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FOLLOWERS' ENTRY TIMING: EVIDENCE FROM THE SPANISH BANKING SECTOR AFTER DEREGULATION

LUCIO FUENTELSAZ*, JAIME GOMEZ and YOLANDA POLO
Department of Management and Marketing, Universidad de Zaragoza, Zaragoza, Spain

Much of the literature dedicated to the analysis of entry timing decisions has been devoted to the study of their consequences in terms of performance. However, only a limited amount of effort has been dedicated to analyzing the factors that determine these decisions. In addition, previous papers have centered their efforts on the product dimension, paying no attention to entry into new geographical markets. This paper departs from previous works in this respect and extends the entry timing literature through a consideration of the geographical side of entry. Our analysis shows that organizational size, organizational competence, and organizational experience appear as key factors when explaining the pattern of geographic diversification. Our results also indicate that diversification takes place sequentially, first proceeding to closer locations, then occupying markets further from the origin.

INTRODUCTION

What factors determine the whether and when of entry decisions? Are entrants different from nonentrants? Which firm characteristics are more likely to be found in an early (late) entrant? Are early entrants endowed with the same type of resources and capabilities as late entrants? Do market characteristics influence the decision and the timing at entry? These are a sample of some of the questions that have recently been posed in the strategic management literature. The answers to them are important not only to managers who try to understand the resources and capability requirements for entering a market and the moment in which this must be done, but also because they help established firms to predict both the type of entrant they will face (Robinson, Fornell, and Sullivan, 1992) and the moment of entry. Against this background, the objective of this paper is to contribute to the existing literature and to extend it, trying to shed light on all these questions in a context in which the decisions to enter into a new market are taken with respect to the geographic side of entry.

A review of the strategic management literature suggests that only a relatively small amount of research has been devoted to investigating the factors that affect the timing of entry into an industry. Most of the papers have concentrated on the consequences of the entry process on the results obtained by the firm. While the question of why firms enter industries when they do is of great strategic interest, it has received little attention in the literature (Schoenecker and Cooper, 1998). This paper tries to add some empirical evidence to this entry timing literature and in doing so we adopt a different perspective from that taken in previous papers. First, we insist on the importance of analyzing the entry process itself, in contrast to placing the emphasis on the relationship between entry timing and firm performance. To do this, we consider the whole population of potential entrants. In this regard, previous works only contemplate

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*Correspondence to: Lucio Fuentelsaz, Department of Management and Marketing, Universidad de Zaragoza, Gran Via 2, 50005 Zaragoza, Spain.

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the decisions taken by a sample of diversifying firms, but do not consider *ex novo* entry (entry by newly created organizations). Our data come from a sample of Spanish savings banks, a market where no *ex novo* entry occurs. As a consequence, the potential for bias stemming from the interaction between the diversifying companies and the new firm entrant decisions is minimized.[1]

Secondly, existing research has concentrated its efforts on the product case, paying no attention to the entry in new geographical markets. The result is that the validity of the hypothesis traditionally proposed in the literature has not been tested in the geographical context. Geographic diversification decisions are very important in industries like retail banking, in which the customer has a close relationship with the firm. In these cases, the spatial dimension of the market and the number of sales points is critical, and operating in a new geographical market necessarily involves the existence of in-market facilities from which to deliver the service or product. In this context, the decision of where to locate regionally and the timing of doing so appear as key strategic issues faced by firms operating in these industries.

To the best of our knowledge, our research is the first attempt to cover this area. Furthermore, our sample is especially appropriate for this test, given that, as in the United States and other European countries, branching was not allowed for Spanish savings banks until recently. In order to test our predictions, we examine the entry timing probability of industry incumbents in the Spanish savings banks sector as a function of the bundle of resources and capabilities of the firms operating in the industry and the structural features of the geographic markets. Following previous research (Barnett, 1993; Baum and Korn, 1996), we also consider some aspects of their specific competitive conditions and the degree of competition faced in their core markets (Mitchell, 1989). Our results show that organizational size, organizational competence, and organizational experience arise as key factors when explaining the pattern of geographic diversification in the Spanish savings banks sector. According to these results, diversification seems to have taken place sequentially, first proceeding to closer locations, then occupying markets further from the original. As previous research has shown, market structural characteristics (potential competition) and firm-specific competitive conditions (extent of competition in core markets) also have a significant influence on the time of entry into a new market.

One important aspect of our analysis to which attention should be drawn concerns methodological issues. Specifically, we maintain that survival analysis techniques are more appropriate than traditional regression approaches. Our goal is to integrate both the estimation of the determinants of the entry decision and its timing in a single equation. Although survival analysis has been used by population ecology researchers, its use is far from common in strategic management and, more particularly, in the literature on entry timing decisions. These models are appropriate in the cases in which both the *cross-section side* of the data (firms and potential markets/products) and the *longitudinal side* (time) are available. This is an especially interesting issue given that recent attention has been devoted to the methodology used for the analysis of diversification decisions (Merino and Rodríguez, 1997), as well as the lack of dynamic studies modeling the strategic interactions that take place between firms (Porter, 1991; Baum and Korn, 1996). Survival analysis methods have also been proposed as a more convenient alternative when examining the problem we are concerned with (Lieberman and Montgomery, 1998). In this context, we use the Cox Proportional Hazards Model (CPHM) as a more general, flexible, and efficient way of dealing with these situations.

LITERATURE REVIEW

The literature on entry timing decisions has mainly been concerned with two questions: (1) Are there any linkages between the moment of entry and the performance of the firm in the new market? (2) What factors influence entry timing decisions? Research effort has concentrated on the first of these and, as a result, much less attention has been devoted to the second. The objective of this paper is precisely to help to fill this gap in the literature, and in this section we review the discussion that has taken place in the search for an answer.

[1] As Dunne, Roberts, and Samuelson (1988) point out as one of the criticisms of the Robinson and Fornell (1985) study, diversification entry only accounts for about 45 percent of the total entry in U.S. manufacturing firms. As a consequence, if the decisions taken by the diversifying companies are affected by the new firm entrant decisions, the results might be partially biased.

Entry timing and performance

As we have already indicated, the literature has mainly been concerned with the effect of the timing of new product introduction on firm performance. It has been argued that entry timing strategy is a key determinant both of the absolute success (or failure) of a product and of performance relative to competitors. To date, the theoretical discussion has focused on the advantages and disadvantages of being a pioneer, as opposed to a follower, and the benefits and risk associated with the decision taken (Lieberman and Montgomery, 1998).

Early entry may provide the basis for the acquisition of superior resources and capabilities. Pioneers may preempt competitors in the physical, technological, or consumer perceptual space (Lieberman and Montgomery, 1998). They may be able to attract and retain high-quality employees, occupy superior locations, or enjoy the benefits of patent protection. In addition, several studies point to the fact that the first firm to enter the market obtains benefits in terms of recognition and reputation (Lilien and Yoon, 1990). Pioneers may also be able to establish switching costs that make consumers imperfectly mobile among competing firms (Lieberman and Montgomery, 1998), or obtain advantages through cost experience effects (Lilien and Yoon, 1990).

However, early entrants also have to assume the risks stemming from the development of the product and the market, and their innovations are subject to imitation by competitors at lower costs. Therefore, the decision to enter the market should be timed to balance the risk of premature entry and the problems of missed opportunities (Lilien and Yoon, 1990: 568).

Empirical tests of the benefits of early entry have produced conflicting results. Mitchell (1991) argues that at least some of the confusing empirical results stem from the joint consideration of firms with different characteristics and, therefore, different entry timing incentives and effects on performance. On the other hand, Vanderwerf and Mahon (1997) show that the probability of detecting first-mover effects largely depends on the methodology used, and Golder and Tellis (1993) point out that some of the influences are due to the fact that early followers are frequently identified as pioneers.

The conclusion from all this empirical literature is that, while first-mover effects exist, they are not such a determinant aspect of firm performance as might first seem in principle. Thus, the magnitude of these effects varies among categories of products and geographical markets. Furthermore, first-mover advantages disappear with time, although they are improved by longer leading times before other competitors enter the market. Finally, they are weaker than price and advertising effects and they may be better modeled as interaction effects rather than direct effects (Lieberman and Montgomery, 1998).

Factors affecting entry timing decisions

A significantly less amount of effort has been devoted to studying the factors affecting entry-timing decisions and, as Schoenecker and Cooper (1998) point out, just a few papers have specifically considered this issue.

It should first be noted that research has focused on the product side of entry, forgetting the possibility of entry in a new geographical market.[2] As a result, theoretical propositions and empirical test have not been developed in the geographical context. As mentioned earlier, geographic diversification decisions are important in industries like retail banking, in which the customer has a close relationship with the firm. In these cases, the spatial dimension of the market and the number of sales points is critical and operating in a new geographical market necessarily involves the existence of in-market facilities from which the services or products are delivered. In contrast to previous studies, we do not restrict our analysis to a situation in which the product is completely new to the market, but rather to one in which the entity is.

Research on the factors affecting entry-timing decisions has mainly highlighted the importance of differential firm resources and capabilities. Optimal entry timing frequently depends on the resource base of the firm (Lieberman and Montgomery, 1998). Thus, pioneers have resources and capabilities different from late entrants (Robinson *et al.*, 1992). However, the few papers published in the management literature have given much

[2] Some studies undertake this task in an international context (see, for example, Mascarenhas, 1992). Although conceptually similar, the problems analyzed in international diversification settings are more varied and different, in many respects, from the ones analyzed here.

less emphasis to the consideration of industry specific characteristics. Therefore, the literature has been mainly concerned with the hypothesis related to differences in functional skills, resources, and organizational attributes possessed by the entrant.[3]

The consideration of industry features should be important when explaining entry and timing decisions. If the likelihood and the timing of entry are influenced by the strengths and weaknesses of the firm's existing resources and capabilities, industry characteristics capture the threats and opportunities firms face and moderate the effect of the former variables. Following Robinson *et al.* (1992: 609) 'a strategic window occurs when the best fit arises between a market's key success requirements and specific firm competencies.' Therefore, firm characteristics and industry features should be taken into account when explaining the whether and when of entry decisions.

The third and final aspect to be highlighted in this review is that, in many cases, the studies have renounced the possibility of integrating in the analysis both the decision of whether or not to enter, and the timing of that decision, with only a limited number of studies (Mitchell, 1989; Baum and Korn, 1996) taking both dimensions into account. As Morita, Lee, and Mowday (1993: 1431) point out, 'the joint prediction of whether and when an event occurs with a single equation is statistically more complex than simply predicting whether the event occurs.' This has had two immediate consequences. First, the samples used tend to consist just of firms that have actually entered the new market. Entrants are divided into three categories (pioneers or first entrants, followers, and late entrants) and research has centered on the determinants of the order of entry. Second, the methodology used has (with some exceptions) been the traditional one: either multiple regression or multinomial logit models. This implies that the longitudinal side of the data has frequently been ignored. As we will see, in this paper the analysis is widened through the examination of both problems at the same time, using survival analysis techniques and considering all the firm–market–year possibilities of entry.

[3] In only one of the studies (Schoenecker and Cooper, 1998) the authors claim to be the first to incorporate both industry and firm characteristics as determinants of entry timing. However, although they argue for differences between the minicomputer and the PC industries sampled, the analysis does not explicitly include industry characteristics as a variable in the model.

FOLLOWERS' ENTRY TIMING HYPOTHESES

Our data come from a market where no *ex novo* entry occurs. As pointed out in the previous section, the paper considers a situation in which the firm is completely new to the geographical market in which it wishes to operate. However, other firms may be acting as incumbents in this market. Therefore, in this sense, given that entrants are not the first to operate in the market and, following the terminology of entry timing literature, they may be characterized as followers.

In the line of previous research on the determinants of entry timing decisions, our hypotheses consider the importance of differential firm resources and capabilities. The resource-based view of the firm (Penrose, 1959; Wernerfelt, 1984; Barney, 1986) and the dynamic capabilities approach (Teece, Pisano, and Shuen, 1997) have analyzed in depth the role that resources and capabilities play in the sustainability of firms' competitive advantages, and their consequences in terms of firm efficiency. The relevant question in this context is to determine the conditions that allow early entrants to accumulate superior resources and capabilities (Lieberman and Montgomery, 1998). Unlike other papers on entry-timing decisions, we also explicitly include industry characteristics, in this way capturing the threats and opportunities that firms face.[4]

Firm characteristics that determine entry timing

Resource constraints can be a determining aspect of entry and, therefore, depending on the evolution of the firm, of its timing. In this paper, we distinguish between two types of resources: those that provide the firm with financial services and those related to the supply of information.

Firm size and firm profitability

Size is frequently used in the literature on diversification and entry timing decisions (Hannan, 1979; Ingham and Thompson, 1994; Merino and Rodríguez, 1997; Schoenecker and Cooper, 1998).

[4] Although the use of industry characteristics in the analysis of entry is frequent in the economics literature, they have been largely ignored in the entry timing literature.

The main reason is that organizational size may be considered as a proxy for the amount of slack resources available to a firm. Larger organizations generally possess more slack resources, which favor adaptation to changing circumstances (Cyert and March, 1963; Thompson, 1967; Haveman, 1993a) and help them to initiate strategic change (Bourgeois, 1981). Slack resources not only make organizations more fluid (Haveman, 1993a), but also reduce the risks associated with the process of experimentation with new strategies, new products, and new markets, reducing the likelihood of failure (Hannan and Freeman, 1989, Haveman, 1993b).

A related argument holds that organizational size increases market power, lowering the barriers to entry in any market. Market power facilitates overcoming the entry barriers associated with product differentiation, absolute costs advantages, and economies of scale (Bain, 1956). Thus, larger firms may benefit not only from the possession of slack resources that may help to satisfy capital requirements associated with entry, but also from the existence of a strong brand reputation or from cost reductions related to size.

In contrast to this view, some authors have argued that, when faced with change, larger organizations tend to be rigid and inflexible (Haveman, 1993a). Larger organizations may suffer from bureaucratic inertia (Crozier, 1964), which may delay entry. This bureaucratization arises from the standardization and formalization of processes that take place as firms grow (Haveman, 1993a). Nevertheless, the empirical results usually show that size does have a positive influence on the decision and the timing of entry (Schoenecker and Cooper, 1998; Robinson *et al.*, 1992; Mascarenhas, 1992). This is the effect we will postulate in our first hypothesis.

The second variable usually considered when evaluating entry-timing determinants is profitability. Both the theoretical and empirical developments in static frameworks tend to show that more competent firms are more likely to enter a new market (Jayaratne and Strahan, 1998; Cotterill and Haller, 1992). In spite of the fact that some authors point to poorly performing firms as tending to be risk seekers (Bowman, 1982; Fiegenbaum and Thomas, 1986), more competent firms should have higher expected profitability from the operation in any additional market and, therefore, should be the first to respond to environmental changes stimulating entry. Differences in profitability should be especially important in the presence of capital market imperfections, given that these could provide firms with internally generated funds to finance their expansion and surmount entry barriers. As in the case of larger firms, more profitable organizations are expected to be favored by the possession of slack resources that increase the probability of successful entry and reduce the likelihood of failure (Bourgeois, 1981; Hannan and Freeman, 1989).

Therefore, our two first hypotheses are proposed in the following terms:

Hypothesis 1a: Firm size is expected to have a positive impact on the speed of entry.

Hypothesis 1b: Profitability is expected to have a positive impact on the speed of entry.

Proximity and sequential learning

Any organization will enter a new market quickly when it possesses core capabilities that may be used in it (Brittain and Freeman, 1980; Lambkin, 1988). The literature on diversification and international business has emphasized the idea that entry into new markets may be better understood as a sequential process (Chang, 1992; Chang and Rosenzweig, 1998). Firms sequentially enter new businesses, first proceeding to related markets and then looking for the unrelated ones as they accumulate experience and build new internal capabilities. As firms proceed one step further in the sequence, they are able to accumulate knowledge and build competencies in previously unrelated markets, thereby increasing the likelihood of successful further entries and reducing the probability of failure.

Related markets that contribute to the group of potential entrants include those that are vertically related, those with a similar technological path, and those with a similar product in a different geographical area (Geroski, 1991). In the last category, physical proximity between markets arises as a key issue determining the capabilities of potential entrants to operate in them, the potential for success and, hence, the sequence of entries followed by firms. On the one hand, for a firm to be interested in a market it has to access, understand, and economically value the information about that market. Information is costly and investment in information collection necessarily assumes knowledge about how to look for it. Those close to a market are better positioned in this respect. On the other, they are not only better located to act, but also to 'listen' to the information pointing towards an opportunity.

Cotterill and Haller (1992) follow a similar argument, maintaining that proximity is a measure of potential entrant capability. Entrants with closer headquarters are more able to better control activities, may be known to customers, and may have better knowledge of objective markets. This last point is important, given that uncertainty about revenues may vary from geographical to geographical market. As pointed out by Pindyck (1991), it is the fact that almost any investment has (at least) a partially sunk character which makes uncertainty so relevant. If the firm has an option to wait for new information to arrive, the delay in entry may reduce the effect of uncertainty. Given that proximity increases the knowledge of markets, this option to wait may not be so valuable, and first-mover advantages and strategic factors may compel firms to quickly enter a new market.

Therefore, entry into new geographical markets may be viewed as the exercise of a sequence of strategic options (Chang, 1995; Bowman and Hurry, 1993). When a firm enters a new geographical market, it purchases an option to enter in a previously unrelated market. As time elapses and the knowledge of closer markets increases, the option to wait reduces its value and the entered market may be used to proceed further in the sequence of entries. On this basis, we propose our second hypothesis:

> *Hypothesis 2: Proximity to the objective market is expected to have a positive impact on the speed of entry.*

Experience in managing operations across markets

As firms proceed in the diversification process they not only acquire knowledge about previously unrelated markets, but they also obtain experience in managing operations across markets. Multimarket and multiproduct organizations are expected to be more proficient in overcoming the problems derived from the difficulties in integrating and monitoring a set of projects in different markets, due to their accumulation of experience. This idea agrees with conceptions of growth based on evolutionary processes and the accumulation of collective knowledge (Penrose, 1959). Previous multimarket experience may serve to build capabilities, to create effective routines and to accumulate knowledge about how to manage operations across markets. Therefore, firms with greater accumulated experience in managing operations across markets should exhibit a greater likelihood to enter more quickly into new geographical markets (Wilson, 1980).

We expect knowledge accumulation benefits coming from multimarket operation to accrue in a decreasing way. For a specialized firm, previous experience of operating in several markets may be a key aspect for new entry success, but this is not so relevant for a highly diversified entrant. By contrast, coordination and monitoring costs are expected to rise with the number of markets in which a firm is present. This quadratic influence of the degree of diversification on the likelihood of further entries may be especially prevalent when the knowledge provided by the operation in any additional market is similar to that of previous diversification efforts (diversification into closely related markets). In this case, a higher marginal degree of prior diversification may provide the firm with few of the benefits of knowledge accumulation, but all the costs.

This reasoning suggests a quadratic pattern of influence of the degree of previous diversification on the entry timing behavior of firms. Therefore, our third hypothesis is proposed as follows:

> *Hypothesis 3: The number of markets in which a firm operates is expected to have an inverted U-shaped influence on the speed of entry.*

Firm-specific competitive conditions and market determinants of entry timing

As pointed out earlier, the consideration of industry features should be important when explaining entry and entry-timing decisions, given that industry structure, both in the origin and the host market, will condition a firm's competitive strategies. Thus, the following factors will be considered as determinants of entry timing strategies.

Extent of competition in core markets

Competition stems from firms interacting and striving in the same environments and for the same resources. The specific competitive conditions that firms face in their domains are a key aspect determining interfirm rivalry and their subsequent entry behavior (Baum and Korn, 1996). When rivalry is high, firms have incentives to diversify in order to reduce the level of competition for the resources on which they depend.

The literature on entry timing decisions has also underlined the importance of the situation in the core activities of the firm when explaining entry-timing strategies. Some authors have argued that emerging markets presenting an important threat to the central markets of the firm would increase the probability of entering the new market earlier (Mitchell, 1989; Schoenecker and Cooper, 1998; Cooper and Smith, 1992). In line with this literature, this present paper distinguishes between core and new geographical markets. By core geographical markets, we refer to those markets in which the firm has been traditionally operating and that constitute the main source of revenues and profits. As in the product case, and given the commitment of the firm to these markets, the survival of the firm fundamentally depends on them. Therefore, we would expect that when the market domain of a firm becomes seriously threatened by the extent of competition, the firm would tend to secure its survival by looking for new markets. In this sense, rivalry in the core market may be an indicator about the extent to which the central activities of the firm are threatened and the need to look for new locations in which to develop these activities. Therefore, our fourth hypothesis is as follows:

> *Hypothesis 4: A higher rivalry in the core geographical markets of the firm is expected to have a positive impact on the speed of entry into new markets.*

Rivalry in the objective market

Apart from market conditions in the home market, the evolution of rivalry in the new market in which the firm wishes to operate should also influence the probability and entry timing. Mitchell (1989: 208) argues that the probability and entry timing into emerging technical subfields will be influenced by the extent of the rivalry to secure the value of specialized assets. Potential followers should also consider the competition coming from other potential entrants (Lilien and Yoon, 1990: 568). The economic literature has also considered this issue when analyzing entry decisions (Cotterill and Haller, 1992; Geroski and Schwalbach, 1991) and, following it, in this paper we will distinguish between actual and potential rivalry.

Actual rivalry is frequently measured through the use of concentration indexes. We could expect different effects of concentration on the entry decision (Cotterill and Haller, 1992) depending on whether we follow different lines of argument. On the one hand, high levels of concentration may be used as a proxy for high profit expectations. In contrast, oligopoly theory suggests that a smaller number of firms may facilitate coordination practices directed to deter entry (Scherer and Ross, 1990). Finally, the arguments offered by the contestable markets theory and the Chicago School point to the fact that concentration should not have any effect on the probability and timing of entry.

For its part, potential rivalry should be disincentive to new entry. Different arguments indicate that the number of potential entrants may influence competitive actions (Bain, 1956; Mitchell, 1989). An illustration is provided by Shermand and Willet (1967) under a perfect information framework: as the number of potential entrants increases, the probability of entry and that incumbents discipline new entrants both increase, making entry less attractive.

According to this reasoning, potential rivalry should have a negative effect on the timing of entry decisions. However, the effect of actual rivalry has to be determined by the evidence offered by our data. Thus, we propose the following two hypotheses:

> *Hypothesis 5a: A higher actual rivalry in the objective market is expected to have a positive/negative/no impact on the speed of entry.*

> *Hypothesis 5b: A higher potential rivalry in the objective market is expected to have a negative effect on the speed of entry.*

Demand potential

Following Lilien and Yoon (1990), entry timing decisions fundamentally depend on the level of market potential and its evolution (demand growth) over time. Intensity of demand and market growth are also variables frequently considered in the literature. A higher intensity of demand will lead to higher expected profits in the market. Cotterill and Haller (1992) point out that market growth may have two simultaneous consequences on entry conduct: on the one hand, a higher rate of market growth can lead to excess, higher expected profits and easier entry; on the other, the attractiveness of entry would be reduced by the larger queue of potential entrants. Given that we have controlled for the second effect in our previous hypothesis, we expect the effect of increased attractiveness to be prevalent and, therefore, a positive sign of the associated variable.

Hypothesis 6a: A higher intensity of demand in the objective market is expected to have a positive effect on the speed of entry.

Hypothesis 6b: A higher market growth in the objective market is expected to have a positive effect on the speed of entry.

Table 1 summarizes both the hypotheses considered in this paper and the expected signs of the effect over the speed of entry into new geographical markets.

SURVIVAL ANALYSIS AND THE COX PROPORTIONAL HAZARDS MODEL

To test the hypotheses just proposed this research uses the Proportional Hazards Model proposed by Cox (1972). The Cox Proportional Hazards Model (CPHM) is the most commonly used regression model for the analysis of survival data, mainly due to its flexibility. The model gives very efficient estimates as compared to a parametric proportional hazards model, even when the data actually come from the parametric model (Efron, 1977). Furthermore, and contrary to other survival analysis methods, the model does not require any underlying distribution to be specified, being more general in nature. Its main assumption is that the hazard functions of all the individuals are a multiple of an unspecified baseline hazard function. Therefore, the baseline hazard function is an arbitrary and non-negative function in time. If $X_i(t)$ is the vector of covariates for the ith individual at time t, the model assumes that the hazard for a subject takes the following form:

$$\lambda(t; z_i) = \lambda_0(t) r_i(t)$$

where

$$r_i(t) = \exp(\beta z_i(t))$$

is referred to as the risk score for the ith subject, β is a vector of regression parameters and $\lambda_0(t)$ is the baseline hazard function. The model does not include a constant term, given that this is incorporated in $\lambda_0(t)$. Its estimation is carried out through the maximization of the partial likelihood function (Cox, 1975), with the procedure being very similar to that of maximum likelihood.

Several extensions of the CPHM have been developed from Cox's original. Thus, the basic model has been extended to the consideration of competing events, multiple events, discontinuous intervals or risk, different time scales or time-dependent covariates that are very useful in practical terms. An extension that deserves special attention is the one formulated by Andersen and Gill (1982). These authors consider each subject as an observation of a very slow Poisson process, in which a censored subject is taken into account as one whose event count is still zero. It is their formulation that we have chosen to use in this paper.

Before applying this model to our data, we should make one particular observation. The model presented here is appropriate for survival data that have a continuous character. However, the availability of continuous data is not the rule in management and economics in general and, more specifically, in the analysis of entry timing decisions. In practice, data are rarely measured more

Table 1. Hypotheses and expected signs

Hypothesis	Reference	Expected effect on probability and timing of entry
Size	1a	+
Profitability	1b	+
Proximity	2	+
Previous experience	3	∩
Extent of competition in core markets	4	+
Actual rivalry in objective market	5a	+/−/0
Potential rivalry in objective market	5b	−
Intensity of demand	6b	+
Relative market growth	6c	+

precisely than in days and the most common case is perhaps the one in which we have annual information about the covariates and the event of interest. This raises the practical question of whether to use continuous or discrete time models. When data are grouped and tied deaths are present (i.e., when two or more observations have events at the same time), the construction of the partial likelihood function is more complicated. For this reason, extensions of the CPHM have been proposed for the cases in which time is measured in discrete intervals.

Cox (1972) gave the first alternative in his seminal paper, namely that the use of logistic regression may serve as an approximation to the true model. This method is attractive because, as the discrete time units get smaller, the result converges to that of the true Proportional Hazards Model (Thompson, 1977). Nevertheless, two problems stem from this approach (Prentice and Gloeckler, 1978): first, the regression parameter no longer has a relative risk interpretation; second, the meaning of the regression coefficient depends on the choice of grouping intervals. Prentice and Gloeckler (1978) provide a second alternative, through the consideration for the grouped data version of the Proportional Hazards Model (Kalbfleisch and Prentice, 1973). Their extension assumes that events are grouped into intervals. The regression vector is allowed to be time-dependent, but it remains fixed within a specific interval. Estimation takes place through maximum likelihood techniques. Finally, a third extension considers several assumptions about the order in which the event takes place when ties are present. This approach has been proposed by Breslow (1974) and Efron (1977) and attempts to approximate the true partial likelihood when the information contained in the data does not allow an ideal construction. The difference between both approaches rests on the assumptions made about the form that the partial likelihood function should take.

Therefore, in the availability of discrete data, the selection problem is reduced to one with two main options, with the presence of tied deaths being the main guiding criterion: on the one hand, the use of partial likelihood techniques, together with the Breslow or Efron approximations to handling ties; on the other, the alternative of estimating the model through maximum likelihood techniques (either the logit or the discrete analog to the Proportional Hazards Model).

In general, the maximization of the partial likelihood is shown to be extremely robust in the presence of tied deaths. What is more, the method tends to be superior to that of the maximum likelihood when not many events take place at the same time (Broström, 1997). Therefore, with a few ties in the data the continuous proportional model (with either the Breslow or Efron approximations) continues to be more appropriate for the analysis of survival data, even if duration is measured in discrete intervals. However, when many tied deaths are present, the alternative of estimating a discrete time model must be used. In this last case, when probabilities are small, it does not matter which model (logit, discrete analog) is selected (Broström, 1998).

SAMPLE DESCRIPTION

Our empirical analysis will be carried out using data from the Spanish savings banks sector that describe branch network expansion after restrictions were eliminated. Prior to deregulation, one or two savings banks were competing in each provincial market.[5] Thus, every province had at least one established saving bank, which implies that no province was free of incumbents. This is important, in the sense that it constitutes a difference from the usual models of entry. The risk supported by the new entrant is then reduced, given that the customer already has some information about the characteristics of the product offered by the new firm. Therefore, all the firms that entered a new market were followers and, as a consequence, the relevant distinction we draw is between early and late followers (it is not strictly possible to talk about first movers). A last feature of this market is that new financial entities have not been created up to now, which implies that our data come from a sample where no *ex novo* entries occur.

In this context, several advantages from early following could be relevant when considering the expansion process that has taken place in the Spanish banking sector. As in any other industry, early entry could provide the basis for the acquisition of superior resources. First entrants could have been able to place their branches in superior locations,

[5] Spain is divided into 17 autonomous regions. Each region is divided into provinces, of which there are a total of 50. Data are only available at the province level.

preempting competitors in the physical space. This is especially important in retailing, given that distance to customer appears as a very important competitive variable. Preemption could also take place in the consumer perceptual space. Given that customer relationships with the firm are fundamentally based on confidence, recognition and reputation might have played a very important role. Finally, the existence of switching cost could also have been a key issue in considering entry timing.

As mentioned earlier, the Spanish banking sector is especially interesting given that recent deregulation has changed the competitive environment in which the firms operate, with the subsequent effect on their strategies. Before branching deregulation took place, the geographic scope in which savings banks operated was restricted to a local, provincial, or regional character.[6] Deregulation allowed the entities to look for new markets in which to perform their activities. Against this background, the objective of our analysis is to shed light on the factors that have determined the decision of a firm to enter or not into a new geographical market and, given the former, the variables affecting the timing of the entry decision.

The data available for analysis belong to the period 1986–96. Although the total elimination of restrictions did not take place until 1989, a few years before savings banks had been authorized to compete within their own Autonomous Region and to establish some branches in the five biggest cities in Spain.[7] This advises that we anticipate the time of analyses until 1986 in order to avoid the potential bias stemming from the existence of left censoring. In any event, some entities had opened branches (usually one or two) before that date. Therefore, in order to avoid distortions in the analysis we only consider that an entity is present in a market when it has, at least, 1 percent of the branches of this market.[8]

Our study makes use of public data, coming from the Bank of Spain (BE) and the Spanish Savings Banks Confederation (CECA). The data have a longitudinal dimension, in that information about the covariates and the dependent variable is provided every year. A savings bank and its associated characteristics are identified and followed from 1986 to 1996. Sampling has been affected by the mergers and acquisitions that took place at the beginning of the 1990s, which reduced the number of savings banks from 77 entities in 1986 to 50 in 1996. The number of observations is given by all the possible combinations of savings bank-year-market in which the entity is not present at the beginning of the follow-up. This provides us with 27,956 single entity-market-year observations from which 153 correspond to effective entries.

Figure 1 presents the sampling plan. The left-hand side of the figure shows the years considered in the study, while the right-hand side records duration. If we look at the former, three basic situations are possible. Case (1) corresponds to an entity that has not been involved in any merger or acquisition and, therefore, is followed through all the sampled period. Case (2) samples an entity (top line) that has been integrated by a second one (bottom line). Finally, case (3) shows the situation in which two entities (first upper lines) merge and give rise to a third (bottom line). As has been mentioned earlier, in all cases an observation is included in the sample either up to the time at which the event takes place, or the time horizon of the study ends (censoring).

As we can also appreciate from Figure 1, sampling is affected by censoring. Censoring may take place for different reasons. In general terms, it occurs when the information available during the risk period is incomplete, due to limitations in the observation window. In the case of our sample, an observation may be censored either when a savings bank is involved in a merger (or acquisition) and legally disappears as a consequence of it, or due to the fact that information prior to 1986 or after 1996 is not incorporated in the analysis. As mentioned before, in this context a key feature of Survival Models is their capacity to handle this type of limitation in the data. For noncensored observations, models incorporate information about the corresponding duration. For those observations that are censored, all we know is that the event under study (entry) has not taken place up to the censoring time and, therefore, the models consider that the duration exceeds that limit.

[6] In 1986, 48 savings banks (out of 77) were competing in just one market (province), 11 in two markets, 5 in three and 8 in four. The remaining 5 entities competed in five to nine provinces.

[7] The law eliminating branching restrictions was, in fact, issued at the end of 1988 (R.D. 1582/1988 December 29 Law).

[8] The number of branches eliminated by the application of this criteria is 120 (1.1% of the total number of branches in 1986), mostly situated in Madrid (55), Barcelona (31), Valencia (12), and Zaragoza (7). As a consequence, by operating in this way we only eliminate 15 branches (0.14%) not situated in the four mentioned provinces.

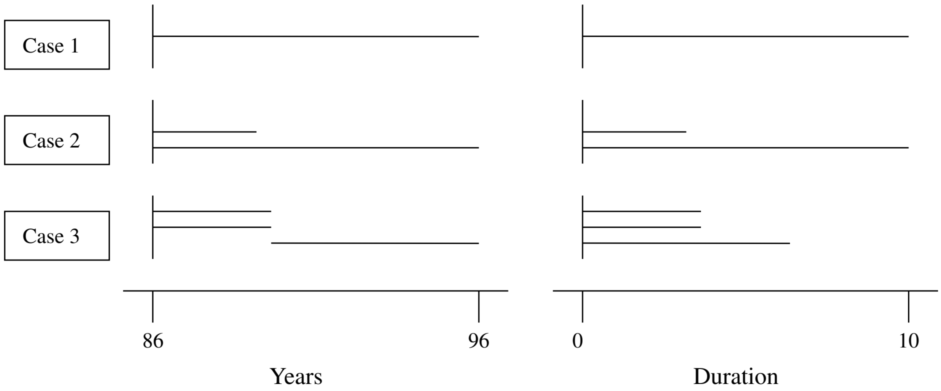

Figure 1. The sampling plan

Table 2. Hypotheses and measurement

Hypothesis	Variables
H1a: Size	LNSIZE: Natural logarithm of own resources understood as the sum of capital, rotation fund, reserves, subordinated financing, and retained earnings (end of previous year) INTER: Net balance (as a lender) of savings banks in the money market, normalized by the average assets of the entity (end of previous year)
H1b: Profitability	PROFI: Net profit divided by total assets (end of previous year).
H2: Proximity	PROXIC: Dummy variable that takes a value of one when the province is adjacent to the original (core) market of operation of the savings bank (end of previous year) PROXIE: Dummy variable that takes a value of one when the province is adjacent to the new markets entered by the savings bank (end of previous year)
H3: Experience	NMARK: Number of provinces in which the entity was operating at the end of the previous year
H4: Extent of competition in core markets	COREH: Overall Herfindahl (banking system) in the provinces in which the entity was initially operating (end of previous year)
H5a: Current rivalry in the objective market	OBJEH: Herfindahl (banking system) in the objective market (end of previous year)
H5b: Potential rivalry in the objective market	NUMSB: Number of savings banks operating in the provinces adjacent to the objective market (end of previous year)
H6a: Intensity of demand	DEPHA: Deposits per inhabitant in the objective market (end of previous year) DENSI: Density of population in the objective market
H6b: Market growth	MGROW: Average relative growth of bank deposits in the objective market in the 3 years previous to the one considered

In relation to the variables used in the analysis, the dependent variable takes a value of one for the entity–market–year observation in which an entry is recorded and zero otherwise.

Table 2 shows the description of the independent variables that were considered to test the hypothesis formulated above. All the covariates are taken at the beginning of the year under observation in order to avoid endogeneity problems. To test Hypothesis 1a, we created two variables: LNSIZE and INTER.[9] LNSIZE attempts to approximate the

[9] As Hannan (1979) noted in his analysis of North American banks, 'although very small banks show almost no tendency

own resources of the entity.[10] For a given size, the relative magnitude of the position as a net lender in the money market (INTER) will also be relevant, as it provides incentives to look for new markets in which to allocate the money in the form of loans at higher rates. On the other hand, profitability (PROFI, Hypothesis 1b) is measured through net profit divided by total assets.

Hypothesis 2 expects physical proximity to play a relevant role in determining the timing of new entries. Thus, firms first proceed to closer locations, acquiring knowledge about local markets, and then enter further markets over time. Obviously, the acquisition of knowledge about new markets takes time, which suggests a distinction between the markets that were initially close to the core markets of the savings bank and those in which proximity stems from expansion. Therefore, in order to test Hypothesis 2, two dummy variables were created. PROXIC takes a value of one when the objective market under study was geographically adjacent to the core market of the savings bank and zero otherwise. According to our reasoning, a second variable (PROXIE) was constructed in order to take into account the proximity arising as a consequence of diversification. This variable takes a value of one when the market is adjacent to the new markets entered by the savings banks. Following our hypothesis, we should expect the effect of this variable (PROXIE) to be of a lower magnitude than the first (PROXIC).

The capacity of a firm to manage operations across markets (Hypothesis 3) is measured by the number of markets in which the organization was operating at the end of the previous year, NMARK.[11] Rivalry in the core geographical markets (Hypothesis 4) is measured through a Herfindahl type index (COREH). To calculate this, a province Herfindahl index was first developed using the number of branches as a proxy for market share. The core market Herfindahl index was then calculated by multiplying each single Herfindahl index of the provinces in which the entity was operating in 1986 by the relative importance of the province for the entity under observation (the number of branches was again used to measure the importance of the province for the entity).[12] Province Herfindahl indexes were again used to proxy for current rivalry in the objective market (OBJEH, Hypothesis 5a). In order to take into account the interaction between banks and savings banks, this index has been calculated considering the branches of both types of intermediaries.

Hypothesis 5b postulates that potential rivalry in the objective market should have a negative influence on the timing of market entry. The measurement of this hypothesis is complicated, given the difficulties associated with the identification of a potential entrant and the need to follow a sensible method. In our case, the arguments anticipated in Hypothesis 2 were used and the potential competition associated with each market was defined in terms of proximity. Therefore, in order to measure potential competition, we first identified the markets in which the firm was not present and the degree of potential competition associated with any market was then obtained by counting the number of savings banks surrounding it (NUMSB).

Finally, intensity of demand in the objective market (Hypothesis 6a) is measured through two variables: DEPHA accounts for the amount of deposits per habitant in the market, while density of population (DENSI) is a variable frequently used in the literature on bank branching to proxy for population concentration. With respect to Hypothesis 6b (market growth in the objective market), we calculated the average relative growth in the deposit market for the 3 years prior to that under observation (MGROW).

Table 3 and Appendix 1 offer a descriptive statistics of the independent variables used in the analysis. Monetary variables are measured in constant terms (having been deflated by the IPC: Spanish Inflation Index).

to branch, large banks, particularly those with deposits in the neighborhood of $300 million or more, are frequent initiators of new branches.'

[10] Given that savings banks have a mutual character, they cannot have access to the most common sources of funding and, therefore, the expansion has to be financed with internal funds or subordinate financing. As in other papers, we use natural logarithms in order to reduce the skewness of the size distribution.

[11] In addition to the arguments offered above, Economides, Hubbards, and Palia (1996) point out, in a context of monopolistic competition, a 'large' bank (defined as one which operates branches in more than one market) will have, *ceteris paribus*, higher expected profits than a 'small' bank (in their definition, one with operations in just one market) and, therefore, a higher likelihood of expanding activities towards new markets. This is due to the fact that small banks need to hold more equity capital than large banks (per branch), because they are not as diversified.

[12] Note that this measure of core market competition is firm specific, in the sense that it takes different values for any two different firms.

Table 3. Descriptive statistics

Variable	Mean	S.D.	Lowest	Highest	No. obs.
H1a: LNSIZE	8.81	1.21	5.21	12.46	27,956
H1a: INTER	0.10	0.08	−0.10	0.48	27,956
H1b: PROFI	1.02	0.57	−2.22	3.53	27,956
H2: PROXIC	0.10	0.30	0.00	1.00	27,956
H2: PROXIE	0.02	0.12	0.00	1.00	27,956
H3: NMARK	2.62	2.97	1.00	49.00	27,956
H4: COREH	0.13	0.05	0.06	0.35	27,956
H5a: OBJEH	0.15	0.05	0.06	0.35	27,956
H5b: NUMSB	5.74	3.82	0.00	20.00	27,956
H6a: DEPHA	0.56	0.20	0.20	1.45	27,956
H6a: DENSI	106.71	137.81	9.02	626.45	27,956
H6b: MGROW	5.67	3.54	−1.89	23.06	27,956

RESULTS

Table 4 shows the results of applying the CPHM over the 27,956 available observations. As was mentioned in the previous section, the dependent variable takes a value of one for the market and year in which the entity under observation has performed an entry. The ties index takes a value of 0.0045[13] and, therefore, following our discussion on continuous and discrete time models, the partial likelihood method was chosen. The table includes the results for the Andersen and Gill formulation of the model, using the Efron (1977) approximation for handling ties.[14] As mentioned before, the model does not include a constant term because it is incorporated in $\lambda_0(t)$.

The first point to note from Table 4 is that the model is globally significant, confirming its validity. Given the high correlation between the variables LNSIZE and NMARK (0.51), column 1 presents a first model in which the second variable is not included in the estimations. Column 2 proceeds a step further, estimating a second model in which the number of markets in which a savings bank operates is expected to have a linear influence on the timing of entry. Finally, column 3

Table 4. Results

Explanatory variables	AG (1) Efron	AG (2) Efron	AG (3) Efron
LNSIZE	1.399***	1.404***	1.214***
	(14.574)	(12.361)	(8.649)
INTER	6.601***	6.601***	7.069***
	(3.975)	(3.972)	(4.238)
PROFI	0.116	0.116	0.023
	(0.764)	(0.765)	(0.146)
PROXIC	2.464***	2.465***	2.411***
	(11.349)	(11.322)	(10.969)
PROXIE	1.839***	1.845***	1.751***
	(7.042)	(6.753)	(6.428)
NMARK		−0.001	0.092**
		(0.077)	(2.110)
NMARK2			−0.002**
			(−2.182)
COREH	−13.885***	−13.933***	−12.876***
	(−4.358)	(−4.289)	(−3.958)
OBJEH	−1.919	−1.910	−1.634
	(−0.969)	(−0.962)	(−0.822)
NUMSB	−0.101***	−0.102***	−0.103***
	(−3.593)	(−3.593)	(−3.632)
DEPHA	−0.444	−0.439	−0.319
	(−0.753)	(−0.738)	(−0.540)
DENSI	−0.0358	−0.036	−0.047
	(−0.517)	(−0.515)	(−0.675)
MGROW	0.0299	0.031	−0.269
	(0.011)	(0.011)	(−0.099)
Likelihood ratio test	762***	762***	767***
Number of observations	27,956	27,956	27,956

Coefficient statistically significant at ***1%, **5%, and *10% levels; t-ratios in parentheses.

[13] The tie index is defined as $\left(\sum_i^n (d_i - 1)\,/\,(r_i - 2)\right)/n$, where d_i is the number of events at i and r_i is the number of individuals at risk at i. The index takes a value of 0 for the case in which data are truly continuous and tends to 1 as the number of ties in the data increases (Broström, 1998).

[14] The results of the Efron and Breslow approximations are fairly close. However, the likelihood ratio for the Andersen and Gill model with Efron shows a higher value for all the estimated models. Therefore, this approximation will be taken as a reference when commenting on the results obtained. Appendix 2 shows the results of the estimation of the Prentice and Gloeckler model for comparison purposes. As mentioned earlier, the estimates are also very close in value and significance to those obtained through the maximization of the partial likelihood function.

presents a last model which captures the hypothesized quadratic effect (NMARK and NMARK2).

As has been found in other studies, firm-specific characteristics are important when explaining entry decisions and their timing. Our results show that firm size (SIZE, INTER) has a positive and significant impact on the timing of new market entry in the savings bank market. This implies that, once the restrictions on the opening of new branches in new markets were relaxed, the biggest entities (*ceteris paribus*) were the first to decide to look for new markets in which to develop their activities. At the same time, this effect is stronger for those savings banks that have been characterized as net lenders in the money market. As has been mentioned earlier, the reason could be that the existence of slack resources provides these entities with an incentive to look for new markets in which to invest these at higher rates, also confirming Hypothesis 1a. These results closely agree with the fact that 59 of the 82 entries (71.95%) that took place in the first 4 years under study were made by the three biggest savings banks in the country, and provide evidence to reject the view that the largest savings banks are rigid and inflexible.

The profitability variable (PROFI) is not statistically significant at the normal levels, thus rejecting Hypothesis 1b. Therefore, return on assets, as this has been defined, did not have any influence on the observed pattern of entry.

Both the covariates measuring proximity (PROXIC and PROXIE) show positive and highly significant coefficients, implying a positive effect on the timing of entry, as expected by Hypothesis 2. Spanish savings banks have undertaken their diversification activities in a sequential way, first learning about markets close to their original scope of operation, and then directing their activities towards markets further away. As was postulated when formulating this hypothesis, it is expected that the capabilities of the firms are better suited for operations in closer markets. Savings banks in adjacent markets may be better positioned to act and obtain relevant information about the market. Additionally, activities in closer markets are easier to control and proximity makes customers in the new markets more familiar with the entity. What is more, the larger relative value of the coefficient PROXIC in all the estimations agrees with the idea that the acquisition of knowledge about new markets takes time. Note that the expansion seems to be quicker when the core markets are used as a 'platform' to entry than when diversification is undertaken from the newly entered markets.

The experience of the organization in managing operations across markets (NMARK) is also shown to have a significant effect over the entry timing. As evidenced by the estimates presented in column 3, the number of markets in which a savings bank is operating has an inverted U-shaped influence on the speed of entry. That is to say, as firms proceed a step further in the diversification process, they accumulate knowledge about how to effectively manage simultaneous operations in several markets. Nevertheless, as the degree of diversification increases, this positive effect is compensated by an increase in coordination and monitoring costs.

In relation to industry characteristics, increasing concentration (less rivalry) in the market in which the firm was initially operating (COREH) has a negative effect on the speed of entering into a new province. Therefore, when the core market and the survival of the firm are challenged by the extent of rivalry, it tends to secure itself through the extension of its activities to new markets (this confirms Hypothesis 4 and closely agrees with evidence for the product case). Therefore, savings banks that were operating in more concentrated markets have, *ceteris paribus*, been the slowest in becoming involved in the expansion process.

Current (OBJEH) and potential rivalry (NUMSB) in the objective market have also been considered as relevant when explaining entry decisions. The coefficients associated with these variables present a negative sign. However, only the coefficient associated with the NUMSB covariate (potential rivalry in the objective market) presents a significant effect over entry timing. This confirms the idea that entry probability is increased in the eyes of potential entrants as the number of them itself increases. On the other hand, the probability of the incumbent engaging in activities directed at blockading entry also increases as the number of potential entrants is larger (Hypothesis 5b). However, the available evidence leads us to reject Hypothesis 5a.[15]

[15] The insignificant coefficient of the variable could be due to the correlation between the two variables used to test Hypothesis 5 (0.39). When the two variables were introduced in the analysis alone, both signs were found to be negative and significant at the usual levels.

Finally, demand potential does not appear to significantly affect the probability of observing an entry. None of the three variables (DEPHA, DENSI, MGROW) used to test this effect were found to be statistically significant at the normal levels, thereby rejecting Hypotheses 6a and 6b.

The interpretation of the coefficients of the model is analogous to the classical regression. For example, for the case of the proximity to the core market variable, the coefficient of 2.411 means that when the market considered is adjacent to the market in which the firm was initially operating, the log of the hazard is increased by 2.411. A more intuitive interpretation may be obtained through a consideration of the exponential value of the coefficient (Allison, 1984). That is to say, proximity to the market in which the firm was initially operating multiplies the hazard 11.145 (i.e., $\exp(2.411) = 11.145$) times. For those cases in which the variable under study is continuous, the interpretation is, again, analogous. An additional potential entrant identified in an objective market (e.g., from seven to eight potential entrants) reduces the probability of entering that market to 0.902 ($\exp(-0.103(8-7))$) times. That is to say, an additional potential entrant reduces the probability of entering in that market by 9 percent ($100(\exp(-0.103) - 1)$). Table 5 presents the effect over the hazard of a one standard deviation change of the covariates that were significant in the previous estimations. As with the cases just mentioned, a 'large entity' (defined as one with a value of mean plus one standard deviation in the LNSIZE covariate) has a 4.34 times higher probability of entering in the average market as compared to the average sized entity (that with mean values in LNSIZE).

Table 5. Effect of a change in one standard deviation of the covariates

Explanatory variables	AG (1) Efron	AG (2) Efron	AG (3) Efron
LNSIZE	5.435	5.468	4.345
INTER	1.696	1.696	1.760
PROXIC	2.094	2.095	2.061
PROXIE	1.247	1.248	1.234
NMARK			1.252
COREH	0.499	0.498	0.525
NUMSB	0.680	0.677	0.675

DISCUSSION AND CONCLUSIONS

The available literature on strategic management reflects the lack of studies devoted to analyzing the determinants of entry timing decisions. The purpose of this paper has been precisely to cover this gap in the literature and to provide an empirical extension through considering entry timing decisions from a geographical point of view. By analogy to research carried out in the product dimension, we have developed a set of hypotheses that we have tested using the Andersen and Gill (1982) formulation of the Cox Proportional Hazards Model.

Our results have several implications in terms of the questions posed at the beginning of the paper. First, as we have seen in the analysis, early and late entrants are clearly different. Early entrants are not endowed with the same type of resources and capabilities as late entrants. Early followers seem to be characterized by being large and experienced firms, entering from closer markets. Therefore, managers in incumbent firms should expect larger, experienced, and closer organizations to be the first to make entry effective.

These results provide us with new evidence on the importance of differential resources in determining entry timing. On the one hand, and as mentioned earlier, they agree with the evolutionary conceptions of the development of resources within firms, and highlight the relevance of learning and experience as providers of key capabilities to secure successful growth. As we have seen, more experienced firms not only have a higher likelihood of entry at any time, but also exhibit a pattern of branch expansion that seems to resemble the neighborhood effect of spatial diffusion studies, first progressing to close rather than remote locations, and then entering new markets as they become contiguous (Majahan and Peterson, 1985). On the other, our results provide us with new evidence on the conflictive link between organizational size and organizational change, in that we found large organizations were the first to enter and did not show any sign of bureaucratic inertia.

Second, the results highlight the importance of including firm-specific competitive conditions and market characteristics in the study of entry timing decisions. As mentioned before, if the likelihood and the timing of entry are influenced by the strengths and weaknesses of the firm's existing resources and capabilities, then, for their part, industry characteristics and firm-specific competitive conditions capture the threats and opportunities firms face and moderate the effect of the former variables. As we have seen, the expansion is led by firms that have a lower concentration in their original markets and that tend to direct themselves towards markets with a lower number of potential entrants. Therefore, managers in incumbent firms located in markets with a lower threat of entry should be the first to expect newcomers arriving from markets with high rivalry.

Although subject to the usual caveats, these results are capable of extension to a number of industries in which operations take place in several geographic markets. Research into geographic diversification in the airline industry or the retailing sector would help to shed more light on the factors affecting entry decisions and further extend the entry timing literature in this dimension. In fact, some research has already been implicitly undertaken recently in the management literature that studies the link between multimarket competition and mutual forbearance (Baum and Korn, 1996, 1999; Haveman and Nonnemaker, 2000). According to our results, new studies should explicitly consider the inclusion of previous experience, relatedness, and sequencing as important determinants of the direction and the timing of entry. Furthermore, given the dynamic character of firm competitive interactions and the increasing importance of approaches that emphasize the relevance of the internal, potentially nonobservable, characteristics of firms (such as the resource-based view) further efforts should be made to adopt analytical tools that account for heterogeneity. In this sense, the lead taken by biometry in the development of frailty models could well be followed.

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APPENDIX 1. Correlations between the variables

	LNSIZE	INTER	PROFI	PROXIC	PROXIE	NMARK	COREH	OBJEH	NUMSB	DEPHA	DENSI	MGROW
LNSIZE	1.000											
INTER	−0.095	1.000										
PROFI	−0.170	0.177	1.000									
PROXIC	0.043	0.004	0.011	1.000								
PROXIE	0.172	−0.006	−0.042	−0.042	1.000							
NMARK	0.515	−0.106	−0.168	0.051	0.368	1.000						
COREH	0.117	0.219	0.061	0.088	−0.003	−0.066	1.000					
OBJEH	0.031	−0.005	−0.031	0.089	0.027	0.036	−0.025	1.000				
NUMSB	−0.131	−0.038	0.097	0.179	−0.020	−0.059	−0.055	0.394	1.000			
DEPHA	0.149	0.044	−0.128	0.035	0.063	0.090	0.032	0.229	0.009	1.000		
DENSI	0.002	0.004	0.004	−0.060	−0.006	0.015	0.016	−0.378	−0.284	0.265	1.000	
MGROW	−0.002	−0.066	−0.029	0.011	0.001	−0.004	−0.014	0.060	0.095	0.056	−0.004	1.000

APPENDIX 2. Discrete time survival model. Results of the estimation of the Prentice and Gloeckler Model

	PG (1)	PG (2)	PG (3)
CONSTANT	−17.533***	−17.607***	−16.084***
	(−15.044)	(−12.980)	(−10.741)
LNSIZE	1.403***	1.409***	1.216***
	(15.286)	(12.435)	(8.676)
INTER	6.654***	6.679***	7.154***
	(4.115)	(3.993)	(4.282)
PROFI	0.119	0.118	0.025
	(0.785)	(0.765)	(0.154)
PROXIC	2.472***	2.475***	2.421***
	(11.697)	(11.322)	(10.970)
PROXIE	1.855***	1.857***	1.763***
	(7.297)	(6.814)	(6.482)
NMARK		0.000	0.094**
		(−0.025)	(2.128)
NMARK2			−0.002**
			(−2.186)
COREH	−14.132***	−14.126***	−13.063***
	(−4.601)	(−4.356)	(−4.033)
OBJEH	−2.013	−1.999	−1.709
	(−1.025)	(−0.995)	(−0.847)
NUMSB	−0.101***	−0.102***	−0.103***
	(−3.640)	(−3.566)	(−3.590)
DEPHA	−0.443	−0.455	−0.341
	(−0.769)	(−0.766)	(−0.573)
DENSI	0.037	0.037	0.048
	(−0.531)	(−0.510)	(−0.658)
MGROW	−0.074	−0.057	−0.350
	(−0.028)	(−0.021)	(−0.127)
Likelihood ratio test	822***	822***	827***
Number of observations	27,956	27,956	27,956

Coefficient statistically significant at **1% and ***5% levels; t-ratios in parentheses. Time-specific dummies omitted.