country, leading to greater aggressiveness. Figure 3 illustrates this interaction effect, which supports Hypothesis 3.

Model 6 provides a test of Hypothesis 4, which predicted that host government regulatory restrictions would weaken the rivalry-deterring effects of multimarket contact, leading to greater aggressiveness. As indicated by the positive and significant coefficient for the interaction term between multi-

FIGURE 3
Interaction of Multimarket Contact and Cultural Distance

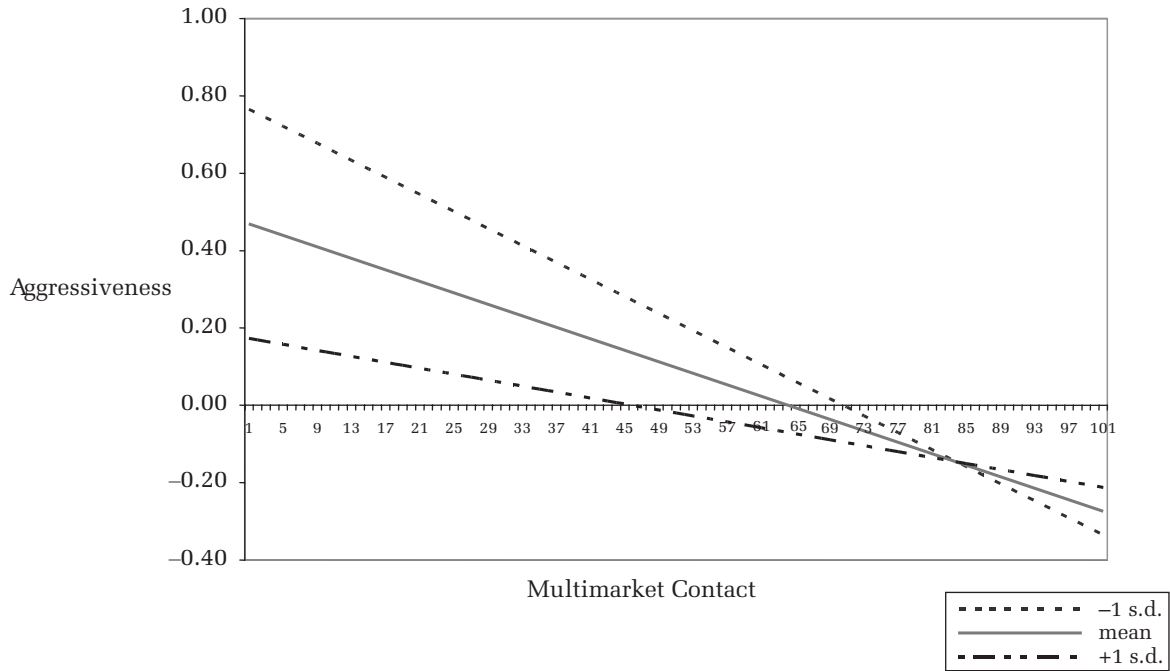
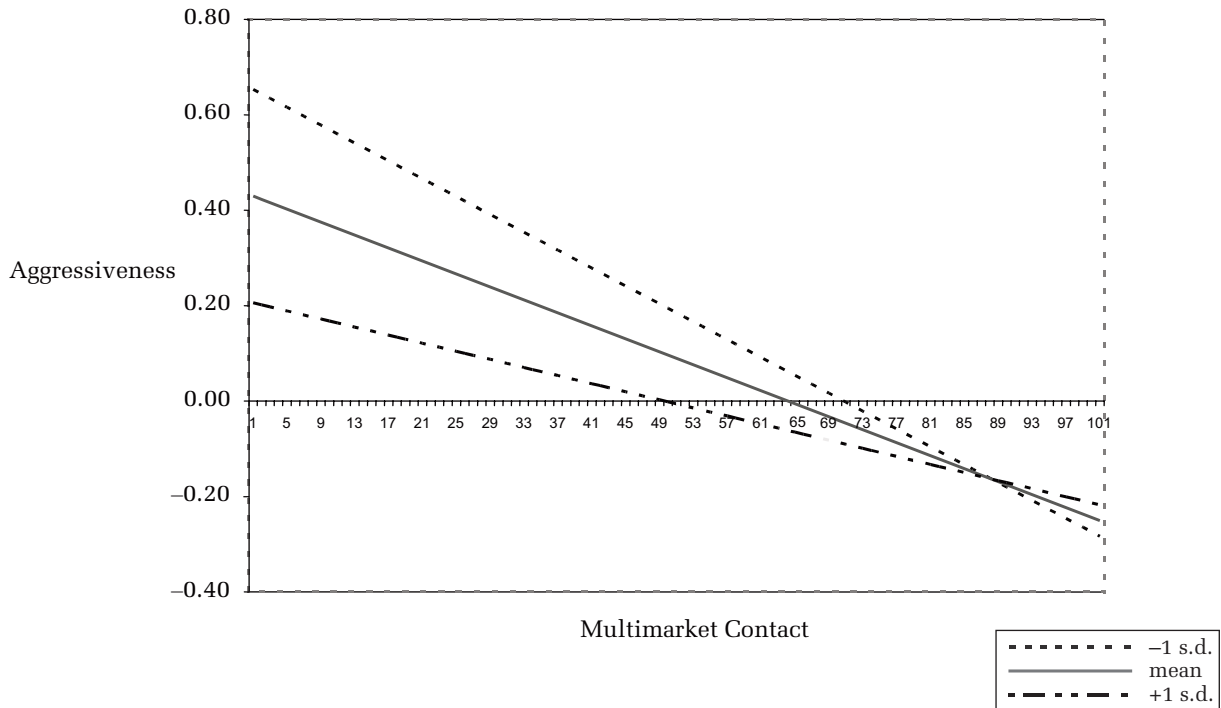


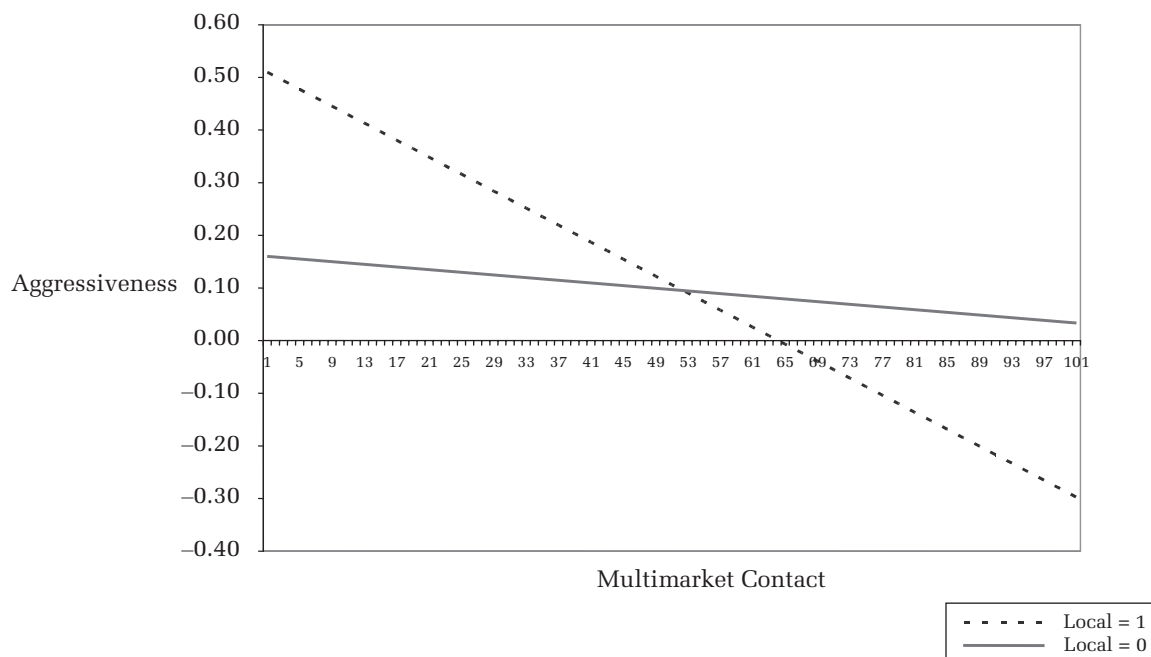
FIGURE 4
Interactions of Multimarket Contact and Local Regulatory Restrictions



market contact and local regulatory restrictions ($\beta = 0.03, p < .001$), Hypothesis 4 is strongly supported. An interaction plot, shown in Figure 4, demonstrates further support for Hypothesis 4.

Model 7 provides a test of Hypothesis 5, which predicted that the mutual forbearance effect would be weaker in host countries with stronger local competitors, leading to greater aggressiveness. The

FIGURE 5
Interactions of Multimarket Contact and Local Competitors



positive and significant coefficient for the interaction between multimarket contact and local competitors ($\beta = 0.08$, $p < .001$) provides strong support for Hypothesis 5. Figure 5 illustrates the interaction, further supporting Hypothesis 5.

Finally, in model 8 we included all interaction terms. Support for Hypotheses 1, 2, and 3 is retained; however, because of multicollinearity, two of the interactions (those pertaining to Hypotheses 4 and 5) are no longer significant.

We ran several analyses (all available from the first author upon request) to evaluate the robustness of the results reported in Table 2. First, there may be some concern that endogeneity may have biased our evidence about competitive aggressiveness, because a subsidiary's competitive aggressiveness might be a function of the same factors that led the company to compete in a particular country. To evaluate this concern, we ran eight Heckman sample selection models (Heckman, 1979) treating country participation as a choice variable (paralleling the same models in Table 2). Although the likelihood-ratio test of independent equations was consistently rejected, and coefficients for the inverse Mills ratio (λ) were consistently significant (hovering around .05), neither the signs nor the significance levels of the key independent variables were affected. In sum, the Heckman analyses led to identical conclusions, as reported in Table 2 for all of our hypothesis

tests.⁸ Second, some may argue that the level of ownership in a subsidiary is a choice variable, leading to another endogeneity concern (in this case, the level of ownership of a particular subsidiary might be a function of factors also related to the subsidiary's competitive aggressiveness). To help mitigate this concern, we reanalyzed our data using a two-stage least squares approach (Hamilton & Nickerson, 2003; Heckman, 1979; Wooldridge, 2002). That analysis led to identical conclusions with respect to the hypothesis test reported in models 3 and 4 of Table 2, where we show subsidiary ownership's effects (main and interactive).⁹

Finally, we need to deal with the concern that

⁸ Given the fact that the likelihood-ratio test of independent equations was consistently rejected, we could have simply reported results from Heckman instead of the GLS results presented in Table 2. Following cautionary notes about overuse of the Heckman procedure from Johnston and DiNardo (1997: 449–50), we elected to report only the simpler GLS analyses.

⁹ In these analyses, the significance levels of the key independent variable (subsidiary ownership) actually increased. However, because the two-stage least squares approach did not permit us to deal with issues specific to panel data analyses, we preferred to report the more conservative analyses (GLS) here. Again, the signs are the same under both approaches, and the significance levels

our analysis, as reported in Table 2, does not reflect the larger implications of multimarket contact, because as long as a firm can retaliate against a rival in *some* market or markets other than the one in which an attack occurred, the mutual forbearance hypothesis could still hold. Put differently, the analysis reported in Table 2 may not indicate that characteristics of a host country and the host country subsidiary actually moderate the mutual forbearance hypothesis, in that mutual forbearance is a corporate-level prediction, and the analyses reported in Table 2 are at the subsidiary (host country) level. To help resolve this concern, we ran an additional analysis in which we changed the unit of analysis to the company level. Basically, we calculated mean values for variables across all subsidiaries of each firm each year, thus collapsing our subsidiary-level analysis to a corporate-level one. Because we started with 13 companies and report seven years of data, the number of observations on which our results are based is 91 (13×7). In that analysis, the coefficients for all of the interaction terms (the key hypothesis tests) have the same signs as those reported in Table 2, and three of the four are significant (one marginally, however). This analysis helps to validate our conclusion that the country- and subsidiary-specific effects we modeled have important implications for mutual forbearance at the corporate level.

DISCUSSION AND CONCLUSIONS

The mutual forbearance hypothesis has been empirically supported in a variety of industry settings (Gimeno & Woo, 1996; Heggestad & Rhoades, 1978; Parker & Röller, 1997). Our study is one of the first to examine its validity in international markets, highlighting several important contingencies that govern the strength of the mutual forbearance hypothesis in international markets. Specifically, we examined how the deterring influence of multimarket contact on the competitive aggressiveness of an MNC's subsidiaries is contingent upon the extent of subsidiary ownership, the cultural distance from the MNC's home country, the extent of local regulatory restrictions, and the presence of local competitors. All of these factors have been prominent topics in international business research but never linked to multimarket competition. Testing our hypotheses using a database of 1,778 competitive actions by 13 automobile companies operating in 27 countries over a seven-

year period, we found that greater subsidiary ownership strengthens the rivalry-dampening influence of multimarket contact on competitive aggressiveness, whereas cultural distance, local regulatory restrictions, and the presence of local competitors attenuate it. These findings add important insights to scholars' understanding of how multimarket contact acts to deter rivalry.

Our results indicate that the strength of rivalry deterrence generated by multimarket contact depends importantly on certain salient conditions in these markets. MNC managers might use the evidence from our study to increase the rivalry deterrence associated with multimarket contact by, say, negotiating for larger ownership positions in international subsidiaries and taking positive steps to mute the influence of cultural distance. However, it is important to note that our evidence also offers some insights for public policy makers seeking to manage oligopolistic rivalry within their borders. Our evidence clearly indicates that host countries can destabilize mutual forbearance through policies that favor local competitors and policies that restrict the actions of foreign competitors within their borders.

Our results also support the call of other researchers to examine global strategy by considering the unique roles played by individual subsidiaries and the diverse markets in which they operate (Birkinshaw & Hood, 1998; Gupta & Govindarajan, 1991). It is important to recognize, as we do, that MNC strategies are implemented through the actions of subsidiaries, and headquarters' control over subsidiaries is seldom absolute. Indeed, the specific contingencies we highlight in this study underscore the importance of considering more carefully the role played by subsidiaries and their unique markets in effectively executing global strategy.

More broadly, our findings resonate with the conclusions of other scholars who have been skeptical about the presumption that businesses are becoming more and more "global," thereby requiring that firms compete with highly integrated strategies (Ghemawat, 2001; Zaheer, 1995). We find that even in the automobile industry, which would seem to be a clear example of a "global" business (Porter, 1990), there is an apparent disconnect between what headquarters might want and how subsidiaries actually act. One interpretation of this evidence would be that even in highly globalized markets, subsidiaries still feel strong pressure to be responsive to local country conditions. Country markets are not necessarily getting any closer or more homogeneous; international distances and differences do matter. As Ghemawat put it, "Much has been

reported here are lower than those using the two-stage least squares approach.

made of the death of distance in recent years. It's been argued that information technologies and, in particular, global communications are shrinking the world, turning it into a small and relatively homogeneous place. But when it comes to business, that is not only an incorrect assumption, it is a dangerous one. Distance still matters and companies must explicitly and thoroughly account for it when they make decisions about global expansion" (2001: 138).

Our findings also support the notion that tight internal coordination mechanisms are an important assumption behind the mutual forbearance hypothesis. Without internal coordination, MNC headquarters cannot ensure appropriate actions or counteractions by their subsidiaries, and consequently they cannot unambiguously pose credible threats of retaliation to aggressive moves made by their global rivals. Our research setting (MNCs engaged in global rivalry) is in fact particularly appropriate for highlighting the significance of internal coordination for the efficacy of the mutual forbearance hypothesis. Geographic distances and cross-border differences make tensions between headquarters and subsidiaries endemic to MNCs, and a variety of factors serve to constrain or enable headquarters' capacity to coordinate subsidiaries' actions.

It is important to note that, although our study has focused on a special but important case of multimarket competition (i.e., MNCs competing in international markets), our findings are likely to apply to all organizations in which divergence in the goals and objectives of subunits create difficulties in coordination/integration. The fundamental issues here are about organizational impediments in achieving mutual forbearance. They exist in multimarket organizations competing across both geographic and product markets in both domestic and international settings.

Our study has several limitations that offer fruitful avenues for future research. First, although we believe *Automotive News* is a quite complete and reliable source for studying competitive aggressiveness in the auto industry, it may not be comprehensive in reporting on all competitive actions. Our approach only included actions that the editors and reporters at *Automotive News* deemed worthy of reporting on and possibly omits some minor actions taken by rivals. Second, our approach to identifying competitive actions—structured content analysis—has both strengths and weaknesses. For instance, we could not tell the real intention behind each action, and we could not distinguish among mutual forbearance (Edwards, 1955), "mutual spoil" (Gelfand & Spiller, 1987; Porter, 1985), and "mutual foothold" (Karnari & Wernerfelt, 1985)

in a dynamic equilibrium of competitive stand-off. The theoretical differences among these phenomena thus offer a fruitful avenue for future research (Ma, 1998). Moreover, although we are confident that our research design measured the competitive aggressiveness of global automakers in every major market (our sample countries in total represent approximately 99 percent of world motor vehicle sales during our study years), we did not directly differentiate between single-country actions and cross-country actions. Third, given the theoretical focus and the unit of analysis of our study, we used the well-established firm-in-market measure of multimarket contact and controlled for the strategic importance of each country market. Yet our measure does not directly incorporate information on the significance of each market to a focal firm. Thus, it will be important for future researchers to try alternative measures of multimarket contact and investigate how they impact our findings.

Fourth, owing to limited data availability and the limited scope of our study, we were not able to fully address several issues. For instance, in many markets, our measure of multimarket contact does not differentiate between signals from different rivals or the intended targets of attacks. Interpretation of multiparty, multimarket signals is difficult owing to signal jamming, noise, and confusion. In fact, in studies of mutual forbearance, we can envision other levels of analysis in addition to the ones well established in the literature. For example, there may be constellations of competitors that attack and respond at an alliance level, rather than a firm level (e.g., Das & Teng, 2002). Or a single firm may aim some attacks or focus some responses toward several competitors simultaneously. Furthermore, contingencies beyond those we examined may influence the relationship between multimarket contact and MNC subsidiaries' competitive aggressiveness; these contingencies might include how subsidiary performance is assessed, MNC organizational culture, and MNC degree of diversification (Ma, 1998). Finally, our findings are based on data from firms in a single industry over a seven-year period, and it is possible that our results reflect issues specific to the industry or period under study. Future replication of our research in other settings will help to bolster the generalizability of our findings.

In summary, this study provides new insights into how MNCs manage rivalry by engaging in multimarket competition. In so doing, it signifies the importance of a contingency view of the mutual forbearance hypothesis. Our findings also provide guidelines to MNC managers on how to manage their subsidiaries while crafting and implementing

global strategy, and guidelines for public policy makers on how to negotiate terms with MNCs striving to compete in host countries.

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