

**OPERATING UNDER THE RADAR IN SPHERES OF INFLUENCE. TAKING
ADVANTAGE OF INDUSTRY LEADERS' MARKET DOMAINS**

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Abstract

Industry leaders enact mutual forbearance by establishing spheres of influence where the dominant industry leader is bestowed market dominance in exchange for similar treatment in the spheres of the other industry leaders. Because of this, spheres of influence are markets with lower rivalry levels. Accordingly, non-dominant firms operating within them benefit from their favorable competitive conditions. The extent to which a nondominant firm benefits from its location in spheres of influence varies according to the competitive tension perceived by the industry leader that dominates the sphere. Large and fast-growing non-dominant firms will generate competition tension. Consequently, the industry leader of the sphere could direct its hostility toward them, reducing the potential returns that they may obtain from operating in spheres of influence. Our analyses in the Spanish retail banking sector show that non-dominant firms operating under the radar of industry leaders benefit more from their presence within spheres of influence.

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1. INTRODUCTION

In most industries the size distribution of firms is highly skewed, with a few large organizations coexisting alongside a majority of smaller firms (Cabral and Mata, 2003; Gibrat, 1931). Large firms, which we will refer to as *industry leaders*, stand out for the competitive capabilities granted by their size and scope of operations and for the significant survival advantages they enjoy (Barnett, 1997). Smaller firms, which we will refer to as *non-dominant firms*, are a more heterogeneous group of organizations that share a competitive position that is significantly weaker than that of industry leaders (Carroll, 1985; Carroll and Hannan, 1995; Chen and Hambrick, 1995). The coexistence of these two types of firms has important implications for competitive dynamics within an industry. Particularly, industry leaders operate in two different “competitive regimes”. They compete both against other industry leaders, which hold comparable competitive resources and with which they experience significant strategic interdependences (Bernheim and Whinston, 1990; Edwards, 1955; Karnani and Wernerfelt, 1985), and against non-dominant firms, which hold lower competitive resources and generate less relevant strategic interdependences (Chen and Hambrick, 1995; Chen 1996; Gelman and Salop, 1983). Accordingly, competitive dynamics in each of these regimes are different. In this article we explore how these differentiated competitive dynamics generate strategic opportunities for non-dominant firms.

Competition among industry leaders is relatively symmetric and can lead to collusive practices. When large and powerful firms recognize their mutual interdependences they tend to tacitly coordinate their actions to limit rivalry (Scherer and Ross, 1990). This process is facilitated by multimarket contact (Edwards, 1955; Bernheim and Whinston, 1990; Spagnolo, 1999). Industry leaders commonly face other industry leaders in several markets. This makes

it easier for them to recognize their divergent territorial interests and establish implicit mutual forbearance agreements. These agreements lead firms to refrain from competitive escalation in the main markets of their multimarket rivals in exchange for the same treatment in their own main markets (Edwards, 1955; Bernheim and Whinston, 1990; Gimeno, 1999). These markets in which mutual forbearance is enacted have been referred to as spheres of influence (e.g. Edwards, 1955; Bernheim and Whinston, 1990; Baum and Korn, 1996). As a result of these dynamics, rivalry levels in spheres of influence are lower than rivalry levels in other markets (Bernheim and Whinston, 1990; Gimeno, 1999; Baum, Bowers, and Mohanram, 2015). Consequently, the competitive interdependences among industry leaders generate “oases” of softer competitive conditions across the industry.

Competition between industry leaders and non-dominant firms is asymmetric. From the perspective of industry leaders, non-dominant firms have significantly lower competitive capabilities and their presence across markets is not high enough to generate relevant strategic interdependences (Chen, 1996). Non-dominant firms differ in the amount of attention they attract from industry leaders, the extent to which industry leaders have incentives to behave aggressively against them and the ease with which industry leaders can act against them (Chen and Miller, 1994; 2012; Chen, 1996; Chen, Su, and Tai, 2007). However, non-dominant firms still lack the competitive strength and strategic leverage necessary to establish mutual forbearance agreements with industry leaders. Consequently, competition in this second regime will be quite different from the competitive dynamics among industry leaders. Industry leaders are more likely to behave aggressively against non-dominant firms that imply a potential threat, while they will also tend to tolerate non-dominant firms that are not perceived as relevant competitive threats.

In this article we explore the strategic opportunities available for non-dominant firms as a result of the existence of these two competitive regimes for industry leaders. The two

competitive regimes are interdependent from the perspective of industry leaders because isolating competition with other industry leaders from competition with non-dominant firms is complex. For instance, an aggressive action by an industry leader against a non-dominant firm may be interpreted as a challenge by any of the other industry leaders and, as a consequence, may disrupt mutual forbearance. We argue that the dual competitive environment of industry leaders opens several strategic possibilities for non-dominant firms. In particular, we focus on their location strategy. We propose that a non-dominant firm may benefit from mutual forbearance among industry leaders by locating its branches in their spheres of influence. We contend that the lower rivalry levels in spheres of influence may benefit every firm that operates in them. Accordingly, non-dominant firms may obtain greater returns by locating their branches in the spheres of influence of industry leaders.

However, not every non-dominant firm obtains the same benefit from operating in the spheres of influence of industry leaders. Locating branches in spheres of influence increases market overlap with industry leaders and, as a result, may increase the competitive tension that they perceive (Baum and Korn, 1996; Chen et al., 2007). This higher competitive tension may increase the incentives of industry leaders to discipline non-dominant firms that threaten their domains, counterbalancing the potential gains of a location strategy focused on spheres of influence. We explore two firm-level specific characteristics that influence the competitive tension perceived by industry leaders: firm size and firm growth. Our premise is that industry leaders are less tolerant to market overlap from large and fast-growing non-dominant firms because they perceive greater competitive tension with them (Chen et al, 2007). Therefore, small and slow-growing non-dominant firms benefit more from a location strategy focused on spheres of influence.

We test our theoretical model in the Spanish retail-banking sector between 2000 and 2007. We explore how the location of branches in spheres of influence affects the

performance of non-dominant firms by considering differences in their size and growth. This means that we analyze the consequences of inter-firm rivalry by focusing on its effect on firm performance, rather than identifying specific competitive actions and responses. Our findings show that non-dominant banks benefit from competitive interdependences among industry leaders by distributing their branches within their spheres of influence. Non-dominant banks that locate their branches in spheres of influence perform better than non-dominant banks that avoid them. We also find that these benefits depend on the characteristics of non-dominant banks. Our results show that firm size and growth influence the performance premium obtained by operating in spheres of influence. According to our empirical analysis, small non-dominant banks and non-dominant banks following low-growth strategies realize a higher benefit from operating in spheres of influence.

Our article offers three main contributions. First, we study competitive dynamics in greater depth by exploring competitive spillovers that result from strategic interdependences among industry leaders (Ketchen, Snow, and Hoover, 2004). We show that non-dominant firms may benefit as passive actors from competitive dynamics among industry leaders. Second, our research contributes to multimarket contact theory. It shows how firms that cannot build a strong multimarket position by themselves may still benefit from multimarket competition dynamics. These firms can devise a strategy aimed at benefiting from rivalry restraint within the spheres of influence of industry leaders. As we show, this implies decisions about the scope of operations (i.e. locating activities within spheres of influence) as well as strategic positioning (i.e. making the right choices along relevant strategic dimensions such as size and growth). Third, our research provides a deeper understanding of the strategic implications of spheres of influence. Previous literature has focused on the role of these markets in the enactment of mutual forbearance between large multimarket rivals (Baum and

Korn, 1996; Gimeno, 1999; Haveman and Nonnemaker, 2000; Baum et al, 2015). In this paper we show the strategic relevance of spheres of influence for any firm in the industry.

2. THEORETICAL BACKGROUND

2.1. Competition among industry leaders

Industry leaders tend to operate in many of the markets of the industry. As a result, they usually face the other industry leaders in several markets. Intuitively, the coincidence in multiple markets may lead them to accumulate competitive tension and compete fiercely one against the other (e.g. Baum and Korn, 1996). However, research on multimarket competition has concluded the opposite. Although a firm facing a rival in several markets has many opportunities to attack this rival, it is also exposed to multimarket retaliation. As a result of this threat of multimarket retaliation, industry leaders become aware of their interdependences and the harm that full-scale war in their common markets may cause. Once industry leaders recognize their competitive interdependences, they tacitly establish mutual forbearance agreements (Edwards, 1955; Karnani and Wernerfelt, 1985). As a consequence, they refrain from aggressive behaviors in those markets that are important to the other industry leaders, in exchange for a similar treatment in their own important markets. These markets have been referred to as spheres of influence (Edwards, 1955; Bernheim and Whinston, 1990; Baum and Korn, 1996; Gimeno, 1999; Haveman and Nonnemaker, 2000; Baum et al., 2015).

Previous research has confirmed that multimarket rivals (as in the case of industry leaders) respect each other's dominant position in their respective spheres of influence. For instance, these firms are less likely to enter into spheres of influence of their multimarket rivals (Baum and Korn, 1996; Haveman and Nonnemaker, 2000) or to grow within them, if they are already operating there (Haveman and Nonnemaker, 2000). Multimarket firms experience higher market share stability and can charge higher prices in their spheres of influence, which are evidences of lower competition levels (Gimeno, 1999). These firms also

enjoy strategic leadership in their spheres of influence, which is a signal of subordination by their multimarket rivals (Baum et al., 2015).

Competitive dynamics within spheres of influence are greatly influenced by the dominant position of an industry leader. This firm has a central role within the sphere of influence for three reasons. First, a significant share of its revenues comes from this market. Therefore, it is highly motivated to discipline any firm that threatens to disrupt the otherwise low-competition market. Second, spheres of influence are markets of great strategic value for an industry leader because of its role in enacting mutual forbearance with the other industry leaders. As a consequence, its motivation to preserve its dominance in these markets is very high. Third, the industry leader is capable of swiftly and effectively disciplining any firm that challenges its position by redirecting resources from markets of lower strategic relevance to the sphere of influence under attack or to any other market in which the challenger may be effectively harmed. These three factors make spheres of influence different from markets which no industry leader claims as a sphere of influence and in which, consequently, there is no firm with such a high motivation and capability to retaliate. The industry leader acts as a catalyst for competitive dynamics that, otherwise, would take place at a slower pace and with less intensity. This will be especially important for firms that the industry leader may perceive as a threat.

2.2. Competition between industry leaders and non-dominant firms

The defining characteristic of non-dominant firms is that they are significantly smaller than industry leaders. Their lower size places non-dominant firms in an asymmetric position when compared to industry leaders. Non-dominant firms have lower competitive resources and capabilities and irrelevant multimarket interdependences with them (Carroll, 1985; Carroll and Hanan, 1995; Chen and Hambrick, 1995; Chen, 1996). As a consequence, they cannot establish mutual forbearance agreements with industry leaders. Mutual forbearance is

triggered by a threat of multimarket retaliation (Edwards, 1955; Bernheim and Whinston, 1990; Karnani and Wernerfelt, 1985). For a firm to be a credible threat of multimarket retaliation it has to fulfill two conditions. First, it needs to be endowed with enough competitive capabilities to be able to harm a multimarket rival (i.e., a credible threat). Second, it has to be a relevant actor in a significant number of markets of this rival (i.e., a multimarket threat). As these two conditions are not fulfilled by non-dominant firms, they cannot directly participate in mutual forbearance agreements with industry leaders.

In this research we explore the competitive tension that industry leaders perceive against non-dominant firms with the Awareness-Motivation-Capability (AMC) framework. This framework identifies three behavioral drivers of competition: *awareness*, *motivation* and *capability* (Chen, et al, 2007; Chen and Miller, 2012). *Awareness* reflects the extent to which a firm perceives and interprets its rivals and their competitive moves (Chen, 1996; Chen, et al, 2007). The greater the visibility of a rival or a given competitive action, the greater the awareness of the focal firm. *Motivation* refers to the perceived gains (or losses) generated by a competitive action (Smith, Ferrier, and Ndofor, 2001). Motivation to take an action is greater when firms feel that something important is at stake, or when the potential reward is large. *Capability* refers to the perceived probability of success of a competitive action. It is related to the resources and capabilities that are required for developing and sustaining competitive moves (Barney, 1991; Teece, Pisano, and Shuen, 1997). A firm will initiate competitive actions only if it perceives that its capabilities are high enough to sustain the planned course of action. Also, the greater the capability of a rival (e.g. the more salient its resource endowment), the greater the perceived competitive tension against that rival (Chen, et al, 2007).

These three factors build competitive tension, which is defined as the latent strain that is likely to precipitate the firm taking actions against a certain rival (Chen, et al, 2007).

Awareness, motivation and capability, by determining competitive tension, are the underlying drivers of inter-firm rivalry (Chen and Miller, 1994; Smith, Ferrier, and Ndofor, 2001; Chen, et al, 2007). In this regard, although the AMC framework was initially designed to explain observable competitive actions, it can also explain inter-firm rivalry by aggregation. In this research, we analyze how certain characteristics of a non-dominant firm determine the extent to which it can attract hostility from industry leaders. In particular, we explore how the size and the growth of a focal non-dominant firm affect the competitive tension perceived by the industry leaders and, consequently, the extent to which this non-dominant firm may be the target of intense hostility.

Note that we focus on size and growth at the firm level, rather than within spheres of influence. The overall size and growth of the firm determine its competitive strength, define its visibility and shape its reputation. As a consequence, these specific features of non-dominant firms may be important determinants of the competitive tension perceived by industry leaders. Moreover, analyzing the impact of size and growth at the firm level, rather than at the sphere level, is especially suitable in our research context because industry leaders not only face non-dominant firms in spheres of influence, but also in other less relevant markets. A firm level approach offers a more global picture of competitive dynamics between industry leaders and non-dominant firms.

3. THEORY AND HYPOTHESES

Our model focuses on competitive conditions within spheres of influence and how non-dominant firms can maximize the potential benefits of operating in them. First, we discuss how operating in spheres of influence allows non-dominant firms to benefit from the favorable competitive conditions in these markets and improve their performance. Then, we theorize how several firm-specific characteristics influence the likelihood of the industry

leader that controls the sphere of influence behaving aggressively against a non-dominant firm that is operating in the sphere of influence.

3.1. Location in spheres of influence and non-dominant firm performance

Inter-firm rivalry may result in different types of competitive actions, such as price reductions, marketing and promotional campaigns, product introductions, market entries, capacity expansions or signalling actions (Baum and Korn, 1996; Young, Smith, and Grimm, 1996; Ferrier, Smith, and Grimm, 1999). Although firms can design their competitive actions to be especially harmful to a targeted rival, most of these actions have an effect on all the firms that operate in the market (Gimeno and Jeong, 2001). For instance, a price reduction forces any other firm in the market to respond or to lose customers, and the introduction of a new product may attract customers from any other firm in the market. Firms targeted by these competitive moves will be especially affected. However, the other firms in the sector will also feel the consequences of these actions. Accordingly, factors that alter rivalry levels between some firms have an indirect effect on the performance of the other firms that operate in the same markets. In the case of industry leaders, a critical factor affecting their level of rivalry is multimarket contact. Multimarket contact dynamics lead to mutual forbearance (Edwards, 1955; Bernheim and Whinston, 1990; Gimeno, 1999). Mutual forbearance reduces the level of rivalry among them and, as an indirect consequence, it benefits the other firms that operate in their markets (Gómez, Orcos, and Palomas, 2017).

One way in which industry leaders enact mutual forbearance is by refraining from aggressive behavior in the spheres of influence of other industry leaders in exchange for the same treatment in their own spheres of influence (Edwards, 1955; Bernheim and Whinston, 1990; Gimeno, 1999). Mutual forbearance among industry leaders in their respective spheres of influence generates advantageous structural conditions in these markets. For instance, these dynamics usually result in low advertising expenditures, soft price competition and low R&D

expenditures within spheres of influence (Gimeno, 1999). As a result of lower competition, any firm operating in spheres of influence (not only industry leaders) will also benefit. Consequently, a location strategy that places the emphasis on operating in these spheres of influence will result in higher performance for non-dominant firms.

Hypothesis 1: Operating in spheres of influence has a positive effect on the performance of non-dominant firms.

3.2. Non-dominant firms' characteristics and location in spheres of influence

In our first hypothesis we argue that non-dominant firms that operate in spheres of influence benefit from the lower level of competition that characterizes these markets. Accordingly, it may be concluded that non-dominant firms should locate all their branches in spheres of influence to maximize this benefit. However, this is not necessarily true. As we shall discuss, not every non-dominant firm obtains the same benefits from operating in spheres of influence. To obtain the benefits of operating in spheres of influence, non-dominant firms have to commit to specific courses of action that may not be in their interest in the long term. In our next two hypotheses we explore this issue. We argue that for a non-dominant firm to maximize the gains of operating in spheres of influence it has to “operate under the radar”, that is, to remain small and to grow slowly – if at all.

Operating in the spheres of influence of an industry leader implies a certain degree of market overlap with it. This market overlap may increase the competitive tension perceived by the industry leader that controls the sphere and, in turn, attract its hostility (Baum and Korn, 1996; Chen, et al, 2007). The industry leader can direct its hostility towards non-dominant firms that it perceives as relevant threats by designing competitive actions that are harmful to them. For instance, competitive actions may be designed to be especially harmful to the strategic configuration of a given non-dominant firm, attack the specific segments in which it operates, or be launched in other markets from which the targeted non-dominant firm

obtains critical resources. Accordingly, a non-dominant firm perceived as a threat by an industry leader may be unable to benefit from operating in its spheres of influence if the industry leader defends these spheres of influence or if it disciplines the non-dominant firm in other markets in which they coincide. Conversely, a non-dominant firm that does not pose a threat to industry leaders will remain under their radar and not be the target of hostility.

Before moving on to the two hypotheses that explore this issue, it is important to emphasize why we focus on the role of industry leaders. On the one hand, operating in a sphere of influence increases market overlap not only with the industry leader that controls the sphere, but also with every other firm operating in this market. Accordingly, every firm in the sphere may feel increased competitive tension. However, market overlap and competitive tension with the industry leader that controls the sphere of influence is especially important in this context. A sphere of influence is a central market for the industry leader that holds it. Also, because of mutual forbearance with other industry leaders, its profitability within its sphere of influence will be higher than in other markets. As a result, market overlap in spheres of influence threatens important sources of income for the industry leaders that control them. Therefore, the industry leader of a sphere of influence will be especially motivated to act against a non-dominant firm if it is perceived as a competitive threat. This will not be the case of the other non-dominant firms that operate in the sphere and whose strategic commitment and dependence in the market are of a lesser magnitude.

On the other hand, it may also be argued that the competitive tension perceived by industry leaders depends not only on market overlap in their spheres of influence, but also in any other market in which the industry leader of the sphere operates. However, within spheres of influence, there are unique conditions that are not found in other markets. The sphere of influence is a central source of income and a core component of its future strategy (Gimeno, 1999; D'Aveni, 2004). Therefore, the industry leader will be especially aware of threats

within its sphere of influence and it will be highly motivated to react to them to preserve its source of benefits. This will not be the case of other peripheral or non-strategic markets in which the industry leader has a lower strategic interest.

It is also important to consider the competitive stance of the non-dominant firms that operate in the sphere of influence. The incentive of non-dominant firms to behave aggressively against each other within spheres of influence is low. Competitive escalation among them in spheres of influence would disrupt the favorable structural conditions in these markets, eroding the profits that all the firms operating in them obtain. Moreover, the industry leader that controls the sphere may discipline aggressive firms. Consequently, the expected gains of competitive actions within spheres of influence against other non-dominant firms are low. Non-dominant firms also have low incentives to challenge industry leaders in their spheres of influence. First, industry leaders have superior competitive capabilities, especially in their spheres of influence, where they hold a dominant position. Second, the favorable competitive conditions within spheres of influence result from mutual forbearance among industry leaders. Therefore, the eventual dethronement of the local industry leader would result in a less attractive market. As a result, it is in the interest of non-dominant firms to implicitly collude and moderate their aggressive actions in spheres of influence.

To sum up, in our theoretical framework, the industry leaders are the main facilitators of the existence of friendlier structural conditions in spheres of influence and, at the same time, the catalysts for the competitive dynamics that punish non-dominant firms perceived as a threat to their dominance in the sphere of influence. In this research we explore how the size and growth of a non-dominant firm affects the extent to which it benefits from operating in spheres of influence through the expected effects on the level of hostility manifested by the industry leaders that control these spheres of influence¹.

Size and location in spheres of influence. Firm size is a determinant of the competitive strength of firms. Large firms have superior resources to launch effective attacks and sustain attrition strategies (Haveman, 1993; Barnett, 1997), attain scale and/or scope economies (Chandler, 1990) and enjoy greater reputation and market power (Edwards, 1955; Hambrick, MacMillan, and Day, 1982). As a result, larger non-dominant firms will be perceived as more capable rivals and, therefore, as greater competitive threats (Chen, et al, 2007). In addition, the larger the size of a non-dominant firm is the greater its visibility (Smith et al., 1991; Chen, et al, 2007). Consequently, large non-dominant firms will generate greater awareness than small ones.

In our framework this means that industry leaders will perceive a greater competitive threat from large non-dominant firms and, therefore, they will take a more aggressive stance against them. In addition, industry leaders are more likely to initiate competitive actions against these large non-dominant firms in order to signal their intention to behave aggressively against any challenger in their spheres of influence (Chen and Hambrick, 1995). Because of their salient capabilities and their high visibility, large non-dominant firms that operate in spheres of influence will experience a greater level of hostility from industry leaders. This implies that the increased performance of operating in spheres of influence may be offset by the higher hostility to which large non-dominant firms are subject. Following this reasoning, we propose our second hypothesis.

Hypothesis 2: The larger a non-dominant firm is, the lower the positive performance effect of operating in spheres of influence.

It is important to stress that the hostility of industry leaders is not necessarily restricted to the spheres of influence in which a non-dominant firm that is perceived as a threat operates. Industry leaders can behave aggressively in any of the markets in which they coincide with non-dominant firms. Indeed, it may make more sense for an industry leader to discipline non-

dominant firms in markets outside its own spheres of influence, because spheres are especially valuable for the industry leader and, consequently, the costs of competitive escalation in these markets are greater (for instance, in the form of foregone profits or tougher competitive conditions).

Growth and location in spheres of influence. Firm growth determines the extent to which industry leaders perceive a non-dominant firm as a threat. First, growth can be seen as an aggressive behavior (Haveman and Nonnemaker, 2000; Greve, 2008). Growth implies that the non-dominant firm is increasing the competitive capabilities associated to size (Barnett, 1997; Baum and Korn, 1999) and, therefore, it involves a commitment to future competitive capabilities. Second, growth can also be seen as an outcome (e.g. Boone, Carroll, and van Witteloostuijn, 2004). Non-dominant firms with greater growth rates can be considered as being endowed with greater capabilities, implying a threat. Finally, external audiences may focus their attention on these non-dominant firms, because of their apparent success. Therefore, fast-growing non-dominant firms attract greater attention and awareness of their actions.

Industry leaders perceive a greater competitive threat from fast-growing, non-dominant firms. These firms can be considered as challengers because their increasing capabilities make them potentially more threatening rivals (Chen, et al, 2007). In addition, the apparent success of fast-growing, non-dominant firms leads to a greater awareness from both other potential competitors and external audiences. This greater awareness will make industry leaders more sensitive to their behavior and will increase the need to signal their intention to discipline the challenger (Chen, 1996; Chen, et al, 2007). Because of their visibility and increasing capabilities, fast-growing non-dominant firms are more likely to be considered as important threats by industry leaders, resulting in greater hostility, especially when this firm operates in their spheres of influence. This enhanced hostility (in the sphere of influence or in

any other market in which they coincide), may offset the positive effect stemming from operating in spheres of influence. Accordingly, we propose our third hypothesis:

Hypothesis 3: The higher the growth rate of a non-dominant firm, the lower the positive performance effect of operating in spheres of influence.

4. METHOD

4.1. Research Setting

We test our hypotheses in the Spanish retail banking sector from 2000 to 2007. This context is appropriate for our research for several reasons. First, in the retail banking sector the identification of independent markets is feasible. Retail banking customers usually hire their banking services from branches close to their home or their job (Radecki, 1998; Simons and Stavins, 1998). As a result, different geographical locations are independent submarkets with little or no cross-elasticity of demand with other locations (de Juan, 2002; 2003). Second, the vast majority of Spanish banks develop their activities through networks of branches that are located across many geographical locations. Therefore, the potential for multimarket contact is high. Finally, previous research has shown that multimarket competition dynamics are relevant to understanding competition in this setting (Fuentelsaz and Gómez, 2006; Gómez, et al, 2017). This means that multimarket contact among industry leaders is likely to lead to mutual forbearance and to the establishment of spheres of influence.

Our analyses focus on retail banking. Some banks cannot be properly included in the retail banking sector. First, investment banks offer specialized services to a narrow segment. Although these banks manage a large amount of assets, they do not offer banking services to the mass market, and they only operate in a few (two or three) large cities. Second, some banks offer their services only to specific collectives, such as farmers or other professional groups, and only in small areas, such as a town or a group of villages. These types of bank have a very specialized profile and do not aim at working in the conventional retail banking

market. We exclude these two cases from the analysis by dropping any bank whose network does not have at least five offices in any of the years of the observation window. After these exclusions, our sample is still highly representative of the sector. In 2007, the last year in our analysis, the sample represents 95% of total assets in the sector. The number of banks included in the sample ranges between 130 and 144, depending on the year. This variation results from mergers and acquisitions that took place in the period.

We gather our data from three sources. First, we collect financial statements of each bank in the country from annual reports published by the three professional associations that exist in the sector, each of them grouping the three types of banks that operate in Spain (i.e. AEB, for commercial banks, CECA, for savings banks and UNACC, for credit unions). Second, we gather detailed information on the location of every bank branch from the *Guía de la Banca, Cooperativas de Crédito y Cajas de Ahorros*, edited by Maestre-Ediban. Third, we obtain information on environmental factors affecting banking activities from the Central Bank (Banco de España) and the National Statistics Institute (INE).

4.2. Identification of Spheres of Influence

Previous research has taken different approaches for the definition and identification of spheres of influence. In his seminal work, Edwards (1955) referred to them as markets in which a multimarket firm has a primacy of interest. This definition stresses the divergence in territorial interests among multimarket rivals, which is the conceptual core of mutual forbearance articulated through the establishment of spheres of influence. However, *primacy of interest* is a rather ambiguous concept, and as such does not provide sufficient orientation for systematic and replicable empirical identification of spheres of influence. Bernheim and Whinston (1990) defined spheres of influence as markets in which a multimarket firm has a cost advantage over its multimarket rivals. In their model, multimarket rivals give up market share to the firm with the cost advantage in exchange for the same treatment in the markets in

which they have a cost advantage. This approach, therefore, identifies the sphere of influence of a multimarket firm as those markets in which it holds a competitive advantage and in which it enjoys market share dominance. Subsequent empirical research has proposed several approaches consistent with these definitions of sphere of influence.

Baum and Korn (1996) analyzed the airline industry of California. They identified the sphere of influence of a multimarket firm as those markets (routes between two cities) in which it holds the largest market share. Market share was proxied by the proportion of routes connecting to the origin and destination of a given route flown by an airline. Gimeno (1999) analyzed the United States airline industry. He identified spheres of influence according to three different approaches: market share dominance, market dependence and resource centrality. The first of these criteria identified the sphere of influence of an airline as those markets (routes) in which it holds the largest market share among all the participants in terms of passengers transported. Market dependence identified the sphere of influence as those markets in which it holds the highest percentage of its overall firm revenues among all the participants. Resource centrality identified sphere of influence as the markets in which an airline has the largest resource centrality, which is associated to competitive advantage. Resource centrality was measured through the proportion of flights that depart or arrive at either of the two cities connected by a flight operated by the focal airline.

Haveman and Nonnemaker (2000) analyzed savings and loan associations in California. In their article, markets belong to a sphere of influence when they are dominated by multimarket firms. They created a continuous measure that aggregates the market share accumulated by the largest multimarket firms operating in each market, proxied by the proportion of branches owned by these multimarket firms. Baum et al., (2015) analyzed security analysts in the United States. They acknowledge the difficulties in identifying the markets that belong to the sphere of influence of a firm (in the context, an individual analyst).

Instead of identifying, market by market, which ones belong to the sphere of influence of each analyst, they assume that the greater the stock-specific experience of an analyst, or the larger its portfolio size, the more likely it will be for a given stock to belong to its sphere of influence. Therefore, their approach is consistent with the idea of market share dominance (i.e. largest portfolio size), and local competitive advantages (i.e. stock-specific experience).

According to this brief review, the criteria that have been most frequently used to identify spheres of influence are market share dominance and local competitive advantage. In this research we will identify the sphere of influence of an industry leader as those markets in which it holds the largest proportion of branches among the banks that operate in the same market. This choice is consistent with both market share dominance and local competitive advantage. First, in the banking sector, market share has frequently been proxied by the proportion of branches that each bank operates in the market (e.g. Haveman and Nonnemaker, 2000; Fuentelsaz and Gomez, 2006). Therefore, bank branches' dominance proxies for market share dominance. Second, in retail banking *soft information* and proximity may provide competitive advantage. Information on small and medium-sized enterprises is difficult and costly to collect. Similarly, to obtain the trust of individuals, and to analyze their specific characteristics in order to fine-tune financial products, soft information is critical. This form of information is more effectively collected from local branches. Also, bank customers prefer branches that are close to their homes or their jobs (Radecki, 1998; Simons and Stavins, 1998). This implies that banks with a denser network of branches enjoy an informational advantage in retail banking activities. Consequently, it could be argued that bank branches' dominance proxies for local competitive advantage.

Before empirically identifying spheres of influence, we have to identify independent markets. As discussed above, in the banking sector, markets are geographically bound (Radecki, 1998; Simons and Stavins, 1998). Branches are in direct competition only with the

other branches that are in their proximity. Accordingly, we identify geographical markets at the ZIP code level. The ZIP code is the smallest geographical unit that can be consistently identified in Spain. The ZIP code was established to divide the national territory into close areas in order to arrange postal services. Therefore, they allow the identification of geographic areas that are functionally proximate. Large towns have many ZIP codes, while in rural areas a single ZIP code can include a few proximate villages. Branches within a ZIP code present high cross-elasticity of demand and much lower (or null) cross-elasticity against branches in different ZIP codes. As an illustration, in the last year of our observation window there were bank branches in 5,920 different ZIP codes. On average, there were eight branches in a ZIP code and an average bank operated across 242 ZIP codes.

Finally, to identify spheres of influence it is important to note that not every firm in an industry is able to trigger mutual forbearance with its multimarket rivals. First, mutual forbearance is based on the threat of multimarket retaliation. Sustaining and coordinating strategically relevant competitive actions in many markets requires a large amount of resources and strong competitive capabilities across several markets. Second, previous research has shown that there is a market overlap threshold above which firms realize their interdependences. Only once multimarket firms become aware of the negative consequences of a competitive war in multiple markets, they may establish mutual forbearance agreements (Baum and Korn, 1999; Haveman and Nonnemaker, 2000; Fuentelsaz and Gómez, 2006). Both conditions are fulfilled by industry leaders. Industry leaders control a large pool of competitive resources, which allows them to retaliate simultaneously in several markets, and are active in a high number of markets, which allows for high degrees of market overlap among them. This means that the competitive relationship among industry leaders is likely to be influenced by multimarket contact dynamics. Industry leaders, therefore, are likely to mutually forbear in their respective spheres of influence².

To identify the industry leaders we rank all the banks in the sample according to their total assets for each year of the observation window. We consider a bank as one of the industry leaders only if it ranks among the top 10 according to their total assets every single year. This criterion results in the identification of eight industry leaders³. These banks are clearly the largest firms in the industry. In 2007, each of them controlled, on average, 7 per cent of the total assets in the sector and 2,443 branches. The rest of the banks (i.e. non-dominant firms) had, on average, 0.34 per cent of the total assets in the sector and 217 branches. In addition, industry leaders stand out in multimarket contact levels and scope of operations. In 2007, each of the industry leaders faced their rivals in an average of 44 geographical markets, while non-dominant firms faced their rivals in an average of 8 geographical markets. In the same year, whereas industry leaders distributed their branches, on average, across 1,417 geographical markets, non-dominant firms operated, on average, in 166 geographical markets.

According to the discussion above, we identify as spheres of influence those ZIP codes in which one of the eight industry leaders holds the largest proportion of branches (and, of course, every other bank in the ZIP code operates a lower number of branches). In 2007, 10 per cent of ZIP codes are considered spheres of influence. In that year, industry leaders control, on average, 47 per cent of active branches in their spheres of influence. Taking into account that, on average, 11 different banks and 22 branches operate in each ZIP code identified as belonging to spheres of influence, this proportion of branches signals a strong market share dominance of industry leaders, and is expected to lead to local competitive advantages.

4.3. Specification of the Model

Dependent variable. We measure how operating in spheres of influence affects the financial performance of banks. The dependent variable in our estimations is return on assets (ROA)⁴. This is calculated as the ratio of returns before taxes over total assets (in percentage

points). This variable is expected to change in the opposite direction to rivalry levels. For high levels of rivalry, lower prices and/or higher production costs reduce profitability levels, while the opposite is true for low rivalry levels (Scherer and Ross, 1990).

The variable is calculated at the firm level, rather than at the branch level. The positive effects of lower competition among industry leaders (hypothesis 1) are restricted to their spheres of influence. For instance, lower competition in spheres of influence results in higher interests charged for loans, lower interests paid for deposits, higher service fees and lower discretionary costs such as marketing efforts strictly in the spheres of influence. These benefits lead to higher returns to any branch operating in the sphere and can be detected at the disaggregated branch level, as well as at the aggregated firm level. The negative effects of greater competitive tension (hypotheses 2 and 3), however, take the form of aggressive behavior directed toward the challenging non-dominant firm in any market in which the industry leader and this firm coincide. Therefore, this negative effect is not specific to the branches in the sphere and is better understood as a firm-level effect. Consequently, a firm-level design is necessary to test our full set of hypotheses.

Independent variables. Our first hypothesis explores the effect that operating in spheres of influence has on the performance of non-dominant firms. Spanish banks operate through a network of branches distributed across many geographical markets. The vast majority of banks have some of their branches, but not all of them, in a sphere of influence. Consequently, we cannot identify enough cases of a pure location in spheres of influence strategy. Also note that our measure of performance is only available at the firm level, while the concept of spheres of influence is defined at the market level. Therefore, the measurement of operation in spheres of influence aggregates the structural conditions in the markets in which a firm is located. Although this approach loses some information (Gimeno and Woo,

1996), the aggregation of market situations at the firm level has been used before (Cool and Dierickx, 1993).

Accordingly, we create the continuous variable *Percentage of Branches in Spheres* to measure the extent to which each non-dominant firm operates in spheres of influence. This variable is calculated as the proportion of branches that each non-dominant firm controls in spheres of influence over its total number of branches. The variable ranges from 0, for non-dominant firms that do not operate in spheres of influence, to 1, for non-dominant firms with all its branches in spheres of influence. A positive coefficient associated with this variable would mean that performance at the firm level improves as the non-dominant firm operates in more markets that are spheres of influence.

Our second and third hypotheses analyze how the size and the growth rate of the non-dominant firms affect the performance premium obtained by operating in spheres of influence. We measure *Size* as the logarithm of total assets. We interact this variable with the *Percentage of Branches in Spheres* to test the second hypothesis. We measure *Growth* as the difference in total assets between period t and period $t-1$ divided by total assets in period $t-1$. We interact this variable with the *Percentage of Branches in Spheres* to test the third hypothesis.

Control variables. We control for several firm-level characteristics that may influence its performance. First, the size of the firm, as well as its growth rate, may have their own effect on firm profitability. Therefore, we control for the direct effects of *Size* and *Growth*⁵. We also introduce two specific controls for the banking sector: *Risk* and *Inefficiency*. *Risk* is measured as the ratio of total credits to total assets and captures the risk profile of the bank. *Inefficiency* is calculated as the ratio of operating costs to ordinary margin and is inversely related to the efficiency of the bank (Carbó, del Paso, and Fernández, 2003). During the period of the study there were a number of mergers and acquisitions. These operations can

disrupt the activities of the firms involved, influencing their performance. The model, therefore, includes the variable $M\&A$, which takes the value 1 for firm-year observations in which the bank was involved in a merger or acquisition, and 0 otherwise. We also include the lagged value of the variable ($M\&A_{t-1}$) to control for potential delayed effects.

We also consider the competitive intensity to which each non-dominant firm is subject. We introduce two variables that measure the level of competition that non-dominant firms face: *Concentration* and *Multimarket Contact (MMC)*. First, *Concentration* is calculated as the weighted Herfindahl Index in the markets in which the focal non-dominant firm operates, using the proportion of branches as a proxy for market share. This measure reflects the particular degree of concentration that each non-dominant firm faces depending on the distribution of its branches. The higher the level of concentration, the lower the level of competitive intensity to which the non-dominant firm is subject. Second, we also control for multimarket competition dynamics. Previous research in the Spanish retail banking sector has found that multimarket contact influences rivalry levels (Fuentelsaz and Gomez, 2006). We introduce the variable MMC to control for the effect of multimarket contact on competitive dynamics. This variable is measured as the number of geographical markets where the focal non-dominant firm meets each of its rivals. Multimarket contact is calculated as follows:

$$MMC_i = \frac{\sum_j \sum_n (D_{in} * D_{jn})}{\sum_j D_j}$$

where j and n refer to a certain rival and geographical market, respectively, D_{in} is a dummy variable that takes value 1 if firm i operates in market n and 0 otherwise, D_{jn} is a dummy variable that takes value 1 if rival j operates in market n , and 0 otherwise. D_j is a dummy that takes a value of 1 for the rivals of firm i . We consider a firm as a rival if it coincides in at least one ZIP code with the focal firm. According to previous literature, we expect this variable to have a curvilinear effect on rivalry (Haveman and Nonnemaker, 2000;

Fuentelsaz and Gomez, 2006). Therefore, we introduce the direct and the squared value of the variable.

The model also includes two market-level controls. The variable *GDP per capita* is calculated as the ratio of the aggregated Gross Domestic Product (GDP) in the provinces where the non-dominant firms operates and the population of these provinces. The variable *Credits* is measured as the aggregated credits in the provinces where the non-dominant firm is active⁶. *GDP per capita* and *Credits* complement each other to control the attractiveness of the market. While *GDP per capita* proxies the average wealth of each potential customer, *Credits* proxies for the potential size of the market. Non-dominant firms operating in areas with greater *GDP per capita* and *Credits* are expected to have higher profitability. Finally, we include year dummies to control for industry-wide common shocks. All the explanatory variables are lagged one period to avoid reverse causality. Descriptive statistics and correlations between the variables are shown in Table 1.

Table 1 to be inserted about here

4.4. Model estimation.

Our hypotheses refer to the non-dominant firms. Accordingly, in our estimations we drop the industry leaders from the sample. The observed effects therefore refer strictly to the performance of non-dominant firms.

We perform a number of tests to choose the appropriate specification of the model. The Breusch–Pagan Lagrange multiplier test rejects the null hypothesis that the variance of the firm-level component of the error term is zero ($\chi^2=351.29$; $p<0.00$). This is interpreted as evidence of the existence of firm-level unobserved heterogeneity (Wooldridge, 2002). In this scenario, the use of panel data techniques is recommended. Firm-level unobserved heterogeneity can be modelled as a random effect (i.e. uncorrelated with explanatory variables) or as a fixed effect (i.e. correlated with explanatory variables). To choose the

appropriate specification, we use the Hausman test. The test rejects the null hypothesis ($\chi^2=214.90$; $p<0.00$). Accordingly, firm-level unobserved heterogeneity has to be modelled as a fixed effect. Consequently, we estimate a two-way fixed effects model controlling for firm and year effects⁷.

An important concern in our sample is spatial correlation. The sample mainly includes banks whose resources and branching networks are relatively small. As a result, many banks of the sample concentrate their activities in only a few regions of the country. For instance, credit unions tend to locate most of their branches in their home provinces. Banks whose activities are concentrated in the same regions may be subject to spatial correlation, since links with local institutions, differences in regulation or local cultures and demographic characteristics may generate spatial correlation among firms operating in these regions. In the presence of spatial correlation, ordinary least squares (OLS) estimations are still consistent, but the estimated standard errors may be severely biased.

Driscoll and Kraay (1998) proposed a methodology based on the Newey and West (1987) estimator that, in addition to heteroskedasticity and serial correlation, is robust to spatial correlation. Simulations have demonstrated that Driscoll and Kraay's standard errors perform significantly better than other standard error estimators in the presence of even moderate spatial correlation (Driscoll and Kraay, 1998; Hoechle, 2007). The efficiency of Driscoll and Kraay's standard errors increases with the length of the panel, but they are better calibrated than available alternatives even for panels as short as five years (Hoechle, 2007: 298–299). Consequently, in our estimations, we report Driscoll and Kraay's standard errors.

5. RESULTS

Table 2 shows the results of our estimations. The first column shows the baseline model that only includes control variables. The model is jointly significant and most of the control variables are statistically significant. The second column includes the variable *Percentage of*

Branches in Spheres, which tests hypothesis 1. The next three columns (3 to 5) include the interaction term of this variable with *Size* (column 3), the interaction term with *Growth* (column 4) and both interaction terms in the same estimation (column 5). These regressions test hypotheses 2 and 3.

Table 2 to be inserted about here

Hypothesis 1 states that non-dominant firms operating in spheres of influence perform better than non-dominant firms that avoid these markets. The variable *Percentage of Branches in Spheres* (column 2) has a positive and significant parameter ($\beta=0.849$, $p<0.05$). This result confirms that non-dominant firms locating branches in spheres of influence have superior performance. According to our results, a non-dominant firm operating strictly in spheres of influence (*Percentage of Branches in Spheres* = 1) would have a profitability 0.849 per cent points higher than non-dominant banks that avoided spheres of influence (*Percentage of Branches in Spheres* = 0).

Hypothesis 2 and 3 discuss the moderating effect of *Size* and *Growth*. Columns 3 and 4 test each of the moderating effects separately, while column 5 includes both of them jointly. Wald tests confirm that the fully specified model (column 5) is preferable to its nested counterparts (columns 3 and 4). Therefore, we test the moderating effects of *Size* and *Growth* in this last column (5). Hypothesis 2 states that larger non-dominant firms benefit less from operating in spheres of influence. The interaction term between *Percentage of Branches in Spheres* and *Size* is negative and statistically significant ($\beta =-0.228$, $p<0.05$). This result supports our hypothesis 2. Hypothesis 3 states that non-dominant firms with higher growth rates benefit less from operating in spheres of influence. The interaction term between the *Percentage of Branches in Spheres* and *Growth* is negative and statistically significant ($\beta =-0.842$, $p<0.01$). Therefore, hypothesis 3 is also supported. Jointly, hypothesis 2 and 3 suggest

that for a non-dominant firm to maximize the benefits of operating within the spheres of influence, it has to operate under the radar of industry leaders. This implies that it has to show relatively low competitive capabilities (i.e. low size) and commit to maintaining its inferiority (i.e. low growth rates).

To further explore the moderating effects described in hypotheses 2 and 3, we calculate the impact that operating in spheres of influence has on profitability for different levels of *Size* and *Growth*. We take low, mean and high levels of the moderating variables (mean minus a standard deviation, mean, and mean plus a standard deviation, respectively). We calculate the expected parameter associated with the variable *Percentage of Branches in Spheres* according to the estimation in the last column of table 2. The results of this exercise are shown in table 3. The effect shown in each cell can be interpreted as the profitability premium of a non-dominant firm that operates exclusively within spheres of influence (*Percentage of Branches in Spheres* = 1) compared to not operating at all in spheres of influence (*Percentage of Branches in Spheres* = 0). The significance tests show whether these two extremes are statistically different.

Table 3 to be inserted about here

The table shows three relevant patterns in our results. First, differences in size and growth result in large differences in the profitability premium of operating in spheres of influence. While a small non-dominant firm with a low growth rate obtains a profitability premium of 1.095 per cent points ($p < 0.01$) for operating in spheres of influence, large non-dominant firms with a high growth rate would receive no profitability premium at all (estimated effect of 0.145, but statistically not different from not operating at all in spheres of influence). Second, size is a more important determinant of the profitability premium than growth. Moving from small to large size completely cancels the expected profitability

premium, while moving from low to high growth rates has a much lower impact on the expected profitability premium⁸. Third, the effects we identify are economically significant. The average profitability in the sample is 0.86. Therefore, an average small non-dominant firm with a low growth rate would more than double its profitability by operating in spheres of influence (from 0.860 to 1.955), while an average non-dominant firm with mean size and growth would increase its profitability from 0.860 to 1.480.

5.1. Robustness Tests

We perform several additional analyses to check the robustness of our results. These analyses are shown in table 4.

Table 4 to be inserted about here

The first column replicates our estimations using a more conservative approach to the identification of spheres of influence. ZIP codes, although appropriate to identify independent submarkets in the retail banking sector, are relatively small submarkets. It may be argued that, because of their small size, none of them can be individually considered strategically relevant for any of the large multimarket players. This would question the suitability of this unit of geographical aggregation as an appropriate identification criterion for spheres of influence. The first column replicates our main model by including an additional criterion: only ZIP codes with at least 10 branches can be considered as belonging to the sphere of influence of a bank. Imposing a minimum number of branches makes these markets more important for the overall strategy of the bank and, accordingly, susceptible to being regarded as a sphere of influence. Our results remained qualitatively unchanged.

Columns 2 to 4 drop the restriction that only industry leaders can claim their spheres of influence. In Table 2, we assumed that dominance by industry leaders was a necessary condition for a market to earn the status of sphere of influence because these firms have the

competitive resources and multimarket interdependences required to elicit mutual forbearance. However, it may be argued that non-dominant firms, despite lacking the necessary competitive resources and market presence to elicit mutual forbearance agreements with industry leaders, may still establish mutual forbearance agreements with other non-dominant firms and claim their own spheres of influence. For instance, in the Spanish retail banking sector, many medium-sized savings banks have traditionally played a central role in certain regions due to their operation in them in tight collaboration with local social and political institutions (Fuentelsaz, Gómez, and Polo, 2003). We analyze whether the dynamics predicted in our model also take place in the markets in which non-dominant firms hold the highest market share, that is, a "local dominant position".

Column 2 includes the variable *Percentage of Branches in Spheres of any Firm*. This variable measures the proportion of branches that a non-dominant firm operates in markets where any type of firm (i.e., industry leader or non-dominant firm) holds a larger market share than any other participant. We find no significant effect ($\beta = 0.167$, n. s.). In column 3, we distinguish between markets in which an industry leader holds the largest market share (*Percentage of Branches in Spheres of Industry Leaders*), and markets in which a non-dominant firm holds the largest market share (*Percentage of Branches in Spheres of Non-dominant firms*). We find a positive effect in the spheres of influence of industry leaders ($\beta=0.717$, $p<0.10$) and a negative effect for the spheres of non-dominant firms ($\beta= -0.329$, $p<0.01$). These results confirm that dominance by an industry leader is necessary for favorable conditions within spheres of influence to arise. This finding supports our choice of identifying markets as spheres of influence only when one of the industry leaders dominates them. Column 4 shows the moderating effect of size and growth in the case of spheres of industry leaders and spheres of non-dominant firms. In the case of the spheres of influence of

industry leaders, the results are consistent with our theoretical model. In the case of spheres of influence of non-dominant firms, the patterns are inconsistent with our theoretical model.

These robustness tests show that the dominance of a market by an industry leader is a necessary condition in our model. Only the distribution of branches across the spheres of influence of industry leaders has a positive effect on firm performance. The difference between industry leaders and non-dominant firms is that the latter are endowed with lower competitive resources and have lower multimarket leverage. As a result of these differences, rivalry levels are reduced only in spheres of influence of industry leaders and not in the markets that seem to fulfill the conditions to be spheres of influence of non-dominant firms. There are at least two reasons that explain this. First, non-dominant firms are less capable than industry leaders of disciplining firms that threaten their dominance. Second, industry leaders act as a shield that restrains competitive moves from other industry leaders. Because of mutual forbearance, spheres of influence of industry leaders are respected by the other industry leaders. Conversely, industry leaders could behave aggressively in the spheres of influence of non-dominant firms if they are interested in expanding their operations to these zones. Due to these two circumstances, competitive conditions within spheres of influence of industry leaders are more favorable than in markets in which a non-dominant firm holds the largest market share.

These robustness tests also allow us to discard an alternative explanation based on local monopoly-like conditions. Our model identifies spheres of influence as markets in which an industry leader holds a dominant market share. Therefore, higher performance may stem from local monopoly-like conditions that soften competition. If higher returns were a result of monopoly-like conditions, we should observe greater performance in any market in which a single firm individually holds the largest market share. These robustness tests show that only in markets in which the dominant market share is held by an industry leader do non-dominant

firms obtain greater returns. The main difference is that, while both in the case of a non-dominant firm and an industry leader holding the greatest market share there may be a concentrated market structure, only industry leaders provide enough rivalry-reducing “cover” to allow for lower rivalry and higher performance in their spheres of influence. In other words, we confirm that higher performance is an issue of mutual forbearance among industry leaders, rather than an issue of local monopoly-like conditions.

6. DISCUSSION

This research sustains that non-dominant firms can take advantage of operating under the radar in spheres of influence. Our contention is that mutual forbearance among industry leaders reduces structural rivalry within spheres of influence. This benefits non-dominant firms that operate in them and means that they enjoy the favorable conditions of spheres of influence without being directly involved in mutual forbearance agreements. Furthermore, we argue that not every non-dominant firm in the industry is able to make the most from its location in spheres of influence. Firm-specific traits, such as size and growth, influence the competitive tension perceived by industry leaders and, in turn, influence their reactions. Industry leaders are strongly motivated and able to discipline any non-dominant firm that they consider as an important competitive threat in their spheres of influence. Consequently, non-dominant firms can fully exploit the benefits of the location in spheres of influence only if industry leaders tolerate their presence in these markets. We expect that small and low-growth non-dominant firms are the ones that benefit to a higher extent from the distribution of branches in spheres of influence. Because of their low competitive capabilities and resources, small and low-growth non-dominant firms are not considered important competitive threats, and industry leaders are more likely to tolerate their presence in spheres of influence.

Our findings show that non-dominant firms distributing their branches across spheres of influence have greater performance. This evidences that location in these markets allows non-dominant firms to free-ride mutual forbearance agreements among industry leaders and,

therefore, indirectly benefit from their mutual respect practices. Our results also show that firm-specific traits moderate the positive influence of distributing branches across spheres of influence. We find that non-dominant firms operating under the radar of industry leaders perform better than non-dominant firms that are perceived as strong opponents. As our results show, small and low-growth non-dominant firms benefit more from locating their branches within spheres of influence. This reveals that the industry leader that controls the sphere of influence selects the firms to which it will respond (Upson and Sanchez, 2013). Since small and low-growth non-dominant firms are perceived as weaker rivals, they may enjoy the tolerance of industry leaders and, therefore, benefit from their interdependences without facing high hostility from them. Also, note that this positive effect on performance that results from low-growth and small-size of non-dominant firms operating within spheres of influence is different from a general effect affecting all the firms in the industry. For example, an alternative explanation could be that the performance all the high-growth firms suffer due to the investments they have to incur to keep high-growth. This is in fact suggested by the negative and significant effect of growth (and size) on some of the estimations presented in the model, but this apply to all the sample of firms included in the model and not specifically to the firms operating in spheres of influence.

Our findings contribute to competitive dynamics literature in three main ways. First, we expand this literature by exploring how non-dominant firms are affected by the competitive interdependences among industry leaders. Competitive dynamics research has mainly focused on direct competition (Ketchen et al., 2004). However, competitive actions and responses resulting from direct competition may generate competitive spillovers (Gimeno and Jeong, 2001; Gómez et al., 2017). These spillovers may be rivalry-increasing, when direct competition leads to the exchange of competitive actions, or rivalry-reducing, when direct competition results in mutual forbearance and rivalry restraint. Our research highlights the

importance of taking competitive spillovers into account when managers make strategic decisions about location, scale and scope (Tsai, Su, and Chen, 2011).

Second, the literature on competitive dynamics proposes that the gains obtained by leaders may motivate other firms to undertake actions in an attempt to enjoy the same profits (Ferrier, Smith, and Grimm, 1999; Smith, Ferrier, and Ndofor, 2001). Our evidence suggests that operating under the radar may also be a profitable choice. It may reduce the motivation of the smallest and less capable firms of the industry to dethrone the leaders from their spheres of influence, at least in the short run. Third, we shed light on multimarket competition theory, which is a research stream within competitive dynamics literature (Ketchen, et al, 2004). Our article shows that firms that cannot build a strong multimarket position by themselves may still benefit from multimarket competition dynamics. By locating their branches within spheres of influence and by making the right choices about size and growth, non-dominant firms may indirectly take advantage of mutual forbearance.

6.1. Managerial implications

Our research shows that firms can take advantage of their apparently disadvantaged competitive position under certain circumstances. In particular, they may benefit from mutual forbearance agreements among industry leaders if they are not seen as competitive threats. In this research, this requires non-dominant firms to remain small and grow slowly – if at all. This finding opens a range of strategic possibilities to non-dominant firms. They can obtain higher returns by assessing their situation not only in terms of their own resources and capabilities, but also by considering the competitive dynamics among industry leaders.

It is important to note that there is an underlying tension between obtaining additional returns in spheres of influence and avoiding the negative effect of size and growth on these returns. The main lesson of our research is that non-dominant firms can increase their returns from operating in spheres of influence by remaining small and growing slowly. Therefore,

following our model, a direct recommendation for managers of non-dominant firms is to use their additional returns in endeavors that do not generate awareness or increase competitive tension with industry leaders. For instance, they may prioritize returns to shareholders in the form of dividends or returns to other stakeholders in the form of corporate social responsibility. In the case of the retail banking industry, commercial banks are profit-oriented. These organizations may increase the dividends paid to shareholders and the returns to owners. Savings banks and credit unions, in contrast, have a non-for-profit orientation. These banks may invest the additional returns into ambitious corporate social responsibility programs. These two courses of action would allow banks to balance the greater returns in spheres of influence with the need to remain under the radar.

These two options are consistent with the immediate implications of our model. They allow firms to apply the extra returns from spheres of influence to meet their targets while remaining subordinated to industry leaders. However, reasoning outside the boundaries of our model, it is possible to identify alternative courses of action which may benefit from these additional resources and, at the same time, minimize competitive tension with industry leaders. Non-dominant firms may differentiate themselves from industry leaders in the market space or in the strategic space to avoid direct competition with them and, in turn, preserve some of the returns obtained in spheres of influence. For instance, non-dominant firms may diversify into unattended markets that are not of interest to industry leaders or may develop strategic postures and business models that substantially differ from those of industry leaders. Each of these courses of action has its own opportunities and risks, but undoubtedly benefits from the additional returns obtained within the spheres of influence of leaders.

6.2 Limitations and future research

Our research is not without limitations. First, we focus on how non-dominant firms are indirectly affected by competitive dynamics among industry leaders within a specific type of

market domain: spheres of influence. However, non-dominant firms also face industry leaders outside of their spheres of influence. Future research could analyze the indirect consequences of competition among industry leaders in other types of markets. In general, mutual forbearance among industry leaders is articulated through respect for those markets that have the status of spheres of influence. This means that they respect each other in their main domains, but not necessarily in the other markets where they meet. In fact, rivalry outside spheres of influence could be very intense due to the high competitive tension between industry leaders. Markets with low strategic relevance could give industry leaders the chance of exchanging competitive moves without threatening their mutual forbearance agreements. If so, competitive conditions in markets where industry leaders operate but are not spheres of influence could be harsh. Analyzing the impact of locating branches in such markets might increase our knowledge of the indirect consequences of interdependences among industry leaders.

Second, our model assumes that there is a significant competitive gap between industry leaders and non-dominant firms. In such a context, non-dominant firms have incentives to adopt a passive, secondary role. However, in contexts where this gap is very narrow or in which competitive, technological or regulatory turbulence is high, the competitive stance of non-dominant firms in relation to industry leaders might be more aggressive. Our research setting, the Spanish retail banking sector in the early 2000s, is a mature and stable sector. It is clearly dominated by a small group of large firms that stand out for their competitive strength (Más-Ruiz, Nicolau-Gonzalez and Ruiz-Moreno, 2005). Under these circumstances, non-dominant firms are more likely to accept the status quo within the industry and remain subordinate to industry leaders. Conversely, non-dominant firms may perceive higher chances of improving their market position in turbulent contexts where new business models and technologies continually emerge. In these contexts, the line that separates industry leaders and

non-dominant firms can be thin, and aggressive competitive dynamics between industry leaders and non-dominant firms may emerge. Future research might further explore competition between firms with asymmetric positions by focusing on less mature industries and on technology-intensive industries.

Third, it may be argued that size and growth may reduce the capability of non-dominant firms to benefit from the favorable conditions within spheres of influence not only because of higher tension with industry leaders, but also because of operational difficulties. Larger firms, for instance, experience greater organizational complexity, organizational rigidity and coordination costs. A high growth rate can disrupt the organization, its routines and its operational capabilities. In these cases, non-dominant firms may find it more difficult to seize certain opportunities. However, it is important to note that the benefits we identify in spheres of influence come from lower rivalry levels. Lower rivalry allows firms to cut costs and command higher prices. For example, they can reduce advertising expenditures, soften price competition and lower R&D expenditures. These kinds of benefits do not require firms to carry out substantial modifications in their operations. Consequently, size or growth should not be directly related to the benefits obtained within spheres of influence for branches *already* located in them. However, size and growth may hinder the opening of new branches in spheres of influence, which requires operational adaptations. Future research may explore the extent to which large or fast-growing non-dominant firms experience specific difficulties that prevent them from opening new branches within spheres of influence to benefit from mutual forbearance among industry leaders.

Finally, we explore how the overall size and growth of non-dominant firms determine the extent to which they are able of taking advantage of their presence in spheres of influence. Although this firm-level approach increases our understanding of competitive interdependences between industry leaders and non-dominant firms, we acknowledge that the

consideration of competitive actions or firm specific behaviors might expand our theory. In this regard, future work could explore whether size and growth within and outside spheres of influence have a different influence on competitive tension perceived by industry leaders and the specific competitive actions they take against non-dominant firms.

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REFERENCES

- Barnett WP (1997) The dynamics of competitive intensity. *Administrative Science Quarterly* 42: 128–160.
- Barney JB (1991) Firm resources and sustained competitive advantage. *Journal of Management* 17: 99–120.
- Baum JAC and Korn HJ (1996) Competitive dynamics of interfirm rivalry. *Academy of Management Journal* 39: 255–191.
- Baum JAC and Korn HJ (1999) Dynamics of dyadic competitive interaction. *Strategic Management Journal* 20(3): 251-278.
- Baum JAC, Bowers A and Mohanram P (2015) Mutual forbearance and competition among security analysts. *Management Science* 62(6): 1610-1631.
- Bernheim BD and Whinston MD (1990) Multimarket contact and collusive behaviour. *Journal of Economics* 21 (1):1-26.
- Boone C, Carroll GR and van Witteloostuijn A (2004) Size, differentiation and the performance of Dutch daily newspapers. *Industrial and Corporate Change* 13(1): 117-148.
- Cabral L and Mata J (2003) On the evolution of the firm size distribution: Facts and theory. *American Economic Review* 93(4):1075-1090.
- Carbó S, del Paso R and Fernández F (2003) Medición de la competencia en mercados bancarios regionales. *Revista de Economía Aplicada* 32(11):5-33.
- Carroll GR (1985) Concentration and specialization: Dynamics of niche width in populations of organizations. *American Journal of Sociology* 90(6):1262-1283.
- Carroll GR and Hannan MT (1995) Resource partitioning. Organizations in industry: Strategy, structure and selection, 215-21.

- Certo ST, Busenbark JR, Kalm M, and LePine JA (2018). Divided We Fall: How Ratios Undermine Research in Strategic Management. *Organizational Research Methods*, 1094428118773455.
- Certo ST, Withers MC and Semadeni M (2017) A tale of two effects: Using longitudinal data to compare within-and between-firm effects. *Strategic Management Journal* 38(7): 1536-1556.
- Chandler AD (1990) *Strategy and structure: Chapters in the history of the industrial enterprise* (Vol. 120). MIT press.
- Chen MJ and Miller D (1994) Competitive attack, retaliation and performance: An expectancy-valence framework. *Strategic Management Journal* 15: 85-102.
- Chen MJ and Hambrick DC (1995) Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior. *Academy of Management Journal* 38(2): 453-482.
- Chen M (1996) Competitor analysis and interfirm rivalry: toward a theoretical integration. *Academy of Management Review* 21 (1):100-104.
- Chen M, Su KH and Tsai W (2007) Competitive tension: The awareness-motivation-capability perspective. *Academy of Management Journal* 50: 101-118.
- Chen M and Miller D (2012) Competitive dynamics: Themes, trends, and a prospective research platform. *Academy of Management Annals* 6: 135-210.
- Cool K and Dierickx I (1993) Rivalry, strategic groups and firm profitability. *Strategic Management Journal* 14(1): 47-59.
- D'Aveni RA (2004) Corporate spheres of influence. *MIT Sloan Management Review* 45(4): 38-46.
- De Juan R (2002) Entry in independent submarkets. An application to the Spanish retail banking market. *The Economic and Social Review* 33: 109-118.

- De Juan R (2003) The independent submarkets model: an application to the Spanish retail banking market. *International Journal of Industrial Organization* 21(10): 1461-1487.
- Driscoll JC and Kraay AC (1998) Consistent covariance matrix estimation with spatially dependent panel data. *The Review of Economic and Statistics* 80(4):549-560.
- Edwards CD (1955) Conglomerate bigness as a source of power. In Business concentration and price policy (NBER conference report): 331-352. Princeton, NJ: Princeton University Press
- Ferrier WJ, Smith KG and Grimm CM (1999) The role of competitive action in market share erosion and industry dethronement: A study of industry leaders and challengers. *Academy of Management Journal* 42(4):372-378.
- Fuentelsaz L, Gomez J and Polo Y (2003) Intrafirm diffusion of new technologies: an empirical application. *Research Policy* 32(4): 533-551.
- Fuentelsaz L and Gómez J (2006) Multipoint competition, strategic similarity and entry into geographic markets. *Strategic Management Journal* 27(5): 477-499.
- Gelman JR and Salop SC (1983) Judo economics: capacity limitation and coupon competition. *The Bell Journal of Economics*: 315-325.
- Gibrat R (1931) *Les Inégalités Économiques*, Paris, Librairie du Recueil Sirey.
- Gimeno J (1999) Reciprocal threats in multimarket rivalry: Staking out spheres of influence in the U.S. airline industry. *Strategic Management Journal* 20: 101-128.
- Gimeno J and Jeong E (2001) Multimarket contact: Meaning and measurement at multiple levels of analysis. In J.A.C.Baum and H.R.Greve (Eds.), *Multiunit Organization and Multimarket Strategy, Advances in Strategic Management*: 357-408. Oxford, UK: JAI Press

- Gimeno J and Woo CY (1996) Hypercompetition in a multimarket environment: The role of strategic similarity and multimarket contact in competitive de-escalation. *Organization Science* 7(3): 322-341.
- Gómez J, Orcos R and Palomas S (2017) Do strategic groups explain differences in multimarket competition spillovers?. *Strategic Organization* 15(3): 367-389.
- Greve HR (2008) A behavioral theory of firm growth: Sequential attention to size and performance goals. *Academy of Management Journal* 51(3): 476-494.
- Haveman HA (1993) Organizational size and change: Diversification in the savings and loan industry after deregulation. *Administrative Science Quarterly*: 20-50.
- Haveman HA and Nonnemaker L (2000) Competition in multiple geographic markets: The impact on growth and market entry. *Administrative Science Quarterly* 45: 232–267.
- Hambrick DC, MacMillan IC and Day DL (1982) Strategic attributes and performance in the BCG matrix—A PIMS-based analysis of industrial product businesses. *Academy of Management Journal* 25(3): 510-531.
- Hoechle D (2007) Robust standard errors for panel regressions with cross-sectional dependence. *The Stata Journal* 7(3):281-312.
- Joel AC, Baum J, Bowers A and Mohanram P (2015) Mutual forbearance and competition among security analysts. *Management Science* 62(6):1613-1631.
- Karnani A and Wernerfelt B (1985) Multiple point competition. *Strategic Management Journal* 6: 87-96.
- Ketchen DJ, Snow CC and Hoover VL (2004) Research on competitive dynamics: Recent accomplishments and future challenges. *Journal of Management* 30(6): 779-804.
- Más-Ruiz FJ, Nicolau-Gonzálbez JL and Ruiz-Moreno MF (2005) Asymmetric rivalry between strategic groups: Response, speed of response and ex ante vs. ex post

- competitive interaction in the Spanish bank deposit market. *Strategic Management Journal* 26(8): 713-745.
- Newey WK and West KD (1987) A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica* 55(3): 703–708.
- Radecki LJ (1998) The expanding geographic reach of retail banking markets. *Economic Policy Review* 4(2).
- Scherer FM and Ross D (1990) Industrial market structure and economic performance. Houghton Mifflin Company, Boston, MA
- Simons K and Stavins J (1998) Has antitrust policy in banking become obsolete?. *New England Economic Review*, 13-26.
- Smith KG, Grimm CM, Gannon MJ and Chen MJ (1991) Organizational information processing, competitive responses, and performance in the US domestic airline industry. *Academy of Management Journal* 34(1): 60-85.
- Smith KG, Ferrier W and Ndofor H (2001) Competitive dynamics research: Critique and future directions. In M. Hitt, R. Freeman, and J. Harrison (Eds.). *Handbook of strategic management*: 315-361. London: Blackwell.
- Spagnolo G (1999) Social relations and cooperation in organizations. *Journal of Economic Behavior and Organization* 38 (1): 1-25.
- Teece DJ, Pisano G and Shuen A (1997) Dynamic capabilities and strategic management. *Strategic Management Journal* 18: 509-533.
- Tsai W, Su KH and Chen MJ (2011) Seeing through the eyes of a rival: Competitor acumen based on rival-centric perceptions. *Academy of Management Journal* 54(4): 761-778.
- Upson JW and Sanchez MS (2013). When Smaller is Better: Multimarket Contact and Entry Aggression. In *Academy of Management Proceedings* (Vol. 2013, No. 1, p. 12207). Briarcliff Manor, NY 10510: Academy of Management.

- Wiseman RM (2009) On the use and misuse of ratios in strategic management research. In D. Ketchen & D. Bergh (Eds.), *Research Methodology in Strategy and Management 5*: 75-110. Bingley, UK: Emerald Ltd
- Young G, Smith KG and Grimm CM (1996) Austrian and industrial organization perspectives on firm level competitive activity and performance. *Organization Science* 7(3): 243–254.

FOOTNOTES

¹ As a reviewer noted, our theory focuses on within-firm variance (i.e., different levels of the key theoretical variables for a firm) rather than between-firm variance (i.e., differences between the level of a firm and the level of other firms). See Certo et al (2017) for an analysis of the theoretical implications of this difference.

² We acknowledge that non-dominant banks might also reach mutual forbearance competitive equilibrium with other non-dominant banks, as their *relative* competitive capabilities and *relative* market overlap may fulfill these two conditions among them. This research focuses on industry leaders because their *absolute* competitive capabilities and *absolute* market overlap with other industry leaders is more likely to lead to mutual forbearance and the establishment of spheres of influence. In our empirical analyses we explore the robustness of our results dropping this restriction, and allowing non-dominant firms to stake out their own spheres of influence.

³ These banks are: BBVA, BSCH, La Caixa, Banco Popular, Caja Madrid, Banesto, Caixa Catalunya and Banco Sabadell. Although Banco Sabadell is not ranked among the top ten according to total assets the first year of our observation window, we consider it an industry leader. Our results remain qualitatively unchanged if we exclude Banco Sabadell from the group of industry leaders.

⁴ As a reviewer noted, using ratios as the dependent variable or as explanatory variables generates potential interpretability issues (Certo, Rusenbark, LePine and Kalm, in press; Wiseman, 2009). We explored these issues by following the recommendations in Wiseman (2009). Particularly, we estimated our model taking the numerator of the ratio as the dependent variable while controlling for the denominator. We also treated any explanatory variable that is a ratio as an interaction term. The results remained qualitatively unchanged.

⁵ We tested for potential non-linear effects of firm size and firm growth on profitability, as well as non-linear moderating effects. We find no evidence of non-linear direct effects or moderating effects. We extend this point in the Discussion section.

⁶ Although it would be desirable to measure these two variables at the ZIP code level, the province is the lower level of aggregation at which the Spanish Central Bank provides the required data.

⁷ As a reviewer noted, fixed effects models use only within-firm variance, which may obscure between-firm relationships (Certo, Withers and Semadeni, 2017). To emphasize between-firm variability, we repeated our estimations with the main theoretical variables centered on the mean for all the firms each year. Our results remained qualitatively unchanged.

⁸ The effect observed in Table 2, column 2 for the variable *Percentage of Branches in Spheres* and the effect obtained in Table 3 for a firm with mean size and mean growth differ because of the skewness of the sample. The skewness coefficient for the total assets of banks in our sample is 3.39. Therefore our sample is significantly right-skewed. We are grateful to an anonymous reviewer for this observation.

Table 1. Descriptive statistics and correlation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Mean	0.86	0.69	0.67	0.01	5.84	0.24	17,590.05	3.25e+08	13.98	0.10	0.21
S.D.	0.92	0.17	0.50	0.10	5.30	0.13	2,549.56	2.97e+08	1.51	0.16	0.23
Minimum	-9.39	0.00	-0.23	0.00	0.00	0.05	10,138.50	887,161.00	10.46	-1.60	0
Maximum	6.43	0.99	7.56	1.00	46.99	0.89	25,642.76	1.38e+09	17.62	1.82	1
1.ROA	1.00										
2.Risk	0.21	1.00									
3.Inefficiency	-0.39	-0.08	1.00								
4.M&A	0.01	0.01	-0.02	1.00							
5.MMC	0.07	0.25	-0.07	0.06	1.00						
6. Concentration	0.11	0.06	-0.07	0.03	-0.25	1.00					
7.GDP per capita	-0.03	0.06	-0.04	-0.05	0.06	-0.22	1.00				
8.Credits	-0.14	-0.03	0.01	0.01	0.48	-0.36	0.12	1.00			
9.Size	0.12	0.14	-0.13	0.09	0.64	-0.03	0.09	0.62	1.00		
10. Growth	0.10	0.07	-0.04	-0.02	0.10	-0.03	0.05	0.10	0.01	1.00	
11.Percentage of Branches in Spheres	-0.20	-0.30	0.10	-0.04	0.07	-0.56	0.37	0.39	0.06	-0.01	1.00

Table 2. Estimations of distribution of branches across spheres of influence

ROA	(1)	(2)	(3)	(4)	(5)
Risk	0.672*** (6.26)	0.745*** (7.19)	0.766*** (7.09)	0.586*** (8.00)	0.598*** (7.88)
Inefficiency	-0.161*** (-5.04)	-0.161*** (-5.23)	-0.160*** (-5.25)	-0.162*** (-5.33)	-0.161*** (-5.37)
M&A_{t-1}	0.0630** (2.16)	0.0994*** (3.67)	0.0925*** (3.35)	0.105*** (4.18)	0.0946*** (3.63)
M&A	-0.127 (-1.11)	-0.125 (-1.05)	-0.117 (-0.97)	-0.165* (-1.70)	-0.158* (-1.66)
MMC	-0.0665*** (-3.73)	-0.0760*** (-3.69)	-0.0758*** (-3.75)	-0.0737*** (-3.78)	-0.0731*** (-3.91)
MMC²	0.00117*** (4.16)	0.00145*** (3.87)	0.00140*** (3.73)	0.00140*** (3.89)	0.00132*** (3.75)
Concentration	0.839*** (5.97)	0.946*** (5.29)	0.946*** (5.39)	0.949*** (5.23)	0.949*** (5.39)
GDP per capita^a	0.307*** (5.63)	0.160** (1.99)	0.147* (1.76)	0.132* (1.67)	0.107 (1.24)
Credits	9.93e-10** (2.30)	1.05e-09*** (2.63)	1.07e-09*** (2.69)	1.02e-09** (2.54)	1.05e-09** (2.59)
Year effects	Yes***	Yes***	Yes***	Yes***	Yes***
Size	-0.636*** (-5.73)	-0.616*** (-4.75)	-0.552*** (-4.40)	-0.623*** (-4.82)	-0.521*** (-3.83)
Growth	-0.462*** (-4.91)	-0.448*** (-4.56)	-0.468*** (-4.35)	0.0720 (0.77)	0.109 (1.07)
Percentage of Branches in Spheres		0.849** (2.54)	2.717*** (2.72)	0.846** (2.40)	3.886*** (3.23)
Percentage of Branches in Spheres* Size			-0.140* (-1.76)		-0.228** (-2.48)
Percentage of Branches in Spheres* Growth				-0.742*** (-5.21)	-0.842*** (-4.98)
N	852	852	852	852	852
Adj.R²	0.207	0.218	0.219	0.223	0.225
Wald test vs 1		6.46**	7.32***	17.13***	12.65***
Wald test vs 2			3.08*	27.14***	16.30***
Wald test vs 3					24.81***
Wald test vs 4					6.15**

t statistics in parentheses. Standard errors robust to heteroskedasticity, autocorrelation and spatial correlation. Two-tailed significance tests. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

^a Divided by 10000

Table 3. Profitability impact of operating in spheres of influence for different size and growth combinations

	Low Growth	Mean Growth	High Growth
Low size	1.095*** (3.21)	0.963*** (2.85)	0.832** (2.46)
Mean size	0.752** (2.08)	0.620* (1.69)	0.489 (1.31)
High size	0.409 (0.96)	0.277 (0.63)	0.145 (0.32)

T-ratios in parentheses

Two-tailed significance tests. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4. Robustness tests

ROA	(1)	(2)	(3)	(4)
Risk	0.607*** (7.83)	0.686*** (6.34)	0.734*** (7.22)	0.598*** (6.79)
Inefficiency	-0.161*** (-5.39)	-0.161*** (-5.09)	-0.160*** (-5.18)	-0.157*** (-5.38)
M&A_{t-1}	0.0927*** (3.56)	0.0588* (1.93)	0.116*** (3.89)	0.117*** (4.19)
M&A	-0.159* (-1.69)	-0.129 (-1.13)	-0.119 (-0.95)	-0.147 (-1.42)
MMC	-0.0732*** (-3.82)	-0.0676*** (-3.64)	-0.0761*** (-3.64)	-0.0729*** (-3.86)
MMC²	0.00132*** (3.63)	0.00121*** (3.84)	0.00143*** (3.69)	0.00124*** (3.36)
Concentration	0.948*** (5.33)	0.839*** (6.09)	0.969*** (5.35)	0.898*** (5.79)
GDP per capita^a	0.113 (1.34)	0.280*** (4.12)	0.180** (2.23)	0.0627 (0.64)
Credits	1.05e-09** (2.61)	1.00e-09** (2.32)	1.05e-09*** (2.64)	1.08e-09** (2.59)
Year effect	Yes***	Yes***	Yes***	Yes***
Size	-0.521*** (-3.87)	-0.638*** (-5.71)	-0.607*** (-4.83)	-0.459*** (-4.05)
Growth	0.107 (1.05)	-0.459*** (-4.79)	-0.449*** (-4.58)	1.251** (2.58)
Percentage of Branches in Spheres	3.936*** (3.37)			
Percentage of Branches in Spheres* Size	-0.231** (-2.57)			
Percentage of Branches in Spheres* Growth	-0.837*** (-4.92)			
Percentage of Branches in Spheres of any Firm		0.167 (1.03)		
Percentage of Branches in Spheres of Industry Leaders			0.717* (1.96)	4.824*** (4.84)
Percentage of Branches in Spheres of Industry Leaders* Size				-0.306*** (-3.78)
Percentage of Branches in Spheres of Industry Leaders* Growth				-1.980*** (-4.52)
Percentage of Branches in Spheres of Non-dominant Firms			-0.329*** (-3.06)	0.233 (0.25)
Percentage of Branches in Spheres of Non-dominant Firms*Size				-0.0359 (-0.54)
Percentage of Branches in Spheres of Non-dominant Firms*Growth				-2.386** (-2.51)
N	852	852	852	852
Adj.R²	0.225	0.207	0.220	0.232

t statistics in parentheses. Standard errors robust to heteroskedasticity, autocorrelation and spatial correlation.

Two-tailed significance tests * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

^a Divided by 10000