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Constrained Delegation: Limiting Subsidiaries' Decision Rights and Resources in Firms That Compete across Multiple Industries

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Abstract

We examine the influence of competitive spillovers among subsidiaries on the design of headquarters-subsidiary relationships. We focus on multi-industry firms and competitive spillovers across markets, hypothesizing that these firms delegate most business-level decisions to subsidiaries but adapt to multimarket competition by limiting their subsidiaries' incentive and ability to make resource commitments by constraining the scope of decision rights and the available resources, a phenomenon that we refer to as ''constrained delegation.'' Accordingly, the extent of multimarket contact in a given market (1) is associated with lower subsidiary discretion in decisions pertaining to resource commitments and (2) counteracts the tendency of internal capital markets to provide financial resources to subsidiaries that have a low market share or operate in high-growth industries. Results of analyses, based on the population of majority-owned subsidiaries of groups operating in France between 1997 and 2004, support the predictions. We also found that multimarket contact is associated with a subsidiary's being even less competitively aggressive when the organization's design imposes more constraints on the subsidiary's resource allocations. This study, one of the first to explore empirically the impact of negative spillovers within the firm on organization design in multiunit firms, suggests that organizational choices are endogenous to the competitive context.

Keywords: multimarket competition, constrained delegation, internal capital markets, competitive spillovers, managerial discretion, subsidiary autonomy

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Theories of organization design are concerned with the fundamental problem of establishing coherence between organizational structure and processes and the goals and purposes for which the organization exists (Galbraith, 1977). Keeping pace with the vast and rapid dissemination of the multidivisional form, pioneering studies examined the fit between organizational objectives and various elements of organization design, including organizational structure (Chandler, 1962; Williamson and Bhargava, 1972), planning and control systems (Ouchi and Maguire, 1975; Child, 1984), and selection of managers (Gupta and Govandarajan, 1984; Hambrick and Mason, 1984). In parallel, a multitude of factors—such as economies of scale and scope, technology, industry growth, and market structure—have been shown to influence the design of organizational structure and processes (Galbraith, 1977; Nadler and Tushman, 1997; Colombo and Delmastro, 2008).

In multiunit firms, an additional and influential factor is intrafirm spillovers that arise when the actions and choices of one unit affect the optimal behavior and performance of other units. Positive spillovers, which occur when subsidiaries' incentives are aligned with each other (e.g., joint procurement), impose few organizational demands because subsidiaries benefit from coordination. But negative (or competitive) spillovers, which occur when subsidiaries' interests are not aligned (e.g., competing brands), require more active intervention by headquarters to facilitate coordination because the optimal behavior of subsidiaries contradicts each other (Galunic and Eisenhardt, 1996). When this is the case, neither the full centralization of decisions to headquarters nor giving full autonomy to the subsidiary would be effective in managing negative spillovers because it is necessary to coordinate activities across subsidiaries and, simultaneously, provide subsidiaries with the requisite autonomy and flexibility to adapt to their local environments (Nohria and Ghoshal, 1994; Baum and Greve, 2001). This poses a conundrum that many multiunit firms face when it comes to managing their operations.

This organization design challenge is especially apparent in multi-industry firms, in which a particular source of negative intrafirm spillovers is multimarket competition. Examples abound. Bouygues and Louis Dreyfus, two prominent French groups, compete with each other in multiple markets, and both have major operations in telecommunications, real estate, and construction. Likewise, General Electric and Siemens, two of the largest global diversified industrial companies, compete with each other in a number of sectors, including manufacturing, healthcare, and energy, with directly overlapping businesses accounting for 75 percent and 58 percent of their total revenues, respectively (Dray and Fielding, 2013). When firms recognize their extended interdependence over multiple markets, they are likely to refrain from initiating aggressive competitive actions in each other's important markets. This form of tacit collusion between firms is known as mutual forbearance (Edwards, 1955; see Yu and Cannella, 2013, for a review). Within firms, multimarket competition induces negative spillovers across subsidiaries because their incentives are inherently misaligned. When a subsidiary takes an aggressive competitive action, it might benefit from increased market share and/or profits, but this locally optimal action might harm its sister subsidiaries that face the same multimarket rivals, who could retaliate in response. When a subsidiary ''forbears'' (i.e., behaves less aggressively than it would without multimarket rivalry), the benefit of its locally suboptimal action will be appropriated not by itself but by

one or more of its sister subsidiaries that face the same multimarket rivals, who mutually forbear in response.

In terms of organization design, multimarket competition thus implies that firms engaging in multimarket rivalry should be able to coordinate their strategies across markets in which they meet their multimarket rivals. Accordingly, as several studies acknowledge (Strickland, 1984; Haveman and Nonnemaker, 2000; Golden and Ma, 2003), existing work on multimarket competition tends to conceptualize multimarket firms as unitary actors who can coordinate key strategic decisions under a central decision maker who receives and draws on all the information from all markets. Therefore, these firms are seen as single decision-making units that do not face organizational frictions, incomplete information, or agency problems in executing multimarket strategies. This conceptualization, however, overlooks the complex reality of the organizational structure and processes that shape many organizational choices and is at odds with the very nature of multiunit-multimarket firms, particularly multi-industry firms, in which the knowledge required for strategic decisions is inevitably dispersed among levels and across the organization, and most decisions pertaining to business strategy are delegated to subsidiary managers (Williamson and Bhargava, 1972; Galbraith, 1977; Bower, Doz, and Gilbert, 2005). Consequently, we do not know whether and how multi-industry firms reconcile the need to delegate decision making to subsidiaries with the need to coordinate multimarket competitive strategies in the design of relationships between headquarters and subsidiaries.

Addressing this gap, we introduce the concept of ''constrained delegation'' to argue that multi-industry firms manage multimarket competition by delegating most business-level decisions to subsidiaries, while simultaneously limiting their action space for resource commitments through constraints on the scope of decision rights and constraints on available resources. As such, headquarters uses the resource allocation and budgeting process to selectively constrain the competitive behavior of particular subsidiaries. Business-level decisions, including tactical decisions such as pricing or advertising, are delegated to subsidiaries so that otherwise autonomous subsidiaries can still take locally adaptive decisions that benefit both themselves and the firm. But controlled by headquarters in their investment decisions and constrained in resources to make those investments, subsidiaries facing multimarket rivals do not have the incentive and ability to make resource commitments that would trigger competitive escalation over markets to the detriment of the firm as a whole. To test our predictions, as well as to explore whether and how constrained delegation affects the competitive aggressiveness of subsidiaries, we analyzed data from the population of majority-controlled subsidiaries of groups operating in France between 1997 and 2004.

CONSTRAINED DELEGATION IN MANAGING MULTIMARKET COMPETITION

Overlapping operations of firms in multiple product or geographic markets have long been of scholarly interest because of their potential to influence competitive behavior and performance in a given market beyond the conditions specific to that market. Competitive behavior is considered to be aggressive when it attracts customers away from competitors by offering them more value for

their money (Porter, 1980; Smith, Grimm, and Gannon, 1992). Using the terminology of the value-based view (Brandenburger and Stuart, 1996), this implies that an aggressive action increases the potential customer surplus for more customers by increasing their willingness to pay, reducing prices, or increasing capacity or availability relative to rival offerings. In contrast, nonaggressive actions (such as horizontal differentiation) tend to focus on increasing margins from existing customers rather than increasing market share. By this definition, a more aggressive competitive action by a firm systematically hurts competitors because they suffer a loss in revenues if they do not respond to the move.

Competitors' incentive and ability to pursue aggressive competitive behavior is influenced by multimarket contact between them. This is because, under common ownership and control of operations in multiple markets, a firm can respond to a competitive action of a rival not only in the focal market but also in other markets in which both firms are present. Such competitive spillovers become viable for a multimarket firm, when they are less costly to execute and more effective in taming the competitive aggression of rivals than responding in the focal market. This is especially the case when the focal market is an important market for the firm, so that escalation of competition in that market will be particularly detrimental to its performance, and when there are other markets that are less important for the focal firm (so that it will be relatively less costly for the firm to increase competition there) but important to its multimarket rivals, so that escalating competition in those markets will be particularly detrimental to their performance (Bernheim and Whinston, 1990; Gimeno, 1999). As a result, and in anticipation, multimarket firms are likely to behave less aggressively in markets in which they compete with each other, reducing overall competitive intensity and increasing average profitability. This is known in the literature as the ''mutual forbearance hypothesis.''

A strong underlying assumption of multimarket studies is that firms are unitary actors who can and do coordinate all strategic decisions under a central decision maker (Strickland, 1984; Cowling and Sugden, 1987; Haveman and Nonnemaker, 2000; Golden and Ma, 2003). In Collis and Montgomery's (2005: 191) words, ''managing multimarket competitive interaction requires an individual to have both the responsibility for competitive interaction across multiple markets and the necessary information about relevant markets.'' This is because when competitive decisions are taken solely based on intra-market dynamics, prevailing decisions may or may not be in accordance with the multimarket objectives of the firm and may be detrimental to its overall performance (Verboven, 1998). For example, pursuing an attractive market opportunity might be optimal at the subsidiary level but can hurt the overall performance of the firm if it triggers competitive escalation in other markets. Therefore, not surprisingly, effective coordination over markets is required implicitly in all multimarket work (e.g., Karnani and Wernerfelt, 1985; Bernheim and Whinston, 1990). Even when this requirement is stated explicitly, firms are assumed to be able to effectively coordinate their strategic actions over the markets (e.g., Strickland, 1984; Alexander, 1985).

The unitary actor assumption is more valid for single-industry firms competing across multiple geographical markets—like airlines or bank holding companies that are typically studied in the empirical multimarket contact literature—because selling relatively homogeneous goods across markets makes it feasible to effectively centralize or coordinate activities across markets. For

example, in the airline industry, pricing decisions in multiple city-pair markets are often made by central revenue management departments. This is in stark contrast with large, diversified companies in which strategic decisions are inevitably dispersed among levels and across the organization (Bower, 1970b; Bower, Doz, and Gilbert, 2005), for three reasons. First, the large size and operational diversity of these organizations result in information overload at corporate headquarters and give rise to decentralized decision making and multiunit structures (Chandler, 1962, 1991; Bower, 1970a; Williamson and Bhargava, 1972; Mintzberg, 1979). Second, vertical information transfers across the organizational hierarchy are prone to errors and cause delays in decision making (Galbraith, 1977; Child, 1984; Poppo, 1995). Third, successful management of each business requires diverse market-specific knowledge on a multitude of factors, including competitive dynamics, demand-side factors, and market opportunities (Jensen and Meckling, 1991). Consequently, top management focuses on managing the strategy process and making decisions that shape the long-term corporate objectives of the firm, and most decisions pertaining to business strategy (e.g., pricing, sourcing, and product strategy) are delegated to subsidiary managers (Burgelman, 2005).

The fact that large, diversified companies cannot, and should not, be seen as unitary actors emphasizes the need for a better understanding of how these companies manage the competitive aspects of their multimarket operations (Baum and Greve, 2001). This is an important question because the predominant organizational form in multi-industry firms today is the one that involves autonomous subsidiaries, particularly along discrete product categories (Zey and Swenson, 1998; Collis and Montgomery, 2005). It is not a coincidence that theories of multimarket competition were originally developed for conglomerates (Edwards, 1955; Mueller, 1969; Rhoades, 1973; Adams, 1974; Areeda and Turner, 1979), even though subsequent empirical work has focused on single-industry firms.

To date, only a few theoretical studies have explicitly considered and offered solutions to the problem of competitive coordination in multiunit-multimarket firms (Jayachandran, Gimeno, and Varadarajan, 1999; Neubauer, 2001; Golden and Ma, 2003). Overall, existing work highlights two complementary approaches: integrating mechanisms that support intrafirm information sharing and incentive regimes that reward the attainment of firm-level objectives.

Integrating mechanisms can facilitate the execution of multimarket strategies because they enhance intrafirm coordination. By default, the parent firm does not have the detailed market-level information necessary for planning, control, and evaluation (Bower, 1970a, 1970b; Zysman, 1973). Headquarters is limited in its ability to gather, process, and interpret all the necessary information over a multitude of typically heterogeneous markets (Cowling and Sugden, 1987; Gupta and Govindarajan, 1991; Nadler and Tushman, 1997). Therefore the effective execution of multimarket strategies hinges, at least in part, on the design and use of efficient integrating mechanisms (Golden and Ma, 2003). More successful multimarket firms develop better systems (e.g., information and communication mechanisms) and better processes (e.g., task forces, specialized boundary spanners, organizational structures) to increase the breadth, frequency, and quality of the information shared (Jayachandran, Gimeno, and Varadarajan, 1999).

Incentive systems that encourage subsidiary managers to match the firm's objectives can also support the effective execution of multimarket strategies, because incentive regimes that reward attaining firm-level objectives can be a partial substitute for centralized decision making (Aghion and Tirole, 1997; Rivkin and Siggelkow, 2003; Rantakari, 2008). Therefore the effective execution of multimarket strategies hinges, at least in part, on incentivizing subsidiary managers to attain firm-level objectives. If and when subsidiaries cannot be reliably and continuously monitored, firm-level incentive schemes can be used to encourage subsidiary managers to act more in line with firm-level strategies even without headquarters' interventions (Hill, Hitt, and Hoskisson, 1992; Fauli-Oller and Giralt, 1995; Wulf, 2002) and can facilitate mutual forbearance (Neubauer, 2001; Golden and Ma, 2003).

Both of these approaches can facilitate the intrafirm coordination necessary to implement multimarket strategies. At the same time, but for separate reasons, they provide only partial answers to the coordination problem and, importantly, their effectiveness is limited in multi-industry firms. Information-based integrating mechanisms ease multimarket coordination vertically, with the headquarters, and horizontally, with sister subsidiaries, but they do not eliminate the need for decentralized decision making, especially for multi-industry firms. To be sure, mutual forbearance can be achieved when subsidiaries are willing to and capable of coordinating their strategies voluntarily (Neubauer, 2001). Yet this would be the case only when there are mutual benefits (positive spillovers) from coordinating activities (Alonso, Dessein, and Matouschek, 2008). This is in stark contrast with multimarket competition, which induces negative spillovers across subsidiaries because their incentives are inherently misaligned. Competitive choices that are optimal for a given subsidiary, such as a competitively aggressive move to capture an attractive market opportunity, might be detrimental to other subsidiaries if competition in their markets increases due to retaliation by multimarket rivals. Likewise, competitive choices that are suboptimal for a given subsidiary, such as forgoing an attractive investment opportunity, might benefit other subsidiaries if it induces multimarket rivals to forbear in return. Consequently, sharing information is not sufficient to coordinate competition.

Firm-level incentives, however, provide a means to align subsidiaries' behavior with corporate objectives in decentralized decision-making structures, particularly when there are negative intrafirm spillovers that render integrating mechanisms ineffective. High-powered firm-level incentives, such as linking a large portion of subsidiary managers' compensation to the overall performance of the firm, may encourage subsidiary managers to take forbearance actions that undermine their subsidiary's performance but benefit the corporation. But such high-powered firm-level incentives are seldom sufficient to secure implementation of forbearance strategies because the return for the effort would be weak for subsidiary managers. Efforts to improve the overall firm performance would have a limited effect on their compensation, and, at the same time, shocks and decisions outside their control would have a great impact on it. Furthermore, because managers have career concerns beyond compensation, it is unlikely that they would pursue forbearance strategies and accept lower subsidiary profits (potentially damaging their career prospects) in exchange for an ambiguous increase in firm-level profits and their compensation (Prahalad

and Doz, 1987; Collis and Montgomery, 2005). Therefore firm-level incentives are not enough to coordinate competition.

Constrained delegation. Another way that multi-industry firms can manage multimarket competition is by constrained delegation, delegating most business-level decisions to subsidiaries but limiting their action space over decisions that require resource commitments. Centralizing subsidiaries' tactical decisions (e.g., having headquarters set the price of products) can be suboptimal in multi-industry firms because it reduces the ability of subsidiaries to adapt to their local environment. Whereas corporate strategy is formed at the firm level, competition mainly takes place at the business level (Porter, 1987). Putting constraints on resources, however, is more effective and is generally sufficient to reduce aggressive behavior by subsidiaries. This is mainly because the available capacity and resources limit subsidiaries' competitive actions at any given point in time, and operating above available capacity and resources may be impossible or may substantially increase the cost of operations (Penrose, 1959). It is hard to make aggressive competitive behavior effective without the additional resources needed for growth (including capacity, working capital, and intangible assets and capabilities) because a firm can offer customers more value for their money only by increasing their willingness to pay without commensurate increases in cost or by reducing costs without commensurate decreases in customers' willingness to pay, both of which require investment in capabilities (see Hoopes, Madsen, and Walker, 2003; Chatain and Zemsky, 2011). Plus, the subsidiary will need slack because aggressive behavior is going to be costly up front, given the tradeoff between volume and margins, before it generates some returns. Hence, without the requisite resources, and the associated slack, aggressive behavior is self-defeating, and there is little point, say, to reducing prices or increasing advertising. This is along the lines of the literature on two-step strategic delegation (e.g., Veendorp, 1991).

It is especially important to control resources before those resources are committed to particular competitive uses that may result in escalation. Serving as an ''instrument of limited operating flexibility,'' the capital budget's main purpose is ''to authorize turning liquid resources into illiquid buildings, machines, or research and development'' (Stinchcombe, 2001: 126). Once resource commitments are made, reversing the decisions or underutilizing those resources is costly, and headquarters' intervention after the commitments are made can only partially offset the cost of such decisions. This is especially true for decisions that signal commitment to a market in a way that deters other rivals and potential entrants, such as capacity increases, than for decisions that are easier and less costly to reverse, such as pricing or promotional activities (Dixit, 1980; Chen et al., 2002). That being said, imposing resource constraints may not be sufficient for limiting the competitive behavior of a subsidiary that is experiencing overcapacity or slack resources as a result of, for example, a downturn or an acquisition. In these situations, headquarters may find that it needs to intervene more directly. But it is important to recognize that overcapacity and slack are endogenous: they are the result of a lack of constraints on resources in the past. So, over the long-term, headquarters will make sure that subsidiaries that it wants to constrain are not experiencing overcapacity and/or slack.

Constrained delegation is a viable second-best strategy (given the infeasibility of total centralization available to single-product firms) to manage multi-industry competition with otherwise autonomous subsidiaries. Business-level decisions are delegated to subsidiaries so that subsidiaries can take locally adaptive decisions autonomously. But constrained by headquarters, subsidiaries do not have the incentive and ability to make resource commitments that would trigger competitive multimarket escalation. Selectivity in terms of which subsidiaries (depending on exposure to multimarket rivals) and which decision rights (those pertaining to resource commitments versus others) to centralize allows headquarters to pinpoint and exercise control over subsidiaries' decisions with long-term competitive consequences without commensurate loses in business-level implementation of strategy. Restrictions in terms of the extent of financial resources available to a subsidiary allow headquarters to limit the subsidiary's ability to engage in competitively aggressive behavior without dictating its competitive decisions. Thus constrained delegation implies selectivity in allocating decision rights and restrictions in allocating resources.

Allocating Decision Rights: Subsidiaries' Discretion on Resource Allocation

Effectively implementing multimarket strategies requires subsidiaries that face multimarket rivals to make their resource commitments (e.g., expansion, investment in new technology, capacity increase) with the oversight of the parent firm for two main reasons. First, implementing multimarket strategies requires more general knowledge, which is best obtained at headquarters, than market-specific knowledge. A resource commitment that would be optimal without multimarket rivalry might trigger retaliation in another market, spilling the rivalry over to other markets to the detriment of the firm's overall performance. The risks associated with such competitive behavior in a given market are understood better by headquarters than by the subsidiary. Secondly, even if a subsidiary's managers have all the information necessary, their optimal courses of action often fail to align with the parent firm's objectives (Dessein, Garicano, and Gertner, 2010). When subsidiaries have discretion over their investment decisions, their tendency is to reinvest rather than channel their free cash flows to their parent firm. This is because channeling the subsidiary's free cash flow to the parent firm will benefit the focal subsidiary and its managers only marginally and indirectly (via any existing firm-level incentives). It will also result in smaller subsidiaries, limiting subsidiary managers' promotion opportunities, visibility, and job security (Sull, 2005).

Hence, multi-industry firms are less likely to give discretion to their subsidiaries in decisions pertaining to resource commitments when they are in competition with multimarket rivals. Following Shen and Cho (2005; see also Hambrick and Finkelstein, 1987; Finkelstein, Hambrick, and Cannella, 2008), we focus on two principal dimensions of managerial discretion: latitude of action and latitude of objectives. Latitude of action refers to the range of strategic options managers have in pursuing outcomes demanded by stakeholders. Subsidiaries are less likely to be given latitude in decisions pertaining to investment decisions when they are in competition with multimarket rivals because those decisions might be more difficult for headquarters to reverse than are tactical decisions. Thus their negative impacts can be more substantial and long-lived, even with headquarters' intervention. The reversal of the investment (e.g., spinning off,

closure) or underutilization of the resulting capacity will be costly and wasteful, to the detriment of both the firm and the subsidiary. Excessive investment by otherwise autonomous subsidiaries can be prevented by rationing capital, and rationing is most naturally implemented by centralizing investment (Veendorp, 1991) and capital budgeting (Jennergren, 1981; Holmstrom and Ricart i Costa, 1986) at headquarters.

> Hypothesis 1a (H1a). The extent of multimarket contact with rivals in a given market is negatively associated with discretion in investment decisions for the subsidiary operating in that market.

The latitude of objectives in the context of headquarters-subsidiary relationships refers to the freedom subsidiaries have to pursue the objectives that are optimal for them rather than those desired by their parent firm. Subsidiaries are less likely to be given latitude in setting their objectives (e.g., to pursue profit, market share, or growth) when they are in competition with multimarket rivals because, once an overarching organizational objective is set, it is likely to influence both the resource commitments of the subsidiary and how the available resources are channeled in competition at all levels of the subsidiary.

> Hypothesis 1b (H1b). The extent of multimarket contact with rivals in a given market is negatively associated with discretion in setting objectives for the subsidiary operating in that market.

We do not expect multimarket firms to centralize all decisions, as implied by the unitary actor model. In fact, as we argued above, we expect multi-industry firms to delegate most business-level decisions, including tactical ones (e.g., pricing, advertising, human resource policies), to their subsidiaries, contrary to the recommendations of Korn and Rock (2001). Furthermore, although decisions that are not related to resource commitments could be taken directly by headquarters for a variety of reasons, there is no theoretical reason why those decisions will be influenced by multimarket contact. Therefore, we expect multi-industry firms to selectively restrain the discretion of their subsidiaries in response to multimarket competition.

Intrafirm Resource Flows: Financial Resources

A central role of headquarters in diversified firms is to allocate resources across its multiple businesses, especially the free cash flows of its subsidiaries, which can potentially be transferred to headquarters or to other subsidiaries as financial resources. Seeing the firm as an interrelated portfolio of businesses, classical portfolio planning theory highlights that in diversified firms, resources are typically channeled from subsidiaries that have a high market share in low-growth industries (''cash cows'') to subsidiaries in high-growth industries (''stars'' and ''question marks''), as popularized by the Boston Consulting Group's growth-share matrix (Henderson, 1979; Haspeslagh, 1982). More recent work on internal capital markets is in line with these arguments and highlights that funds are likely to be channeled to industries that offer high future value from industries with low future value (see Maksimovic and Phillips, 2007, for a review). In this literature, the stock market value reflects

investors' expectations about the future value of assets, and hence Tobin's Q—the ratio of stock market valuation to the book value of assets—serves as a proxy for growth and profit potential. Accordingly, funds are expected to be channeled from industries with a low Tobin's Q to those with a high Q (Shin and Stulz, 1998). Assuming that headquarters has better information about investment opportunities than the outside capital markets (Stein, 1997), such transfers are ''efficient'' as they increase the firm's ability to invest in markets with relatively more growth and profit potential (Billett and Mauer, 2003; Franco, Urcan, and Vasvari, 2010). To be sure, resource allocation decisions can be distorted by factors that are not directly linked to the market potential, such as agency problems, divisional rent-seeking, or informal links between the chief executive officer and division managers (Rajan, Servaes, and Zingales, 2000; Scharfstein and Stein, 2000; Wulf, 2009; Gaspar and Massa, 2011). Still, despite these potential distortions, the predominant tendency is to channel funds to markets with relatively high growth and profit potential (Stein, 2003; Maksimovic and Phillips, 2007). Taken together, the overall recommendation of the portfolio planning and the internal capital markets literatures is thus to take ''cash from less favorable or slow-growing business units and [to plow] it into gaining market share in promising business units, making the firm an internal capital market with a deep pocket'' (Porter, 1984: 424).

At the subsidiary level, resource flows to and from headquarters have a direct effect on the competitive behavior of the subsidiaries because subsidiaries' actions are limited by the resources available to them, and operating above available internal resources (through loans, for example) may increase the cost of operations. Financial resource inflows and concomitant new investments increase the supply of goods and services by the subsidiary to the market, which, given the limited size of the market, causes an increase in the competitive aggressiveness of the subsidiary toward its rivals. While, in principle, headquarters can limit the resources at the disposal of a subsidiary for competitive action by restricting its capacity utilization (Zhang and Gimeno, 2010), underutilization is not feasible, as a large stock of unused resources will be costly to retain and thus detrimental to both the subsidiary and the firm. Once commitments are made, the motivation for the firm and for the subsidiary's managers to effectively use those resources would be strong. As a result, channeling financial resources to a subsidiary might have harmful competitive consequences for the firm when that subsidiary competes with multimarket rivals. Therefore we expect multimarket considerations to mitigate the tendency of internal capital markets to subsidize particular subsidiaries: those with a low market share and those in high-growth industries.

In the portfolio planning and internal capital markets literatures, subsidiaries with large market shares are seen as ''harvest'' units that generate cash flow beyond their own needs. Internal capital markets allocate excess financial resources to other subsidiaries with high-growth potential, subsidiaries that have a relatively small share of their market and hence more latitude to grow than those with a large market share. Yet the flow of resources to small-market-share subsidiaries (and their ensuing increased competitive aggressiveness) can be problematic because multimarket competitive responses are more easily triggered when small-market-share subsidiaries are provided with additional resources, for two related reasons. First, low-market-share subsidiaries are more likely to dedicate additional resources to grow their market share,

implying an aggressive competitive stance, while subsidiaries with high market share are more likely to be self-constrained, as increased rivalry and cannibalization would undermine their dominant position. Therefore, low-market-share subsidiaries are more likely to use available resources for aggressive growth than are high-market-share ones. Second, competitive actions by low-market-share subsidiaries are more likely to trigger multimarket competitive responses because their higher-share rivals would find it less costly to retaliate in a different market in which their position is less substantial. Multimarket contact is particularly effective in stabilizing rivalry when firms have reciprocal positions of dominance or ''spheres of influence'' because this allows them to avoid rivalry in their dominant markets by threatening to carry the competition to the dominant markets of their rivals (Bernheim and Whinston, 1990; Gimeno, 1999). Therefore competitive moves by small-market-share subsidiaries are more likely to trigger competitive escalation across markets than are those by subsidiaries with dominant market shares. These two mechanisms—the higher growth potential of small-market-share subsidiaries and the higher risk of triggering multimarket retaliation—have opposing effects: whereas internal capital markets favor channeling resources to low-market-share businesses, multimarket considerations favor avoiding such transfers.

Hypothesis 2a (H2a). The extent of multimarket contact with rivals in a given market counteracts the tendency of internal capital markets to provide financial resources to subsidiaries that have low market shares.

The role of industry growth follows a parallel logic. Internal capital markets typically channel resources to subsidiaries that operate in high-growth industries because they have the highest growth potential for the firm. Accordingly, the subsidiaries operating in emerging, high-growth industries benefit more from internal capital markets than those in more mature, low-growth industries (Inderst and Laux, 2005). From the multimarket competition point of view, however, increasing the available resources to subsidiaries in high-growth markets, and their ability to make competitive commitments, might be problematic. A characteristic of growth stages of markets is that market opportunities exceed supply, and firms focus on capturing limited market opportunities, such as new market segments or new geographies. In this context, a committed aggressive action by a firm tends to reduce the size and attractiveness of the opportunity for other firms, particularly when that action requires investment. Thus an aggressive competitive action by a firm tends to preempt actions by rivals or potential entrants. While such a move can be optimal for a single-market firm, it is suboptimal for a multimarket firm because it provides a strong basis for retaliation across markets by multimarket rivals. Firms are more likely to defend their interests in markets with higher future market potential. As Bernheim and Whinston (1990: 9) argued, ''. . . multimarket contact may serve as a device for shifting punishment power from rapidly to slowly growing markets,'' and such a spillover of competition to more mature markets, in which firms typically have their harvest units, can result in significant loses. These two mechanisms—the higher growth potential of subsidiaries in high-growth industries and the higher risk of triggering a multimarket retaliation—have opposing effects: whereas internal capital markets favor channeling resources to high-growth businesses, multimarket considerations favor avoiding such transfers.

Hypothesis 2b (H2b). The extent of multimarket contact with rivals in a given market counteracts the tendency of internal capital markets to provide financial resources to subsidiaries that operate in high-growth industries.

METHODS

Setting

We tested the proposed theory on a panel that corresponds to the population of majority-owned subsidiaries of private (i.e., not state owned) groups operating in France between 1997 and 2004, inclusive. In France, ''group'' is an economic and statistical concept, defined as a set of separate legal entities dependent on the same center of decision and is composed of a head of the group (i.e., the center of decision) and its subsidiaries (see Mercadal et al., 2004, for legal and fiscal details). A ''head of group'' (''tête de groupe'') is a parent company that controls at least one other firm without being controlled by any other firm. A ''subsidiary'' (''filiale'') is a firm directly or indirectly controlled by a head of group. The link of control is measured by capital held. From a legal standpoint, however, French law does not recognize groups as legal entities, and the legislation does not require the publication of consolidated accounts. Practically, what it means is that a group is viewed not as one single legal entity but as a combination of multiple legal entities (''personnes morales''). If a parent firm controls two other firms, for example, they form one group, but, legally, there are three separate entities (i.e., the head of the group and two subsidiaries). For conceptual clarity, here we refer to legally separate units as ''subsidiaries'' and the aggregate operations of a group in an industry as ''segments.''

Groups operating in France constitute an ideal setting in which to test the arguments developed in this paper, for three main reasons. First and foremost, because groups in France have historically been organized as separate legal entities, subsidiaries have their own rights, duties, debts, and publishing requirements (Dyas and Thanheiser, 1976; Encaoua and Jacquemin, 1982). Therefore it is possible to obtain detailed data on subsidiaries' behavior, performance, and formal links with their headquarters. This is in contrast to the large firms in the U.S., which have been forced by the Sherman Act and the courts' interpretation of the law to consolidate most of their operations into a single legal unit and are typically organized in divisions (Chandler, 1977).

Second, groups operate in multiple industries: a typical (median) group operates in three two-digit and nine four-digit industries. LVMH, for example, had numerous subsidiaries and brands in wines and spirits, fashion and leather goods, perfumes and cosmetics, watches and jewelry, and selective retailing by the end of 2004. Its archrival PPR (Kering) too had operations in these businesses, as well as in mail-order and home furnishings. Operations in multiple industries, as mentioned above, makes the need for delegation more important than in settings typically studied in the multimarket contact literature wherein firms sell nearly identical products across geographical markets (e.g., airlines, banks). This further increases the visibility of intrafirm relations and the availability of corresponding data. Therefore groups provide a suitable background to track and test delegation in multiunit firms.

Third, these groups play a major role in France, one of the world's most important economies. France, with a GNP of $1,859 billion and per capita income of $29,320 as of 2004 (World Bank, 2005), was the fifth largest developed economy in the world (behind the U.S., Japan, Germany, and the U.K.) in the observation period of this study. Importantly, most leading French firms are a part of a group. As shown in table 1, the total revenue of the top 30 groups (excluding banking and insurance) alone was above €930 billion ($1.16 trillion) in 2004, and some of these firms were among the leading firms in certain industries worldwide. The same year, groups accounted for 58 percent of total employment, 65 percent of investments, and 75 percent of tangible fixed assets in the private sector. In comparison, multi-industry firms account for 60 percent of the output in the U.S. and are observed to have similar prominence in Europe and in developing countries (cf. Collis, Young, and Goold, 2007). Hence, like most economies, the French economy has been largely dominated by multi-industry firms.

Data

The data used in this study are mainly from mandatory and confidential filings of private (i.e., not state-owned) firms to the French government. The EAE (Enquête Annuelle d'Entreprise) is based on annual, mandatory filings by all firms (including stand-alone firms, heads of groups, and subsidiaries) operating in France. The EAE collects detailed firm-level information, including employment, investments, decomposition of sales, income statements, and fixed-asset tables. A second data source, LIFI (La base de données sur les liaisons financiers) is based on an annual, mandatory questionnaire administered by INSEE, the National Institute of Statistics and Economic Studies, to all firms whose participation in other firms is higher than €1.2 million (8 million FF), have sales turnover higher than €60 million (400 million FF), or employ more than 500 people. LIFI provides data on parent firms, their subsidiaries, and the capital linkages between them, corresponding to a complete network of corporate equity ownership in France.

Combining these two datasets, we gathered a panel that corresponds to the population of subsidiaries of private groups operating in France between 1997 and 2004, inclusive. We then imposed four criteria in the construction of our working sample. First, we focused on the core (''noyau dur'') of groups, that is, subsidiaries that are over 50 percent controlled, directly or indirectly, by a parent firm. We focused on majority-owned subsidiaries because the parent company can exercise control over them. A simple majority (50 percent + one vote) is legally required for the control of the ordinary day-to-day management (e.g., appointing directors, selling assets, contracting loans, etc.) of a firm.[1] Second, we studied subsidiaries with more than 50 employees throughout the observation period. The EAE is complete, reliable and exhaustive for firms with 50 or more employees, but firms with fewer than 50 employees are sampled

[1] We acknowledge that shareholders of a firm can control it with smaller ownership percentages if the firm is publicly traded. Note, however, that our sample is much larger than firms traded on the Paris Stock Exchange / Euronext, that most parent firms (which are excluded in our final working sample) are publicly traded, and that we focus on the parent firms' control over subsidiaries (and *not* on shareholders' control over parent firms). Therefore, we are confident that the effect of stock market quotation on the findings is negligible.

Table 1. France's 30 Biggest Industrial and Service Groups, 2004*

Rank	Group	Sales (turnover) net of tax (million Euros)	Number of employees	Number of segments	Worldwide position
1	Total	122,700	111,401	3	#4 in oil and gas
2	Carrefour	72,668	409,964	4	#2 in retail
3	PSA Peugeot Citroën	56,105	207,200	5	#6 in automotive
4	France Télécom†	47,157	204,826	3	#1 in satellite and production services
5	EDF†	46,928	156,152	4	#1 in electricity generation
6	Renault	46,715	130,573	2	#9 in automotive
7	Suez	40,739	160,966	5	#2 in water, waste water
8	Les Mousquetaires	38,000	112,000	7	#7 in retail
9	Compagnie de Saint-Gobain	32,025	181,228	5	#1 in construction products, abrasives; #3 in flat glass
10	Groupe Auchan	30,046	155,000	4	
11	Sanofi-Aventis	25,418	96,439	2	#5 in pharmaceutical and biotech
12	Véolia Environnement	24,700	251,584	4	#1 in water services; #2 in waste management
13	Pinault-Printemps-Redoute	24,213	82,000	3	#3 in luxury goods
14	Rallye	23,835	124,223	1	
15	Bouygues	23,402	113,300	5	#2 in construction
16	SNCF†	22,059	229,877	4	
17	Vivendi Universal	21,428	37,906	4	#1 in recorded music, MMORPG
18	Louis Dreyfus‡	21,179	16,000	5	#1 in raw cotton; #3 in grains and oilseeds; citrus; sugar; coffee
19	Airbus	20,200	53,000	5	#1 in aircraft manufacturing
20	Vinci	19,520	128,433	4	#1 in construction; concessions
21	Air France-KLM‡	19,078	102,422	4	#4 in air passenger; #8 in air freight
22	Groupe La Poste†	18,677	312,325	4	
23	Gaz de France †	18,129	38,016	3	
24	Michelin	15,689	126,500	3	#2 in tire manufacturing
25	L'Oréal	14,533	52,081	2	#1 in cosmetics and beauty
26	Lafarge	14,436	77,075	4	#1 in cement, aggregates; #3 in concrete, gypsum
27	Groupe Danone	13,700	89,449	3	#1 in fresh dairy products #2 in bottled water; biscuit and cereal products
28	Alstom	13,662	69,594	6	#1 in high-speed trains, hydro turbines and generators; #2 in urban light rail and tram systems
29	Lagardère	13,389	47,287	4	#1 in leisure and entertainment magazines
30	Christian Dior	13,210	58,679	6	

* Source: INSEE; worldwide positions are from company annual reports or from industry reports. Consolidated data are for industrial and service groups in private and public sectors, excluding cooperatives, banks, and insurance companies; not all firms and sectors from the table are included in our final sample. The number of segments represents the main segments or divisions of the group, as reported in company annual reports. The worldwide position is reported only if the company is in the top 10 in a given sector worldwide (might be incomplete).
† State-owned group.
‡ Employment data are for 2006.

(i.e., data are collected for a small percentage of representative firms), and sometimes missing observations and/or data are imputed. Thus, in keeping with convention (e.g., Foster, Haltiwanger, and Syverson, 2008), this exclusion

criterion assures that our sample is based on real and reliable data. Third, we examined groups that have 500 or more employees throughout the observation period. We excluded micro-groups (i.e., groups with fewer than 500 employees) from the analyses because the data on micro-groups were not available before 1999 and were unstable afterwards. Finally, we excluded service and commerce firms because INSEE alternated data collection across industries over years in these two sectors. Consequently, of all six main sectors of the French economy (represented in table 1), our final sample covered four: agro-alimentaire (i.e., agriculture and food), construction, industrie (i.e., manufacturing), and transportation. Applying these criteria and eliminating observations with incomplete or missing information for one or more key variables, we obtained 22,338 subsidiary-year observations with complete information.

We then constructed a second sample, as a subset of this panel, with additional data from two surveys. SESAME (La base de données sur le comportement stratégique des entreprises) is a detailed firm-level survey, administered on a three-year rotating basis to small and medium-sized (between 20 and 500 employees) manufacturing firms, including both stand-alone firms and subsidiaries of groups, by the French central bank, Banque de France.[2] It collects information on strategic and organizational choices of firms, as well as on their sector of activity. Banque de France provided us with data on selected survey items for years 1999 to 2004, inclusive, after a ''random response'' transformation to ensure confidentiality (see Appendix A for methodological details). The second survey, the ER (L'enquête REPONSE: Relations Professionnelles et Négociations d'Entreprise), is a detailed establishment-level survey administered by DARES, the research and statistics unit of the Ministry of Labor. Pollsters visit randomly selected companies and question senior managers, labor representatives, and employees on various aspects of labor relations and, more importantly, on the internal organization of the firm. Initiated in 1992, the ER was administered twice within our observation period, in 1998 and in 2004.[3] Combining the available survey data from SESAME and the ER, and matching it with the panel we constructed, we obtained a survey-based sample with 1,244 subsidiary-year observations.

Finally, we complemented the above sources with data from industry input-output tables (Tableaux des Entrées-Sorties). These tables are publicly available via INSEE and report the total annual monetary value of flow of goods and services between sectors of the economy. Tables are available for all years at 41-sector level.

[2] Firms were randomly selected into the sample based on the representativeness of their size class (''taux de representativité'') using INSEE data in the initial years (1994–1996). In later years, the bank tried to collect data on the same firms to construct a rotating panel. Every year approximately 1300 top managers (''chefs d'entreprise'') were surveyed by professional interviewers. In total, over three years, around 4,000 firms were surveyed, representing approximately 20 percent of the total number of employees of all small and medium-sized manufacturing firms (Lelogeais, 2003).

[3] In calculating subsidiary-level values for multi-establishment subsidiaries, we employed the following procedure: the value of the survey item is equal to the mode (i.e., most repeated value); if the mode is not available (because of equally repeated values), it is equal to the value of the largest establishment; if the mode is not available and establishment-level employment information is also missing, it is equal to the round integer value of the average.

Dependent Variables

Subsidiary's discretion. We measured the extent to which a subsidiary had latitude of action and latitude of objectives using survey items that directly asked subsidiary managers the level of their subsidiary's autonomy from headquarters. Accordingly, *subsidiary discretion in investment decisions* was coded 1 if the subsidiary had significant decision-making autonomy in investment decisions (''large autonomy'' in SESAME; ''total'' or ''important'' in the ER), and 0 otherwise. *Subsidiary discretion in setting its objectives* was coded 1 if the subsidiary had significant decision-making autonomy in determining its objectives (''decided by the subsidiary'' in the ER), and 0 otherwise.

Inflow of financial resources. Following Billett and Mauer (2003) and Berger and Hann (2003), we measured whether a subsidiary received financial resources from its group (as opposed to operating only with its own available funds) by its capital expenditure in a given year in excess of its internally generated cash flows. Expenditures above internally generated cash flows demonstrate inflow of financial resources to a subsidiary because these expenditures could not have been made without additional funds. Accordingly, *inflow of financial resources* into a subsidiary was coded 1 if the capital expenditure of the subsidiary was positive and greater than its auto-financing capacity, and 0 otherwise. Capital expenditure refers to expenditures that are expected to create future benefits and are incurred when a firm either buys fixed assets or adds to the value of existing fixed assets. We measured a subsidiary's capital expenditure in a given year by its total investment in tangible and intangible fixed assets. Auto-financing capacity (CAF: ''Capacité d'autofinancement''), a standard and widely used accounting measure in France, corresponds to gross funds that are available at the end of the financial year before dividends are paid. A subsidiary's CAF in a given year was measured by the total cash flows from normal operations of the firm, which, compared with EBITDA, accounts for taxes and interests paid but excludes non-cash expenses such as depreciation:

CAF = Net profit or loss − (Non-operating income − Non-operating expenses)
− (Net proceeds from sales of short-term investments
− Net charges on sales of short-term investments)
− (Positive foreign-exchange differences
− Negative foreign-exchange differences)
− (Reversal of depreciation and provisions [operating income]
− Depreciation and provisions [operating expenses])
− (Reversal of provisions [financial income]
− Depreciation and provisions [financial expenses])
− (Reversal of depreciation and provisions [exceptional income]
− Depreciation and provisions [exceptional expenses])

This measure of intrafirm financial resource flows has two major advantages over two existing alternatives: measures that infer the flow of financial resources to a given segment by the coefficient estimate of other segments' cash flows on the focal segment's capital expenditures (e.g., Shin and Stulz,

1998) and measures that infer the inflow of financial resources by the difference between the capital expenditures of the focal segment and single-segment firms operating in the same market (e.g., Rajan, Servaes, and Zingales, 2000). First, because our measure was calculated using data from income statements to which we had complete access, it was measurable for all firms in our dataset. This is in contrast to the alternative measures mentioned above that require balance sheet data (e.g., liabilities) and the stock market value of assets, which might be obtained only for publicly traded (parent) firms. Second, our measure focuses directly on a given subsidiary's *own* resource flows. This is in contrast to the alternative measures, which, due to the unavailability of subsidiary and/or segment-specific data, do not directly take into account resources available to a given subsidiary and whether or not the subsidiary can finance these expenditures on its own. Therefore the measure used here is particularly well suited to the study of internal capital markets of diversified firms, like the multi-industry firms that we examine in this study (Billett and Mauer, 2003; see also Maksimovic and Phillips, 2007).

As in Haveman and Nonnemaker (2000), we coded the dependent variables as binary variables. This is mainly because we wanted to analyze the link between multimarket contact and the two design parameters of interest (namely, subsidiary discretion and inflow of financial resources) in parallel, and binary coding allows a more straightforward comparison of the likelihood ratios. In the results section, we take advantage of the available data and, as robustness checks, we rerun these regressions on more fine-grained measures of the dependent variables.

Independent Variable: Multimarket Contact

We defined markets at the industry level and treated each NAF (''Nomenclature d'Activités Française'') category as a separate market. NAF is the French equivalent of the U.S. SIC code system and has over 700 subcategories (roughly equivalent to 4-digit SIC codes). This level is as fine-grained as most studies in the diversification literature.

We measured multi-industry overlaps across groups using a firm-in-market level ''sales-at-risk'' operationalization of multimarket contact and hence allowed the extent and influence of multimarket contact to vary by group *and* by market. Feinberg's (1985) sales-at-risk measure calculates the percentage of the sales of the focal group ''at risk'' of being exposed to multimarket rivals (more explicitly, the percentage of sales that comes from markets in which the group faces multimarket rivals)—similar to the cosine measure of Sohn (2001). In a focal market *m*, such risk that originates from a non-focal market *n* will increase with the number of groups that operate in both markets *m* and *n* (Gimeno and Woo, 1999) and will decrease with the prominence of non-overlapping firms in market *n* (Lee and Tang, 1994; Haveman and Nonnemaker, 2000). Accordingly, we weighted the importance of each non-focal market by the number of overlapping groups as a percentage of the total number of groups operating in that market and calculated *multimarket contact* as follows:

$$MMC_{imt} = \sum_{n \neq m} \{[(C_{imnt}/(N_{nt} - 1))] \times r_{int}\}$$

where r_{int} is the ratio of group *i*'s sales in market *n* ($Sales_{int}$) to its total sales ($\Sigma_n Sales_{int}$), C_{imnt} is the number of rival groups that operate in both markets *m* and *n*, N_{nt} is the total number of groups operating in market *n* (see Appendix B for a sample calculation). The measure ranges between 0 and 1 and takes the value of 0 for subsidiaries facing no multimarket rivals. It is greater if a group has large sales in markets in which many of the incumbent groups are also in the focal market *m*. The importance of a given market *n* for multimarket rivalry in market *m* increases with the sales of group *i* in market *n* ($Sales_{int}$) and with the number of multimarket rivals that operate in both market *m* and *n* (C_{imnt}), but it decreases with the number of active groups in market *n* (N_{nt}) and with the overall sales volume of group *i* ($\Sigma_n Sales_{int}$). In our sample, as should be expected, subsidiaries with the highest multimarket contact values belong to very large and diversified groups.

Control Variables

We treated as control variables and included in our regressions several conventional factors, some of which we touched on above. These factors can explain heterogeneity in the structure, control, and resource commitments of multi-industry firms.

At the subsidiary level, a first control is *subsidiary size*, which we measured by the log of the number of employees of the subsidiary. Larger subsidiaries are likely to require higher resource commitments and to have more elaborate internal control mechanisms. Second, we controlled for *export orientation*, which we measured by the ratio of a subsidiary's exports to its total sales. Firms that are primarily oriented toward exports are less concerned with domestic competition, and hence the local competitive context is less important in their decision making (Encaoua and Jacquemin, 1982). Furthermore, if they predominantly sell their products abroad, their activities are unlikely to influence competition in their industry domestically. A third subsidiary level control is *parent's ownership*, which we measured by the percentage of the subsidiary's capital (directly and indirectly) under the control of its parent company. Ownership is the most salient source of formal authority in organizations and is associated with the right to control the firm and to appropriate residual earnings (Aghion and Tirole, 1997; Hansmann, 2000). Although we already focus on majority controlled subsidiaries, it is still important to control for the extent of a parent's ownership because in France, higher levels of ownership lead to lower protection for minority shareholders and thus higher latitude for the parent.

At the segment level, we included three variables as controls. We first controlled for *relative market share*, which we measured by the log of the ratio of total sales of the group in the focal subsidiary's industry to the sales of the leading rival in that industry. Including market share as a control is important because, as mentioned above, it is a key determinant of intrafirm resource allocation decisions in diversified firms. We also controlled for *relatedness* of the focal subsidiary's business to the rest of the group. Multi-industry firms are more likely to assume control over and allocate resources to subsidiaries with operations that are highly related to the rest of the firm. Furthermore, their responsiveness to investment opportunities in unrelated industries tend to be lower than stand-alone firms (Ozbas and Scharfstein, 2010). Following Lemelin (1982), we assumed that industries with a higher degree of similarity in the

combination of resources used are more likely to be complementary to each other, allowing synergies. Measured by the correlation of input flows with data from industry input-output tables, industrial complementarity is equal to 1 within an industry and varies across industries (≤ 1) depending on the similarity of their input flows. Accordingly, we calculated relatedness as the sales-weighted average intragroup industrial complementarity of the focal subsidiary's industry to the rest of the group:

$$\text{Relatedness}_{kt} = \left[1/\sum\nolimits_{n}^{z}(GS_{int} - SS_{kt})\right] \times \left[(GS_{imt} - SS_{kt}) + \sum\nolimits_{n\neq m}^{z}(GS_{int} \times \text{Corr}(m,n)_{t})\right]$$

where SS_{kt} is the total sales volume of the focal subsidiary k, GS_{imt} is the total sales of the focal subsidiary k's group i in industry m, the vector n…z corresponds to all industries the group is selling in, and Corr(m,n) corresponds to the correlation of input flows between industries m and n. Third, and related, we controlled for *strategic importance* of the focal subsidiary's industry to the group, which we measured by the group's total sales in the industry of the subsidiary as a percentage of the group's total sales. Investments in specific assets are likely to be higher and risk and uncertainty tolerance are likely to be lower in core businesses than in non-core businesses (Ahn, Denis, and Denis, 2006).[4] It is important to control for factors at the segment level because diversified firms are particularly likely to coordinate their competitive decisions and resource allocations among subsidiaries operating in the same industry (Porter, 1984; Maksimovic and Phillips, 2007).

At the group level, we controlled for *group size*, which we measured by the log of the total number of employees of the group in France. Formal control mechanisms are seldom in prominent use in small firms because they ''are handled by a small, tight-knit group of executives or are entirely within the purview of a chief executive officer'' (Bower and Doz, 1979: 153–154). In contrast, decisions are more likely to be decentralized in large groups (Jennergren, 1981). As a result, large groups have a higher need for elaborate formal controls systems and resource allocation processes. We also controlled for *group diversity*, which we measured following Jacquemin and Berry (1979) by an entropy measure based on a group's sale by industry: $\Sigma(S_i \times \ln(1/S_i))$, where S_i refers to the sales of the group in industry i as a percentage of the total sales of the group. It is necessary to control for the spread of a group's operations across industries because corporate control and coordination challenges increase with the number of different industries the group operates in.

At the industry level, we controlled for *industry concentration*, which we measured by the four-firm sales concentration (the ratio of the sales of the leading four

[4] The importance of the subsidiary's industry to the firm can also be linked to headquarters' attention to and the political power of the subsidiary. Managers have an unequal distribution of attention across units (Ocasio and Joseph, 2005), and the more important a subsidiary is to the group, the more likely headquarters is to pay attention to that subsidiary. But the need for efficiency (including market responsiveness) also goes up with the importance of the subsidiary, encouraging headquarters to give more freedom to the subsidiary's managers. The more important a subsidiary is to the group, the higher will be its political power in the group, potentially giving it more autonomy. Giving credence to these considerations, Cremers, Huang, and Sautner (2011) showed, using data from a bank holding company, that headquarters allocated more funds to its more influential banks.

firms to total industry sales).[5] Industry concentration captures the extent to which major firms have market power. We also controlled for *industry share of multimarket firms*, which we measured by the percentage of the total industry sales by firms that have multimarket contact with other firms operating in the same industry. Both of these two industry-level controls take into account the extent to which multimarket firms are able to affect competition in a given market and/or to mutually forbear (Greve, 2008). Finally, we controlled for *industry growth* and *industry turbulence*. Including industry growth as a control is important because it is a key determinant of resource allocation decisions, and the extent of industry turbulence is associated with the deployment of different (behavioral vs. outcome) control mechanisms (Ouchi and Maguire, 1975; Ouchi, 1978) and with the need for creating synergies in the group (Raynor and Bower, 2001). Following Dess and Beard (1984), we calculated these variables from a log-linear growth model using corresponding industry production data from industry input-output tables for seven previous years (e.g., 1997 with data for 1990–1996, inclusive). The slope of the linear growth model corresponds to the average annual percentage change in industry size and is our measure of industry growth. The root mean square error of the model corresponds to variability in the difference between the observed and expected values of industry size and is our measure of industry turbulence.

We report the sample statistics and bivariate correlations in table 2a. The average subsidiary has about 255 employees and is majority-owned (95 percent) by a group with about 6,770 total employees. A closer look at the table and data shows that the overall pattern is in line with expectations and prior evidence. For example, the strategic importance of a subsidiary within the group is likely to be high if it operates in an industry highly related to other businesses of the group. At the same time, both strategic importance and relatedness are less pronounced if the subsidiary belongs to a large and highly diversified group. Naturally, large groups are also likely to be more diversified. Multimarket firms, in line with prior research (e.g., Scott, 1982), tend to be more prominent in relatively more concentrated industries.

The survey-based sample, reported in table 2b, largely mirrors these patterns. Still, we check for its representativeness because it is a subsample of our panel and because, whereas the ER is intentionally unbiased and is randomly administered, SESAME includes only small and medium-sized (between 20 and 500 employees) subsidiaries of groups (and stand-alone firms, excluded from our working sample) operating in the manufacturing sector. The lower-end of the size-selection criteria does not pose a problem for our study because we excluded all subsidiaries with fewer than 50 employees from all the analyses in the paper. But excluding large subsidiaries and non-manufacturing firms limits the representativeness of SESAME to ''small and medium-sized manufacturing firms and [to] some industries that have primarily small to medium-sized firms'' (Cool and Henderson, 1998: 913). We limited the impact of selection on the observables by controlling for variables that were associated with coverage in SESAME, like subsidiary size and sector of activity. We also checked for possible selection on unobservables, following Cameron and Trivedi (2005), using a Heckman selection model, with industry size, industry

[5] All variables representing industry aggregates are based on available data on all firms (including stand-alone firms, heads of groups, and subsidiaries) operating in that industry, regardless of whether they are included in our working sample or not.

Table 2a. Means, Standard Deviations, Bivariate Zero-order Correlations (Lower Triangle), and Bivariate within Correlations (Upper Triangle) (N = 22,338)

Variable	Mean	S.D.	1	2	3	4	5	6
1. Inflow of financial resources	.338	.473		.014	.031	.011	.006	–.019
2. Multimarket contact	.281	.225	–.009		–.003	.002	.003	.029
3. Subsidiary size	5.540	.985	.033	–.113		.024	.018	.083
4. Export orientation	.179	.246	.018	–.264	.275		.001	.015
5. Parent's ownership	.948	.132	–.006	–.032	–.007	.017		–.015
6. Relative market share	–.867	1.295	–.043	–.026	.156	–.035	.033	
7. Relatedness	.643	.291	–.014	.318	–.206	–.136	.008	.135
8. Strategic importance	.371	.306	.017	.095	.206	.086	–.076	.087
9. Group size	8.820	1.585	–.038	.041	–.053	–.228	.076	.358
10. Group diversity	1.501	.805	–.042	–.006	–.136	–.206	.074	.172
11. Industry concentration	.303	.211	.003	–.406	.282	.268	–.003	.022
12. Industry multimarket firm share	.377	.203	.011	–.001	.218	.053	.038	.106
13. Industry growth	3.564	2.348	.007	–.175	.133	.183	.041	–.071
14. Industry turbulence	3.415	2.001	.008	–.172	.041	.134	.077	–.014

Variable	7	8	9	10	11	12	13	14
1. Inflow of financial resources	–.013	–.022	.004	.013	.004	.015	.021	–.002
2. Multimarket contact	.040	.030	–.062	–.001	–.005	.052	–.063	–.056
3. Subsidiary size	–.036	.060	.156	–.002	.062	.033	.138	–.019
4. Export orientation	–.010	.002	.009	.008	.024	–.022	.041	–.009
5. Parent's ownership	.011	–.007	.038	.023	.023	–.002	.063	.019
6. Relative market share	.113	.199	.207	.015	–.203	–.053	–.016	–.046
7. Relatedness		.220	–.019	–.221	.033	.031	–.058	.029
8. Strategic importance	.317		–.277	–.508	.038	.040	–.017	.008
9. Group size	–.156	–.568		.323	.001	.025	.199	–.042
10. Group diversity	–.295	–.765	.776		–.062	.019	–.006	–.032
11. Industry concentration	–.160	.033	–.056	–.065		.044	.024	.058
12. Industry multimarket firm share	.035	.155	.105	.021	.377		.054	–.057
13. Industry growth	–.003	.075	–.064	–.163	.089	–.047		–.252
14. Industry turbulence	–.023	–.027	.008	–.004	.129	.045	.141	

capital intensity, and subsidiary capital intensity as instruments in the selection model. Despite the significance of some variables in selection regressions (e.g., subsidiary size and sector, as would be expected), these checks uniformly rejected the presence of any statistically significant sample selection bias (tested in terms of the significance of the inverse Mills' ratio) in our data.[6]

Methods and Estimation

In choosing our estimation method, we took into consideration the cross-sectional and time-series nature of our data. To check for individual and time effects, we ran a two-sided Breusch–Pagan Lagrange multiplier test (see Baltagi, 2001: 58–59). All tests rejected both the null of zero subsidiary effects and the null of zero time (year) effects. Having found subsidiary and year-

[6] Even if sample selection had an impact on the performance regressions, this would have imposed a conservative bias that would have worked against our hypotheses. Subsidiary size is most significantly (and positively) associated with relative market share, industry concentration, and industry multimarket firm share (see table 2b). Thus excluding large subsidiaries from SESAME excludes those entities that are potentially most susceptible to constrained delegation.

Table 2b. Means, Standard Deviations, and Bivariate Zero-order Correlations (Survey-based Sample)*

Variable	Mean	S.D.	1	2	3	4	5	6
1. Subsidiary discretion in investment decisions	.543	.498						
2. Subsidiary discretion in setting its objectives	.184	.388	.168					
3. Multimarket contact	.195	.194	–.022	–.031				
4. Subsidiary size	6.036	1.090	–.130	–.140	.027			
5. Export orientation	.276	.266	–.034	–.019	–.149	.148		
6. Parent's ownership	.961	.114	–.063	.014	–.073	–.011	–.028	
7. Relative market share	–.807	1.404	–.031	–.030	–.066	.308	.005	.097
8. Relatedness	.598	.306	.060	.049	.248	–.178	–.109	.016
9. Strategic importance	.390	.310	.005	.013	.198	.151	–.015	–.102
10. Group size	8.570	1.450	–.057	–.024	–.045	.201	–.109	.068
11. Group diversity	1.414	.784	–.018	.018	–.153	.002	–.010	.086
12. Industry concentration	.380	.233	–.076	–.033	–.336	.336	.157	–.034
13. Industry multimarket firm share	.413	.219	–.070	–.044	.031	.287	–.003	.011
14. Industry growth	3.748	1.806	.046	–.002	–.037	–.112	.081	.029
15. Industry turbulence	4.246	2.318	–.027	.045	–.208	.097	.157	.018

Variable	7	8	9	10	11	12	13	14
8. Relatedness	.133							
9. Strategic importance	.107	.291						
10. Group size	.359	–.117	–.503					
11. Group diversity	.116	–.266	–.753	.692				
12. Industry concentration	.120	–.147	.008	.122	.063			
13. Industry multimarket firm share	.166	.068	.212	.140	.002	.382		
14. Industry growth	–.139	–.045	–.021	–.017	–.075	–.001	–.046	
15. Industry turbulence	–.009	.002	.048	–.009	–.092	.227	.017	.104

* N = 1,244; N = 687 for subsidiary discretion in setting its objectives.

specific effects in our data, we then performed Hausman specification tests, which rejected random effects in favor of fixed effects ($p < .01$ in all models). We hence focus on and report regressions with subsidiary and year fixed effects. Subsidiary fixed effects capture all year-invariant and subsidiary-specific factors, such as subsidiary resources and capabilities. Year fixed effects capture all subsidiary-invariant and year-specific factors, such as macroeconomic cycles or demand shocks. Given the binary measurement of the dependent variable (inflow of financial resources), we used conditional (i.e., fixed effects) logit in our estimation.

In regressions using the survey-based sample, we adopted a different estimation strategy, because the largely cross-sectional nature of the survey-based sample effectively ruled out the possibility of including subsidiary fixed effects in the regressions.[7] To partially compensate, we included industry dummies and clustered standard errors by industry (i.e., we let observations be

[7] Fifty-one percent of subsidiary-year observations (and 70 percent of subsidiaries) in the survey-based sample are from single-observation subsidiaries (36 percent appeared twice, 10 percent three times, and 3 percent four times).

independent across industries but not necessarily within the same industry). In these regressions, too, we included year fixed effects. We also included a data-source dummy to account for differences in means across two surveys, SESAME and the ER. Given the dichotomous coding of the relevant dependent variables (subsidiary discretion in investment decisions and in setting its objectives), we estimated these regressions using a logit.

RESULTS

Subsidiary's Discretion

Table 3 presents the regression results for subsidiary discretion. Models 1 and 2, predicting the likelihood of a subsidiary's discretion in investment decisions, show that, controlling for a multitude of factors, the coefficient of multimarket contact is negative and statistically significant. Therefore, as hypothesized, multimarket contact is negatively associated with a subsidiary's discretion in investment decisions. The results are substantively significant as well. In most large firms, project authorization is typically centralized (Ackerman, 1970; Zysman, 1973), and it is common practice for headquarters to do a year-end review of subsidiaries and determine their budgets (Noda and Bower, 1996). Thus investment decisions were delegated to only slightly more than half of the subsidiaries (54 percent). Still, holding everything else constant (and considering all other variables at their mean values), a subsidiary with multimarket contact one standard deviation above the sample mean is 7.8 percentage points less likely to have discretion in investment decisions from corporate headquarters than a subsidiary with multimarket contact one standard deviation below the sample mean. This difference increases to 20.4 percentage points between zero and full multimarket contact, as graphed in figure 1. These are highly substantive effects. Therefore, hypotheses 1a is strongly supported.

The results of models 3 and 4, predicting the likelihood of a subsidiary's discretion in setting its objectives, show that, as hypothesized, the coefficient of multimarket contact is negative and statistically significant. In terms of the substantive effect, holding everything else constant (and considering all other variables at their mean values), a subsidiary with multimarket contact one standard deviation above the sample mean is 6.4 percentage points less likely to have discretion in setting its objectives than a subsidiary with multimarket contact one standard deviation below the sample mean. This difference increases to 13.5 percentage points between zero and full multimarket contact, as graphed in figure 1. Considering that a subsidiary's objectives tend to be dictated by headquarters (82 percent in our sample), with or without multimarket contact, this effect is substantial. Therefore, hypotheses 1b is also supported.

A pertinent question is whether groups constrain both the latitude of action and the latitude of objectives in response to multimarket considerations. Although the correlation between the two measures of latitude is positive, this might reflect the common influence of factors such as subsidiary size and relatedness. To assess the marginal effect of multimarket contact on the joint choice of latitude in both dimensions, we ran a supplementary multinomial logit predicting adoption of constraints on neither, either, or both dimensions of latitude. The results showed that multimarket contact had a significant effect on the use of constraints on either dimension relative to no constraints but had no

Table 3. Logit Regressions Explaining Discretion of Subsidiaries of Groups in France, 1997–2004*

	Investment Decisions		Subsidiary Objectives	
Variable	Model 1	Model 2	Model 3	Model 4
Subsidiary size	–0.051	–0.036	–0.361•••	–0.338•••
	(0.074)	(0.076)	(0.132)	(0.132)
Export orientation	–0.341	–0.361	0.288	0.243
	(0.274)	(0.281)	(0.438)	(0.448)
Parent's ownership	–1.020•	–1.091•	0.237	0.248
	(0.564)	(0.560)	(0.655)	(0.675)
Relative market share	0.034	0.028	0.023	–0.002
	(0.062)	(0.060)	(0.093)	(0.092)
Relatedness	0.402	0.514•	0.113	0.263
	(0.284)	(0.286)	(0.354)	(0.362)
Strategic importance	0.212	0.224	0.567	0.604
	(0.401)	(0.394)	(0.595)	(0.595)
Group size	–0.041	–0.050	–0.166	–0.182
	(0.085)	(0.086)	(0.111)	(0.110)
Group diversity	0.090	0.070	0.275	0.259
	(0.156)	(0.159)	(0.212)	(0.213)
Industry concentration	–0.164	–0.404	0.153	–0.116
	(0.387)	(0.432)	(0.415)	(0.455)
Industry multimarket firm share	–0.306	–0.216	0.070	0.243
	(0.380)	(0.389)	(0.471)	(0.459)
Industry growth	–0.072	–0.079	–0.052	–0.053
	(0.063)	(0.064)	(0.065)	(0.066)
Industry turbulence	–0.070•	–0.081••	0.046	0.038
	(0.038)	(0.039)	(0.048)	(0.047)
Multimarket contact (H1a, H1b)		–0.815••		–1.156•
		(0.412)		(0.731)
N	1,244	1,244	687	687
Log-pseudo-likelihood	–801.4	–799.4	–314.5	–313.0
Wald χ^2	112.73•••	116.75•••	64.08•••	64.29•••
LR-test†		4.02••		3.03•

•$p < .10$; ••$p < .05$; •••$p < .01$; two-tailed tests; one-tailed tests, when hypothesized.

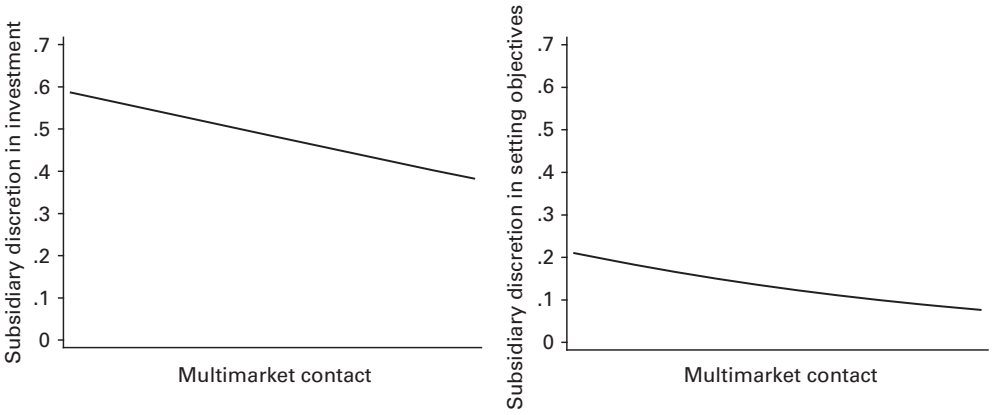
* Robust standard errors are in parentheses; constant, industry fixed effects, year fixed effects, and data source dummy included in all models.

† Comparisons with the baseline models 1 and 3, respectively.

effect on constraining both dimensions of latitude simultaneously relative to constraining only one. These findings suggest that latitude of action and latitude of objectives behaved as substitutes, rather than complements, in managing multimarket competition.

Although a negative and significant association between multimarket contact and a subsidiary's discretion in investment decisions and in setting its objectives is clear from the above regressions, our confidence in the reported results would be stronger if we could establish that this is a selective association that does not mainly capture a generic tendency to centralize or decentralize decisions. After all, the constrained delegation model we developed is based on

Figure 1. The influence of competition across multiple industries on a subsidiary's discretion.*



* Fitted regression lines. Probability of subsidiary discretion in investment decisions and setting its objectives. All variables, except the independent variable, at their mean values.

the assumption that multi-industry firms need to reconcile the needs for delegation and for multimarket coordination. We argued that they need to selectively centralize some decisions and delegate others, and multimarket contact should be associated with the centralization of resource allocation decisions rather than other ones. Put differently, we expect a lower propensity to delegate resource allocation decisions to subsidiaries in response to multimarket operations, which should not have a significant effect on other decisions.

To validate our expectation, we ran a set of supplementary regressions on subsidiary-level decisions for which we have corresponding data, either from SESAME or the ER: employment (hiring, licensing), payroll expenses, cash management, and remuneration policy. As all of these variables are rank-ordered categorical variables, we recoded, for comparison and as a robustness check, our dependent variables (subsidiary discretion in investment decisions and in setting its objectives) as rank-ordered categorical variables as well and included them in this set of regressions along with the new dependent variables.[8] Results of the ordered logit regressions, which include all controls from table 3, are reported in table 4. In these regressions, too, the coefficients of multimarket contact on subsidiary discretion in investment decisions and in setting its objectives (now coded as rank-ordered categorical variables) are negative and highly significant. Importantly, multimarket contact is significantly associated only with decisions related to resource commitments (investment, objectives, and, in alternative model specifications, marginally to cash management) but not with other decisions (employment, payroll expenses, and remuneration), as we expected.[9] Thus the results of these supplementary regressions lend strong support to the constrained delegation

[8] These variables of autonomy were coded as 3-point scales in SESAME (limited, negotiated, large) and as 4-point scales in the ER (none, limited, important, and total). The variable on autonomy of objectives was coded as a 3-point scale in the ER (imposed by headquarters, negotiated with headquarters, and decided by subsidiary).

[9] These results also resonate with prior research that argued that decisions are less likely to be delegated when there are long-term consequences and more external effects (Aghion and Tirole, 1997; Harris and Raviv, 2005).

Table 4. Ordered Logit Regressions Explaining the Link between Multimarket Contact and Subsidiary Discretion in Various Subsidiary-level Decisions in Groups in France, 1997–2004*

Discretion pertaining to:	Multimarket contact	Wald χ^2	Sample size
Investment	–0.748••	178.33••	1,244
	(0.412)		
Determination of subsidiary objectives	–1.144•••	193.08•••	687
	(0.479)		
Employment (hiring, licensing)	–0.529	91.50•••	668
	(0.549)		
Payroll expenses	–0.330	68.95•••	670
	(0.586)		
Cash management	–0.750	62.67•••	576
	(0.636)		
Remuneration policy	0.146	42.96••	581
	(0.671)		

•$p < .10$; ••$p < .05$; •••$p < .01$; two-tailed tests; one-tailed tests for multimarket contact.
* Standard errors are in parentheses; all control variables from table 3 are included in all models.

model: multi-industry firms selectively limit subsidiary discretion in resource allocation decisions in response to considerations of multimarket competition.

Inflow of Financial Resources

Table 5 presents the main regression results for intrafirm resource flows. As indicated by the sign and high significance of the interaction terms, the results strongly support hypotheses 2a and 2b. Multi-industry firms are more likely to provide financial resources to subsidiaries with low market share and/or that operate in high-growth industries, in line with the portfolio theory and the internal capital markets literature. Yet, as hypothesized, multimarket considerations counteract this tendency: the extent of multimarket contact positively moderates the negative effect of relative market share and negatively moderates the positive effect of industry growth on the likelihood of financial resource inflows to the subsidiary operating in that market (models 3 to 5).[10] When multimarket contact is zero or negligible, resource flows follow the default pattern of the internal capital markets: subsidiaries that have low relative market share and/or operate in high-growth industries are more likely to receive financial resources. At high levels of multimarket contact, however, these subsidiaries are less likely to receive financial resources, as graphed in figure 2. Taken together, the results show multimarket considerations to be an important strategic factor that moderates the link between the established drivers of resource

[10] In these regressions, multimarket contact has a positive direct effect on inflow of financial resources. One possible explanation is that it captures other, efficiency-oriented considerations. To the extent that multimarket operations cluster around core businesses (Porter, 1984), there might be a need to create synergies via, for example, economies of scale and scope. Yet another explanation is that, as we hypothesized, mutual forbearance and internal capital markets are parallel mechanisms in explaining resource allocation decisions. If they are substitutes, some subsidiaries will be funded more and others will be funded less under multimarket competition, and a pooled effect masks this pattern.

Table 5. Conditional Fixed-effects Logit Regressions Explaining the Likelihood of Inflow of Financial Resources to Subsidiaries of Groups in France, 1997–2004*

Variable	1	2	3	4	5
Subsidiary size	0.383•••	0.379•••	0.380•••	0.390•••	0.390•••
	(0.107)	(0.107)	(0.107)	(0.107)	(0.107)
Export orientation	0.327	0.324	0.327	0.306	0.311
	(0.275)	(0.275)	(0.275)	(0.276)	(0.276)
Parent's ownership	0.097	0.092	0.104	0.122	0.130
	(0.222)	(0.222)	(0.222)	(0.222)	(0.222)
Relative market share	–0.097	–0.101	–0.270•••	–0.113	–0.266•••
	(0.071)	(0.071)	(0.084)	(0.072)	(0.085)
Relatedness	–0.118	–0.137	–0.106	–0.106	–0.078
	(0.271)	(0.272)	(0.272)	(0.272)	(0.272)
Strategic importance	–0.947••	–0.965••	–0.889••	–0.908••	–0.843••
	(0.382)	(0.381)	(0.382)	(0.382)	(0.383)
Group size	–0.169	–0.155	–0.163	–0.142	–0.150
	(0.128)	(0.128)	(0.128)	(0.128)	(0.128)
Group diversity	0.078	0.071	0.082	0.055	0.066
	(0.139)	(0.140)	(0.140)	(0.140)	(0.140)
Industry concentration	–0.207	–0.216	–0.282	–0.600	–0.634
	(0.707)	(0.707)	(0.709)	(0.713)	(0.714)
Industry multimarket firm share	0.675••	0.655••	0.649••	0.731••	0.721••
	(0.322)	(0.322)	(0.323)	(0.324)	(0.324)
Industry growth	0.017	0.018	0.023	0.113•••	0.113•••
	(0.019)	(0.019)	(0.019)	(0.027)	(0.027)
Industry turbulence	0.003	0.005	0.011	0.027	0.031•
	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)
Multimarket contact		0.471•	1.189•••	1.417•••	2.006•••
		(0.268)	(0.327)	(0.327)	(0.369)
Multimarket contact x Relative market share (H2a)			0.666•••		0.600•••
			(0.173)		(0.173)
Multimarket contact x Industry growth (H2b)				–0.303•••	–0.286•••
				(0.061)	(0.061)
Log-likelihood	–4880.0	–4878.4	–4870.9	–4865.8	–4859.7
LR χ^2	48.28•••	51.39•••	66.52•••	76.73•••	88.94•••
LR-test †		3.11•	18.24•••	28.45•••	40.65•••

•$p < .10$; ••$p < .05$; •••$p < .01$; two-tailed tests; one-tailed tests, when hypothesized.

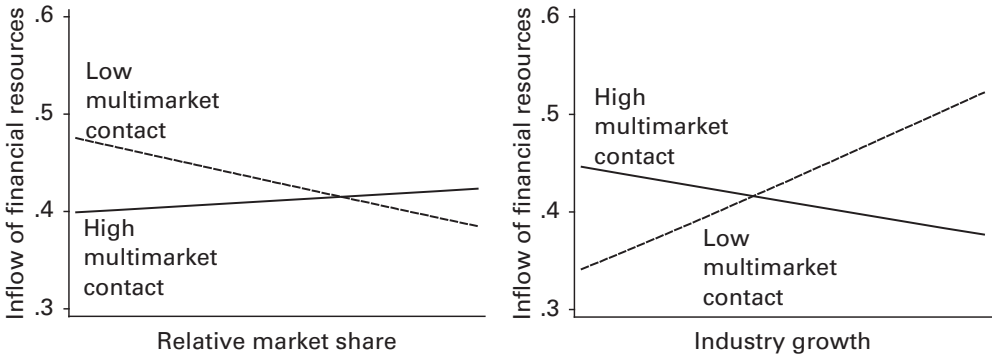
* Standard errors are in parentheses; N = 22,338; 12,400 not-predetermined; year fixed effects are included in all models.

† Comparisons with the baseline model 1.

commitments, namely, market position and market growth, and inflow of financial resources to subsidiaries of multi-industry firms.

We executed a set of supplementary analyses to examine the validity of the above results using more fine-grained measures of intrafirm resource flows than the binary variable we used to allow a comparison with the other dependent variables. First, we took into account the relative magnitude of financial resource inflows. One might argue that whether the inflow of financial resources accounts for a small or large chunk of the capital expenditure might indicate different levels of headquarters' influence over a subsidiary's resource allocation decisions. A negligible inflow will likely have a negligible effect on a

Figure 2. The influence of competition across multiple industries on inflow of financial resources to a subsidiary.*



* Fitted regression lines. Conditional probability of inflow of financial resources, estimates for above average and below average multimarket contact within ± 3 S.D. of relative market share and industry growth, respectively. All variables, except independent variables, at their mean values.

subsidiary's behavior. To check, using corresponding data and normalizing the Billett-Mauer/Berger-Hann measure by its maximum, we recalculated the inflow of financial resources, if any, as a percentage of the focal subsidiary's capital expenditure:

$$\text{Inflow of financial resources}_{it} = [\text{Max (Capital expenditure}_{it} - \text{Auto-financing capacity}_{it}, 0)]/\text{Capital expenditure}_{it}$$

In regressions based on this alternative measure, the results were qualitatively unchanged. Multimarket contact moderated the influence of relative market share and industry growth, as hypothesized.

Second, we took into account the absolute magnitude of financial resource inflows. One might argue that the inflow of financial resources will have strategic implications if and only if a subsidiary's investment in a given year is substantial. If, for example, a subsidiary invests only a few thousand Euros on capital expenditure in a given year, it should not be tied to any strategic commitment regardless of the percentage of the expenditure subsidized. To check, we recoded inflow of financial resources as 1 if the capital expenditure of a subsidiary exceeded its auto-financing capacity *and* its capital expenditure was more than 1 percent of its gross sales or more than €1 million (results were insensitive to different thresholds). In regressions based on this alternative measure, too, the results were unchanged. In fact, the hypothesized interactions were even more pronounced when we exclusively focused on financial resource inflows that are substantial both in relative magnitude (i.e., as a percentage of a subsidiary's capital expenditure) and in absolute magnitude (i.e., in Euros).

Finally, we examined whether the results are sensitive to the measurement of the inflow of financial resources by the subsidiary's capital expenditure in excess of the subsidiary's own after-tax cash flow. Expenditures above internally generated cash flows unambiguously demonstrate the inflow of financial resources to a subsidiary, because they could not have been realized without additional financial resources (Berger and Hann, 2003; Billett and Mauer, 2003).

Yet these additional funds for investment can come either from transfers from the subsidiary's group (i.e., financial resource inflows), from coinsured external financing, or from the liquidation of assets. Put differently, the inflow of financial resources cannot be automatically equated with the inflow of financial resources from the subsidiary's group. To check, we reran our regressions ignoring investments that were externally financed or financed through the liquidation of the firm's assets.[11] Not surprisingly, the imposition of this requirement significantly reduced the number of subsidiary-years in the sample classified as receiving financial resources. Still, in these more conservative regressions, the results were qualitatively unchanged.

Other Patterns in the Data: Control Variables

Some brief observations are in order regarding our control variables. Given the considerable heterogeneity in our multi-industry sample, we took a conservative approach by using an extensive number of controls, including year fixed effects, subsidiary (or industry) fixed effects, and controls for time-varying dimensions of the subsidiary, segment, group, and industry. These controls reduced the risk of omitted variable bias, though at the cost of some inefficiency of estimates. As a consequence, a number of controls did not show significant effects, particularly in the narrower survey-based sample or when the model included many fixed effects. Still, the results on controls are instructive.

In terms of subsidiary characteristics, smaller subsidiaries had significantly greater discretion in setting their objectives. Apparently, headquarters was more involved in guiding the strategy of larger subsidiaries. The effect of subsidiary size on investment discretion was also negative but insignificant. Controlling for market share, larger subsidiaries were also more likely to receive financial inflows. Export orientation had a borderline insignificant effect on investment discretion (negative) and on financial inflows (positive). The effect on financial inflows turned significant when foreign firms were excluded. These results suggest that international activities require greater coordination by headquarters and are a source of investment and growth (Desai, Foley, and Hines, 2004). Finally, consistent with the link between ownership and control (Hansmann, 2000), the percentage of parent's ownership of the subsidiary had a negative effect on investment discretion but because parent's ownership changed little over time, it was insignificant in analyses involving subsidiary fixed effects.

In terms of segment characteristics, the relatedness of the focal subsidiary's segment to the rest of the group had a positive effect on investment discretion

[11] To do so, we followed Billett and Mauer (2003). We first calculated the total financial resource inflows and total financial resource outflows (outflow—or potential transfer—from a subsidiary refers to the extent of its internally generated cash flows in excess of its capital expenditure, which indicates that the subsidiary can be a potential contributor to its group's internal capital market) in the subsidiary's group in a given year; and then we scaled the amount of inflows the subsidiary received by the ratio of the minimum of total inflows and total outflows to total inflows. Hence if total inflows were larger than total outflows, then each inflow would be scaled down so that the sum of the resized financial resource inflows and outflows will be equal. In our dataset, total inflows exceeded total outflows in 33 percent of firm-year observations, and total inflows were greater than zero when total outflows were equal to zero in 19 percent (in comparison, these numbers were 31 percent and 17 percent, respectively, in Billett and Mauer's study of U.S. diversified companies). Thus, although a significant proportion of subsidized investment is externally financed, transfers from other subsidiaries support a large proportion of subsidized investment.

and an insignificant effect on discretion in objectives. These findings were contrary to our prior intuition: we had expected that headquarters would assume greater control over related businesses in order to facilitate coordination. We explored alternative operational definitions of the relatedness variable to test whether the results were due to particular measurements, but the results were stable under different specifications. One possible interpretation could be that relatedness involves positive spillovers that generate win-win interactions among subsidiaries. Therefore headquarters may motivate subsidiaries to exploit these synergies through incentives and transfer prices without resorting to vertical control (Alles and Datar, 1998; Alonso, Dessein, and Matouschek, 2008). Or perhaps multimarket competition involves negative spillovers among subsidiaries such that one subsidiary needs to be constrained in order to avoid negative spillovers on others. But the strategic importance of the subsidiary's segment, measured by the segment's share of the group's revenues, had no statistically significant effect on discretion and a negative effect on the likelihood of financial inflows. This latter result might be particularly driven by the longitudinal trends within subsidiaries in the panel and may represent an internal capital flow from more mature core segments to newer ones over time.

In terms of group characteristics, neither group size nor group diversity had a significant effect on discretion or financial inflows. Though our initial expectation was that the greater span of control in large and diverse groups would lead to greater subsidiary autonomy, groups were perhaps compensating by putting formal control systems in place that limit discretion.

Finally, at the industry level, some industry dummies (not reported) were significant in discretion regressions, in line with prior research documenting systematic differences in managerial discretion across industries (Hambrick and Abrahamson, 1995). In our dataset, subsidiaries operating in industries such as automotive or construction systematically have higher discretion than those operating in other industries. In terms of time-varying industry characteristics, industry turbulence tended to reduce discretion over investments but not over objectives. This may reflect the fact that under high uncertainty, headquarters focused more on behavioral controls (monitoring investments) rather than outcome controls (Ouchi, 1980). Other industry characteristics such as concentration or growth had no significant effects on discretion, perhaps due to the overlap with fixed effects. Industry growth and the collective market share of multimarket firms, however, had a positive effect on the likelihood of financial inflows.

Robustness Checks

We first checked the robustness of the results to the inclusion of foreign firms in our working sample: we ran our analyses on all groups operating in France, both French or foreign owned. Hence, if crossborder market overlaps were significant among the firms covered in the dataset, we were potentially underestimating the extent of multimarket contact. This imposes a conservative bias on the results because, to the extent that multimarket contact is associated with higher headquarters' control over subsidiaries (as we hypothesized), we will be observing high control even when our independent variable takes a low value. And, to be sure, subsidiary fixed effects indirectly control for the origin of ownership. Still, as an additional check, we reran all regressions excluding all subsidiaries owned by foreign firms (Honeywell, Nestlé, Siemens, Sony, Unilever,

etc.) from our analyses. In this set of regressions, the results were highly consistent with the reported results across all models but uniformly led to higher model fit. Importantly, multimarket contact was still signed as before and was even more significant.

Next, we checked the robustness of the results to the exclusion of state-owned groups in our working sample. Although information on firms that are under majority control of the French state are recorded in the RECME (Le Répertoire des Entreprises Contrôlées Majoritairement par l'État) database and the list of firms on this database is publicly available via INSEE, details of RECME are available only to government agencies (even with the permission granted to us). This data limitation noted, we are confident that its effect on our results is negligible. Even though the involvement of the state in the French economy is historically well documented (Baumier, 1967; Dyas and Thanheiser, 1976), the weight of state-owned firms in the private sector (in particular, outside of defense, education, and healthcare) has been continuously shrinking. Less than 5 percent of firms listed in the Paris Stock Exchange / EuroNext are state controlled, even when state is defined broadly to include local administrations (Faccio and Lang, 2002: Tables 3 and 4). By 2004, only five of the top thirty industrial and service groups in France belonged to the public sector. To cross-validate, we checked the evolution of state-owned firms within our observation period using the data from the RECME database: between 1997 and 2004 the number of firms covered in RECME declined from 2,508 to 1,307. Thus this crude measure is in line with the observation that the presence of the state in the French private sector is shrinking. Still, the presence of state-owned groups was significant in some sectors, in particular energy (EDF, Gaz de France), transportation (SNCF), and telecommunications (France Télécom, Groupe La Poste). As an additional check, we reran all regressions excluding these sectors from our analyses. The results on subsidiary discretion in investment decisions and inflow of financial resources were qualitatively identical and slightly more significant, further increasing our confidence in the reported results.[12]

Another characteristic of our working sample is that, of all six main sectors of the French economy, it covers four sectors: agro-alimentaire (i.e., agriculture and food), construction, industrie (i.e., manufacturing), and transportation. We excluded service and commerce sectors because INSEE alternated data collection across industries over years within these two sectors, making yearly panels impossible. Our study offers a significant empirical contribution as it is one of the very few multi-industry studies of multimarket competition (along with Scott, 1982, 1991; Strickland, 1984, 1985; Feinberg, 1985; Hughes and Oughton, 1993; Lee and Tang, 1994) and, to our knowledge, the first study not limited to the manufacturing sector. Still, we elaborated on the sensitivity of the results to the exclusion of service and commerce firms. The multimarket contact measure, our independent variable, is unlikely to be sensitive to the exclusion of these two sectors. Because, as is well established (Porter, 1984; Gimeno and Woo, 1999), multimarket contact is particularly high within sectors as firms tend to diversify into related businesses (in our sample the highest positive zero-order correlation of multimarket contact is with relatedness). In line with this prediction, in our working sample, on average, over 88 percent of total sales

[12] Though multimarket contact kept its sign and significance, the models themselves became insignificant on a subsidiary's discretion in setting its objectives due to reduction in sample size and degrees of freedom.

of a group comes from the sector of its core business. Also, even if exclusion of the two sectors had an impact on the measurement of multimarket contact, this would have imposed a conservative bias that would have worked against our hypotheses, as the range restriction of the multimarket contact variable would bias the coefficient toward zero. A separate and pertinent question is whether sectors are fundamentally different from each other in terms of the theoretical mechanisms in question. Even though sectors do vary from each other in certain dimensions (e.g., economies of scale, B2B versus B2C, etc.), there is no theoretical reason why the constrained delegation model will function differently in different sectors. To check, we reran all regressions sector by sector, for all four sectors covered in our panel (the ER's very low sample size in some sectors and SESAME's manufacturing-only focus rendered sector-by-sector analysis pointless in regressions based on the survey data). In these regressions, all hypothesized relationships were fully consistent across sectors, all statistically significant (with some variation at the level of significance), and signed as before.

Another robustness check concerns the role of market stability in the constrained delegation model. So far we have assumed that market stability is exogenous to multimarket contact. It is then sufficient to just control for industry turbulence and show that the effect remains (as we did). But it is possible that market stability is a consequence of multimarket contact, and mutual forbearance among competing firms brings more stability to the market. In an infamous case, for example, the largest French mobile phone companies Orange, SFR, and Bouygues Telecom (owned by three large groups, France Telecom, Vivendi, and Bouygues, respectively) were fined a record €534 million ($629.5 million) for colluding on prices (Parussini, 2005). If so, then market stability mediates the relationship between multimarket contact and our dependent variables.[13] To check the robustness of the results to the possibility of market stability as a mediator, we estimated a partial mediation model wherein industry-level multimarket contact is assumed to have an indirect effect on a subsidiary's discretion in investment decisions via market stability (reverse-proxied by industry turbulence) and firm-in-market-level multimarket contact (our focal independent variable) to have a direct effect.[14] Significant results (negatively) linking industry-level multimarket contact to industry turbulence give credence to the studies indicating an interaction between environmental stability and multimarket contact to identify forbearance (Anand, Mesquita, and Vassolo, 2009). Still, firm-in-market-level multimarket contact had a net, direct, and significant influence on a subsidiary's discretion.

In terms of model specification, we checked the robustness of the results to potential reverse causality and multicollinearity, as well as to alternative measurements of right-hand-side variables and inclusion of additional control

[13] That being said, market stability as a facilitator of centralization implies variation across markets but not within them. Firms operating in a market with high stability, for example, might be more likely to centralize decision making than firms operating in turbulent ones, but there is no reason to expect any systematic variation within markets. This is in contrast to our arguments, which predicted (and empirically showed) that the unique competitive identity of each subsidiary leads to varying degrees of centralization across firms in a given market.

[14] Because the regressions for industry-level multimarket contact and industry turbulence pools all observations within each industry, to correct for oversampling, we followed Baum and Korn (1996) and weighted all right-hand-side variables by the inverse of the number of multi-industry firms operating in that industry.

variables. Reverse causality—here, the possibility that groups' control over their subsidiaries might affect market entry/exit decisions by rivals and, hence, affect the overall multimarket contact between firms—is unlikely because internal control mechanisms can be much more easily altered in the short-run than market entry (even more accurately than joint presence in multiple markets); and firms can observe much more easily the market entry and presence of their rivals than their internal control structures. Nevertheless, we cannot rule out reverse causality with certainty. Accordingly, we reran all regressions based on panel data by including a lagged dependent variable on the right-hand side, which implies a Granger/Sims test of direction of causality (Geweke, Meese, and Dent, 1983; Finkel, 1995). Although lagged dependent variables, as expected, were highly significant, all hypothesized relationships maintained their sign and all were highly significant. These results alleviate the concern that reverse causality may confound the reported results. The same holds true for potential multicollinearity as well. Although there are no critically collinear variables, we reran all regressions by dropping moderately correlated variables (e.g., group diversity), one by one and in combinations. Regression results were qualitatively insensitive to the inclusion or exclusion of concerned variables, but exclusions resulted in reduced model fit. We also calculated variance inflation factors on subsidiary-demeaned data. All were much lower than the critical value of ten, indicating no serious multicollinearity. Therefore we are confident that potential multicollinearity is not driving the results.

Next we checked the robustness of the results to alternative measurements of multimarket contact (sales at risk vs. a simple count), parent's ownership (capital held vs. voting rights), and relatedness (sales-weighted average intragroup industrial complementarity vs. industrial complementarity, same two-digit industry dummy, backward integration potential, and forward integration potential). Alternative measures, as would be expected, were highly correlated with the measures we used in our analyses. Substituting these alternative measures did not change the results but uniformly reduced the model fit. Finally, we checked the sensitivity of results to additional control variables: subsidiary importance (which we measured by the ratio of total sales revenue of the subsidiary to the total sales revenue of its group), subsidiary capital intensity (measured by the ratio of fixed assets to sales), group spread by industry (measured by the number of subsidiaries the group had in the focal industry), industry size (measured by the log of total sales volume of the industry), and industry capital intensity (measured by market share weighted industry average of fixed assets to sales ratios). They were typically highly correlated with one or more of the controls that were already included in our regressions. As with the substitution of alternative measures, inclusion of these additional controls did not change the results but uniformly reduced the model fit.

Constrained Delegation and Subsidiary Competitive Behavior

So far, we've focused on the influence of multimarket considerations on the design of headquarters-subsidiary relationships in managing multimarket rivalry. A direct implication of the constrained delegation model is that organization designs that constrain the resource commitments of subsidiaries that face multimarket rivals facilitate mutual forbearance by reducing their competitive aggressiveness. Accordingly, to further validate our constrained delegation

model, we exploited the available data and examined whether the established negative link between multimarket contact and competitive aggressiveness is stronger in the presence of the accompanying organization design interventions that we explored: limits to a subsidiary's discretion and reduced financial resource inflows. More specifically, we tested whether multimarket contact is associated with a lower propensity (1) to pursue growth in subsidiaries that did not have discretion in investment decisions than in subsidiaries with high levels of discretion, and (2) to increase market share in subsidiaries that did not receive financial resources from their group than subsidiaries that received financial resources. We focused on growth as the indicator of a subsidiary's competitive aggressiveness because growth, especially market share gains achieved at the expense of rivals, is inherently competitive. Accordingly, we expected subsidiaries' ability to make resource commitments to positively moderate the negative impact of multimarket contact on subsidiary growth and constraints on those to have a negative impact.

We measured whether a subsidiary pursued growth as one of its primary objectives using relevant survey items from SESAME and the ER.[15] Coded as a categorical variable, *growth as objective* equals 0 if a growth or market share objective is not set, 1 if such an objective is set but is not the primary objective, and 2 if such an objective is set and is the primary objective of the subsidiary. Growth orientation is associated with more aggressive investment decisions than is profit orientation because the former frequently requires reinvestment rather than distribution of residual earnings. Increased investment, as we discussed earlier, might increase rivalry in the market, as a large stock of unused resources will be costly to retain. We measured subsidiary *market share growth* by annual positive deviation in its relative market share. This measure is closely akin to that in Greve (2008), who assessed the effect of multimarket contact on positive deviation on sales growth from the industry median growth rate, and is a relatively more direct measure of competitive aggressiveness, as market share gains are associated with the market share losses of rivals.

We present the results on the moderating effect of constrained delegation on a subsidiary's competitive aggressiveness in table 6. Reiterating the core proposition of the multimarket competition literature, multimarket contact is negatively and significantly associated both with pursuing growth as an objective and with positive deviation in market share, our measures of a subsidiary's competitive aggressiveness. The latter result is directly in line with Greve (2008), who showed that firm-level multimarket contact is negatively associated with positive deviation from median sales growth. Importantly, a subsidiary's latitude of action and availability of financial resources positively moderate the negative impact of multimarket contact on competitive aggressiveness, and hence constraints on those have a negative effect. As figure 3 shows, when organization design imposes more constraints on a subsidiary's resource allocation, multimarket contact is associated with even lower competitive aggressiveness. While the need for intrafirm control and coordination has been mentioned in prior multimarket competition research, this is the first empirical evidence showing that firms with a matching organization design are able to act more in line with considerations for multimarket competition.

[15] This variable was coded as 3-point scales in SESAME (most important, second-most important, third-most important), and as a binary variable (1 if most important, 0 otherwise) in the ER.

Table 6. Regressions Explaining the Likelihood of Pursuing Growth Objectives and Market Share Growth for Subsidiaries of Groups in France, 1997–2004*

	Pursuing Growth†			Market Share Growth‡		
Variable	1	2	3	4	5	6
Subsidiary size	–0.069	–0.053	–0.057	0.008	0.008	0.008
	(0.074)	(0.075)	(0.075)	(0.013)	(0.013)	(0.013)
Export orientation	–0.081	–0.107	–0.118	0.066••	0.067••	0.067••
	(0.265)	(0.268)	(0.269)	(0.027)	(0.027)	(0.027)
Parent's ownership	0.295	0.216	0.237	0.006	0.008	0.009
	(0.590)	(0.590)	(0.590)	(0.021)	(0.021)	(0.021)
Relative market share	0.139••	0.134••	0.135••	–0.388•••	–0.388•••	–0.388•••
	(0.060)	(0.060)	(0.060)	(0.015)	(0.015)	(0.015)
Relatedness	–0.210	–0.084	–0.074	0.138•••	0.140•••	0.141•••
	(0.238)	(0.255)	(0.254)	(0.034)	(0.033)	(0.033)
Strategic importance	–0.510	–0.500	–0.512	0.766•••	0.769•••	0.769•••
	(0.351)	(0.348)	(0.348)	(0.070)	(0.070)	(0.070)
Group size	–0.071	–0.083	–0.081	0.253•••	0.252•••	0.251•••
	(0.081)	(0.082)	(0.082)	(0.025)	(0.025)	(0.025)
Group diversity	–0.250	–0.269	–0.274	0.065•••	0.065•••	0.066•••
	(0.170)	(0.168)	(0.168)	(0.022)	(0.022)	(0.022)
Industry concentration	–0.619•	–0.879••	–0.876••	–0.915•••	–0.915•••	–0.914•••
	(0.329)	(0.350)	(0.348)	(0.107)	(0.107)	(0.107)
Industry multimarket firm share	1.113•••	1.217•••	1.220•••	–0.106•	–0.104•	–0.103•
	(0.366)	(0.368)	(0.366)	(0.056)	(0.056)	(0.056)
Industry growth	0.014	0.004	0.005	–0.010•••	–0.011•••	–0.011•••
	(0.051)	(0.051)	(0.051)	(0.002)	(0.002)	(0.002)
Industry turbulence	–0.002	–0.014	–0.014	–0.007•••	–0.007•••	–0.007•••
	(0.038)	(0.039)	(0.039)	(0.002)	(0.002)	(0.002)
Subsidiary discretion in investment decisions	0.034	0.019	–0.139			
	(0.127)	(0.127)	(0.176)			
Inflow of financial resources				–0.003	–0.003	–0.013•
				(0.004)	(0.004)	(0.007)
Multimarket contact		–0.867••	–1.274•••		–0.051••	–0.064••
		(0.416)	(0.503)		(0.030)	(0.030)
Multimarket contact x Subsidiary discretion in invest.			0.793•			
			(0.581)			
Multimarket contact x Inflow of financial resources						0.035••
						(0.018)
N	1,230	1,230	1,230	15,363	15,363	15,363
Log-pseudo-likelihood / R-squared	–1065.6	–1063.1	–1062.3	0.559	0.559	0.559
Wald χ^2 / F-test	176.86•••	176.18•••	177.82•••	47.01•••	44.69•••	42.67•••
LR-test / F-test §		4.91••	6.62••		2.92•	3.45••

•$p < .10$; ••$p < .05$; •••$p < .01$; two-tailed tests; one-tailed tests for multimarket contact and interactions.

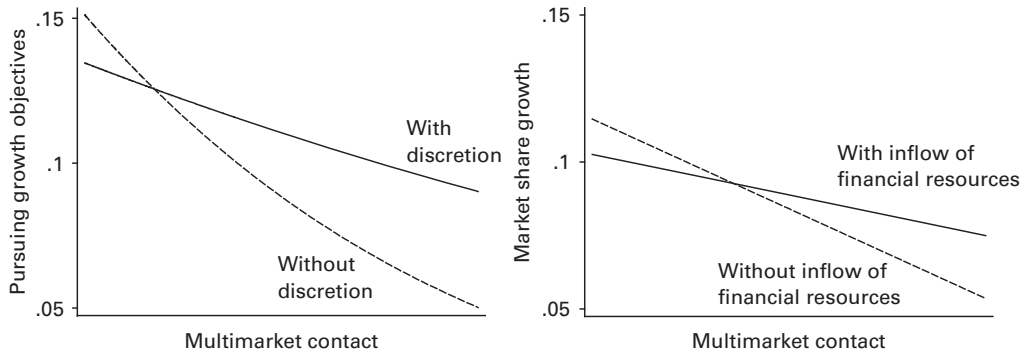
* Robust standard are errors in parentheses. Models 1 to 3 include industry dummies and a data source dummy; models 4 to 6 include a constant; year fixed effects are included in all models.

† Ordered logit regressions; pursuing growth = (0) if a growth/market share objective is not set, (1) if is set but not the primary objective, and (2) if set and the primary objective.

‡ Error-components regressions with subsidiary fixed-effects; market share growth = positive deviation in market share.

§ Comparisons with the baseline models 1 and 4, respectively.

Figure 3. The influence of competition across multiple industries on a subsidiary's growth.*



* Fitted regression lines. Growth objectives: Probability of outcome = 2 (growth is the primary objective); Market share growth: Positive deviation in relative market share. All variables, except independent variables, at their mean values.

DISCUSSION

The results of this study give credence to our theory of how organization design in multiunit firms is influenced by intrafirm competitive spillovers. Subsidiaries that are in competition with multimarket rivals are less likely to be given discretion in investment decisions and discretion in setting their objectives. They are also less likely to receive financial resources than internal capital markets would predict: the extent of multimarket contact in a given market counteracts the tendency of internal capital markets to provide financial resources to subsidiaries that have a low market share and/or operate in high-growth industries. Delegating decision making to subsidiaries under such resource constraints facilitates mutual forbearance by limiting the potential for a subsidiary to be competitively aggressive.

Allocation of Decision Rights

The results show that exposure to multimarket rivals can affect the scope of decisions that can be made by subsidiaries. To our knowledge, this is the first paper that demonstrates the influence of competitive embeddedness over multiple markets on the allocation of decision rights. As Finkelstein and his colleagues (2008) noted, it is important to focus on the allocation of decision rights to unit managers, because many strategic initiatives are formulated and executed at their level. Although some of the pioneering work on strategic leadership and managerial discretion was at the business-unit level (e.g., Gupta and Govindarajan, 1984), more recent studies have been at the corporate level. This paper joins recent empirical studies in organizational economics that have revived this stream by focusing on decision rights as the main organizational design parameter (e.g., Harris and Raviv, 2005; Acemoglu et al., 2007; Graham, Harvey, and Puri, 2011) and examined the link between the competitive context and delegation (Colombo and Delmastro, 2008; Bloom, Sadun, and Van Reenen, 2010; Guadalupe and Wulf, 2010). We extend existing work by highlighting the role of multimarket competition on the allocation of decision rights in firms. Whereas the intensity of local competition increases the need for market responsiveness and, hence, increases the need to delegate strategic

decisions to subsidiary managers, the intensity of multimarket competition increases the need for cross-market coordination of competitive behavior and, hence, increases the need for selective headquarters' controls over a subsidiary's strategic decisions.

Importantly, the constrained delegation model implies ''selective intervention'' (Williamson, 1985; see also Zenger and Hesterly, 1997). Williamson's analysis of organizational growth and our more nuanced arguments about headquarters' delegation in response to multimarket competition both emphasize selectivity in terms of the allocation of decision rights between headquarters and subsidiaries, but with very different interpretations. In introducing the concept, Williamson (1985: 133) argued that organizations can benefit by giving subsidiaries autonomy for decisions at the operational level but selectively intervening by moving decisions to the top level when there are net gains to be realized by doing so. Our study provides evidence that selective intervention does indeed take place in multi-industry firms: we considered constrained delegation vis-à-vis full centralization or full autonomy and found evidence of selective use of constraints, suggesting tradeoffs between governance mechanisms. Yet even though constrained delegation, too, establishes a link between intervention and firm growth, it differs in explaining why and how. Williamson argued that it is difficult for headquarters to credibly abstain from intruding in business-unit management, that excess intrusion imposes governance costs (bureaucratic costs as well as incentive problems) and that, as a result of such inefficiencies, which increase with firm size, firm growth and size is limited. Thus growth is limited because selective intervention does not work. In our constrained delegation model, however, growth is limited because selective intervention *does* work: the constraint on growth comes from a rule imposed by headquarters that solves one problem (competitive intrafirm spillovers and, in particular, multimarket competition) but at the expense of growth. Our study provides evidence that selective intervention does pose limits on firm growth but because corporate headquarters constrains the behavior of subsidiaries with high growth potential in order to avoid multimarket rivalry.

Formal control mechanisms, including allocation of decision rights, are effectively in use in the widest possible range of environments, like those we cover in our study, and, ultimately, are the dominant mode of control (Ouchi, 1979). Still, other instruments of corporate control certainly do exist, such as selection of agents, explicit/implicit incentives, or corporate culture (Schelling, 1960; Ouchi, 1979; Fershtman and Judd, 1987). Of particular interest would be control mechanisms based on the subjective performance evaluation of managers based on their adherence to corporate objectives (Bernheim and Whinston, 1998). In our context, for example, explicit incentives, such as compensation, could be based on a subsidiary's performance, but promotions would be influenced by adherence to the multimarket competitive strategy of the group. We acknowledge that multi-industry firms can deploy these instruments instead of or in parallel to, as the partial mediation implies, the constrained delegation model we explored in this paper. Their ability to do so depends, at least in part, on development and deployment of information and communication technologies, which affect both the level and type of involvement of headquarters in a subsidiary's decision making (Brynjolfsson, 1994; Zenger and Hesterly, 1997; Rangan and Sengul, 2009).

Allocation of Resources

The results imply that an optimal resource allocation process should take into account both allocative efficiency and intrafirm competitive spillovers, because considerations pertaining to internal capital markets and considerations pertaining to multimarket competition have opposing effects on the flow of financial resources in multi-industry firms: multimarket considerations mitigate the tendency of internal capital markets to subsidize some particular subsidiaries. This echoes Karnani and Wernerfelt's (1985: 87) observation that when a firm follows the dictum of the classical portfolio planning theory and invests in a low-market share subsidiary in a high-growth industry, the best response of its rivals in that market is to counter-invest in another market in which the focal firm has a large market share. Consequently, a seemingly efficient investment decision can ultimately harm the focal firm by triggering competitive spillovers and escalating competition in markets in which it operates along with its multimarket rivals.

Thus our study complements both the portfolio planning theory and more recent accounting and finance work on internal capital markets that has focused on how and under what conditions internal capital markets can be effective in channeling resources within the corporate structure (Stein, 2003; Maksimovic and Phillips, 2007). An important implication of our growth analysis, in line with Haveman and Nonnemaker (2000) and Greve (2008), is that subsidiaries of multi-industry firms are more likely than single-industry firms to forgo growth opportunities in markets in which they face multimarket rivals. We argued and showed that multimarket competitive considerations reduce the inflow of financial resources to subsidiaries facing multimarket rivals. Given that firms can control available resources at their subsidiaries by managing not only the inflow of financial resources but also their outflow, the above arguments also imply that multimarket considerations make it less likely for headquarters to leave free cash flow in low-market-share subsidiaries in high-growth industries for reinvestment, counteracting the standard pattern expected in internal capital markets.

More broadly, and along with the allocation of decision rights, our arguments resonate with and contribute to the resource allocation process literature. In this literature, constraints imposed by headquarters correspond to the structural context: various organizational and administrative mechanisms (e.g., project approval procedures, incentive systems) designed by and at the discretion of headquarters to influence the actions of decision makers at lower levels of the organizational hierarchy (Bower, 1970a). Accordingly, manipulating the structural context is a principal mechanism through which top management exerts its direct influence on key processes, including capital investment (Bower, 1970a) and internal corporate venturing (Burgelman, 1983). Based on this insight, prior work has shown that the organizational structure and processes are influenced by efficiency considerations, such as efficient allocation of resources across businesses (Burgelman, 1983), or by the realization of current and future synergies (Raynor and Bower, 2001). In this study, we theorized and provided empirical evidence that the multimarket competition has an additional and separate influence on the design of the structural context. Namely, the structural context is endogenous to the competitive context.

Contributions and Future Research Directions

Beyond the specific implications for the allocation of decision rights and resources, our study makes three broad contributions, in that (1) it builds a bridge between organization design and competitive strategy research; (2) it elaborates a multi-level contingency theory of headquarters-subsidiary relationships, and (3) it enriches our understanding of organizational delegation and control in multiunit organizations.

First, this study builds a bridge between organization design and competitive strategy research. Our study contributes to the literature exploring mutual interdependence between organizational structure and competitive strategy (e.g., Vickers, 1985; Ferhstman and Judd, 1987; Guadalupe and Wulf, 2010), as we show that competitive strategy (here, multimarket presence) influences organization design (here, allocation of decision rights and resources), which then shapes a subsidiary's competitive behavior. This is in line with the strategic delegation literature's contention that organizational choices can be driven by strategic considerations as well as by efficiency (see Sengul, Gimeno, and Dial, 2012, for a review).

Importantly, our study emphasizes that competitive spillovers between subsidiaries may involve win-lose dynamics that require headquarters to exercise authority to constrain a subsidiary's behavior. This follows a different logic than positive intrafirm spillovers (e.g., resource sharing, capability leverage) traditionally emphasized in the corporate governance literature, in which the interests of subsidiaries are aligned. To be sure, although we focused on multimarket competitive spillovers between subsidiaries, the proposed theory can be applied to other types of competitive spillovers as well. For example, headquarters may selectively allow and manage internal competition among subsidiaries in order to explore alternative technological options in uncertain technological contexts (Galunic and Eisenhardt, 1996; Birkinshaw and Lingblad, 2005). In other contexts, firms may use different units to effectively serve different distribution channels (Porter, 2001) or simultaneously occupy multiple market positions to credibly preempt market space (Hirshleifer, 1957; Low and Fullerton, 1994). We believe constrained delegation will apply to these situations as well, as it might offer a mechanism to limit the negative spillovers without suppressing the benefits from their existence in the first place. In fact, one untested hypothesis is that the presence and joint magnitude of multiple competitive spillovers will increase the use of constrained delegation mechanisms.

Second, our study elaborates a multilevel contingency theory of headquarters-subsidiary relationships. Despite Pitts' (1980) early contribution, little work has taken a multilevel contingency view of headquarters-subsidiary relations, in which relations depend on the contexts both at the subsidiary level and at firm or group level. An important exception has been the work on multinationals, which has emphasized that the structure of each headquarter-subsidiary relationship must be differentiated to fit its context (Ghoshal and Nohria, 1989; Nohria and Ghoshal, 1994). Our paper reenergizes the multilevel contingency perspective, joining Van de Ven and his colleagues' (2012) recent study of local community clinics, and extends the theory into a different context: multi-industry firms. Our paper shows that the external competitive contingency acts at both levels: the local competitive context of a subsidiary, as well as the multimarket competitive context of its parent. As organization

design and competitive strategy both involve tradeoffs between what is optimal at the subsidiary level and what is optimal at the firm level, micro-organizational differentiation (i.e., the structural autonomy and interactions of each subsidiary with headquarters) emerges endogeneously in multi-industry firms in response to intrafirm competitive spillovers. This is particularly relevant to the study of business groups (e.g., Guillén, 2000; Khanna and Yafeh, 2007), which has tended to focus on between-group comparisons but has largely ignored within-group differences in organizational delegation and strategic action among group-affiliated firms (Carney et al., 2011; see Kim, Hoskisson, and Wan, 2004, for an exception). By delineating the unique governance requirements of each subsidiary under the umbrella of a multi-industry firm, our study informs this literature and explains how organization design, strategic behavior, and performance can vary across the members of a business group.

Third, and finally, this study enriches our understanding of organizational delegation and control mechanisms in multiunit organizations. Constrained delegation implies selectivity in terms of which subsidiaries and which decision rights are more likely to be centralized in a multiunit firm and provides a nuanced compromise between full centralization and full autonomy. In cultivating the advantages of both, selective intervention can be the ''best of both worlds'' (Williamson, 1985: 133). Because constrained delegation relies on resource constraints to subsidiaries, the resource allocation and budgeting process plays a central role in aligning a subsidiary's strategy with corporate objectives, which shapes the competitive commitments of the firm. Thus constrained delegation implies permanent headquarters' control over major decisions with long-term consequences, regular delegation of business-level decisions (e.g., advertising, remuneration) to subsidiaries, and exceptional discretionary headquarters control over the competitive behavior of subsidiaries, such as intervening when a price war is in sight. As such, it enables headquarters to shape a subsidiary's behavior without imposing permanent behavioral control, which is both detrimental to a subsidiary's value creation and initiative and carries heavy costs in terms of monitoring and sanctioning. As information and communication technologies evolve, we might see changes in the level and type of involvement of headquarters in a subsidiary's decision making. For the study of organizations, as well as competitive strategy, this may be an interesting and promising avenue for future research.

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APPENDIX A: Random Response Models

Random (or randomized) response models are a well-established method used for data, typically survey data, that contain sensitive information that requires protecting the anonymity of the respondent and/or the confidentiality of responses. The random response method allows researchers to obtain data on sensitive issues (e.g., ''Are you a drug user?''; ''Have you falsified your tax returns?'') with a minimum of potential response bias and allows data providers to share the data without risking the anonymity of the respondent and the confidentiality of responses. Originally introduced by Warner (1965), there have been numerous extensions and improvements to this methodology (for reviews, see Fox and Tracy, 1986; Chaudhuri and Mukerjee, 1988), which has found many applications in various disciplines, including economics, marketing, psychology, and sociology.

The random response method is equally applicable to dichotomous (e.g., yes or no), polychotomous (e.g., ordinal responses on a 5-point Likert-scale), and quantitative measures (e.g., count measures, like ''how many?''). For ease of demonstration, we consider a binary response case (adopted from Maddala, 1983: 54–56). Suppose there is a box with red, blue, and white balls. If the ball drawn is red (with probability P1), the respondent gives the answer 1 (''Yes''); if the ball is blue (with probability P2), the respondent gives the answer 0 (''No''); and if the ball is white (with probability 1 – P1 – P2), the respondent truthfully answers the question whether or not he or she uses drugs (1 if he or she uses, and 0 otherwise). Only looking at the response, therefore, it is impossible to know whether he or she uses drugs or not. Letting the true probability of using drugs be denoted by Π_i, then:

$$\text{Prob}(y_i = 1) = P1 + (1 - P1 - P2)\Pi_i$$

$$\text{Prob}(y_i = 0) = P2 + (1 - P1 - P2)(1 - \Pi_i)$$

Assuming that the true probability of Π_i can be written as $e^{\beta' X_i} / (1 + e^{\beta' X_i})$, where X refers to all explanatory variables, we get the likelihood functions to be maximized as

$$L = \Pi_{y_i = 1}[P1 + (1 - P1 - P2)\ (e^{\beta' X_i}/(1 + e^{\beta' X_i})]\ \Pi_{y_i = 0}[P2 + (1 - P1 - P2)(1/(1 + e^{\beta' X_i})]$$

From this likelihood function we can derive $(\partial \log L/\partial \beta)$ and $(\partial^2 \log L/\partial \beta \partial \beta')$, using which we can get the maximum-likelihood estimates of β and an estimate of the asymptotic covariance matrix of estimates. Because P1 and P2 are predetermined parameters, the expected value of β doesn't change. Yet the ratio of randomized versus truthful responses affects the variance of the estimates. If the randomized responses are 30 percent of the total sample, for example, the variance of the estimator doubles.

Given the confidentially agreement between Banque de France and the surveyed firms, we were able to obtain SESAME data with SIREN numbers (i.e., state-assigned nine-digit unique firm identifiers) only after a random response transformation. This transformation ensured confidentiality, as it was impossible for us to know if a given answer was the real answer from the surveyed firm or not. In our sample, observations were substituted with random values by Banque de France using the following procedure. First, 10 percent of the firms were selected randomly to be recoded. Then, all firm-year observations pertaining to these firms were substituted by random values using uniform distribution. For example, a survey item that was originally coded on a 4-point scale was recoded for these firms, randomly taking one of the four values (with

equal 25 percent probability) each time. Finally, the resulting recoded data were given to us. As we were not informed which observations were substituted with random values, we cannot identify true versus randomized responses, ensuring confidentiality of the data. As we mentioned above, although this process introduced further noise into the original data (increasing the variance and reducing the significance), randomization kept the mean (i.e., the expected value of the coefficients) unchanged. Simply put, although the variance in our estimates would be inflated (reducing the significance of the estimates) as a result of the transformation, the estimates themselves would be unbiased.

APPENDIX B: Calculation of Multimarket Contact: A Simplified Example

Let's assume that a total of seven firms (A–G) operating in the six markets (M1–M6) constitute the economy.

Firm	M1	M2	M3	M4	M5	M6	Number of markets	Total sales
A	100	20	–	75	55	–	4	250
B	90	–	–	10	–	–	2	100
C	80	50	30	–	40	–	4	200
D	40	–	–	–	–	400	2	440
E	20	10	20	160	–	–	4	210
F	10	–	300	–	10	–	3	320
G	–	100	20	–	100	80	4	300
Number of multi-industry firms	5	4	4	3	4	2		

Accordingly, multimarket contact measures in market M1 for firms operating there are calculated as follows:

Firm	$MMC_{imt} = \Sigma_{n \neq m}[C_{imnt}/(N_{nt} - 1)] \times r_{int}$
A	$.50 = \{[2/(4-1)] \times (20/250)\} + \{[2/(3-1)] \times (75/250)\} + \{[2/(4-1)] \times (55/250)\}$
B	$.10 = \{[2/(3-1)] \times (10/100)\}$
C	$.40 = \{[2/(4-1)] \times (50/200)\} + \{[2/(4-1)] \times (30/200)\} + \{[2/(4-1)] \times (40/200)\}$
D	.00
E	$.68 = \{[2/(4-1)] \times (10/210)\} + \{[2/(4-1)] \times (20/210)\} + \{[2/(3-1)] \times (160/210)\}$
F	$.65 = \{[2/(4-1)] \times (300/320)\} + \{[2/(4-1)] \times (10/320)\}$
G	–

r_{int} is the ratio of firm *i*'s sales in market *n* ($Sales_{int}$) to its total sales ($\Sigma_n Sales_{int}$).
C_{imnt} is the number of rivals that operate in both markets *m* and *n*.
N_{nt} is the total number of multi-industry firms operating in market *n*.

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