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Is Franchising a Financial Tool? A Dynamic Panel Data Approach

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Abstract

This work considers whether the difficulty for obtaining funding affects the choice of organizational form for franchise chains. We created a panel of Spanish franchisors who were observed from 1996 to 2002, and calculated a dynamic, partial-adjustment model for ownership structure, using the generalised method of moments in first differences. This allowed us to introduce auto-regression and to use endogenous explanatory variables. The results obtained show that the greater a chain's liquidity and return on assets and the lower its debt, the less likely it is to operate as a franchisor. This supports the financial argument. However, the requirements for investment in growth are not significant, and age shows does not show the expected sign. Finally, we verified the partial-adjustment model for ownership structure, obtaining a high adjustment speed of 78-69%.

Keywords

Franchise, capital scarcity, panel data, evolution.

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1 Introduction

Although there is plenty of literature on franchising², one matter that is as yet unresolved is why the empirical studies do not support the opinion of entrepreneurs (franchisors) regarding this business formula as a means of obtaining finance (Dant, 1995). In other words, why do franchisors prefer franchising to other methods of obtaining funds, such as borrowing or taking on new financial partners. Most studies confirm the most widely-accepted theory that chains decide to franchise because, by converting the manager of an establishment into an “entrepreneur” who is paid with residual rent, they are better aligning the manager’s interests with those of the chain, thus avoiding the problems of control and incentives that often arise in working relationships³. However, this academic consensus does not tie in with the fact that 60% of the managers surveyed by Dant (1995) mentioned access to capital as the reason for adopting franchising or with doubts as to whether the franchisee is really personally responsible for management of the establishment. In a recent survey, only 23% of Spanish chains considered it “essential” for the franchisee to be personally responsible for the business (Sánchez Gómez, 2006, p. 102).

Another theoretical argument is that franchising is used to facilitate access to specific scarce resources⁴, such as capital (Ozanne and Hunt, 1971; Caves and Murphy, 1976), management skills (Oxenfeldt and Kelly, 1969; Norton, 1988) and local information (Minkler, 1990). Unlike the first argument, this one has always been controversial, both because of its theoretical basis and because the empirical results obtained so far, especially with regard to financial resources, have not been conclusive. This paper focuses on this matter of funding.

The idea of franchising as a means of funding was initially criticized because it was considered more expensive than other alternatives because of the risk premium involved. Rubin (1990) and Norton (1995) argue that a franchisee should demand a larger risk premium than a shareholder because the latter’s assets are much more diversified. The shareholder’s income depends on the income from all the establishments in the chain, whereas that of the franchisee depends on a single establishment. Combs and Ketchen (1999), however, suggest that the advantage of franchising lies in savings in other types of cost, namely, the transaction costs that are avoided because the owner and the manager of the establishment are different people and those that are avoided because there is less risk of adverse selection in the process of selecting franchisees than in selecting employees (Shane, 1996).

The purpose of this paper, therefore, is to determine whether the use of franchising may also involve a financial component. We argue that the reason why franchisees are a cheaper source of funding is because, by assigning variability

² See, for a report on the research carried out over more than 25 years on franchising, the recent work by Blair and Lafontaine (2005).

³ See Caves and Murphy (1976) and, especially, Rubin (1978).

⁴ The first to establish this argument were Oxenfeldt and Kelly (1969).

(risk) to the party with the greatest capacity for influencing the establishment's results (the franchisee), the transaction costs involved in the activity are reduced. This is far from being an inefficient way of allocating risk. Quite the opposite, because franchisees see less risk in managing a single establishment in which their effort is the key to success than in participating in all the establishments, in which their effort as one of many shareholders will not necessarily have a direct influence on the result.

A second contribution of this paper is an empirical one. Most of the studies carried out are based on samples of large North American companies that are listed on the stock exchange, in order to gain access to their financial data. But it is precisely such companies that find it easiest to gain access to resources, and this may be the reason why the studies reject the financial argument. Our study includes small and medium franchise chains, some of which have little experience and are not listed. This enables us to extend the previous empirical studies to the whole business universe. Also, since we have a time series, we have been able not only to check the unobservable heterogeneity in the panel data⁵, but also to model the dynamic adjustment of ownership structure. Franchisors are likely to work with certain expectations regarding optimal structure. That is, they establish an objective for growth in line with their perception of the costs of opening a franchised or owned establishment. This target will be achieved over time by trial and error, depending on their experience (Castrogiovanni, Combs and Justis, 2006, p. 30). We use the generalised methods of moments in first differences. This not only allows us to introduce an element of autoregression in the model, which is essential for making it more explanatory, but also to use endogenous explanatory variables.

The rest of the article is organized as follows. In the second section, we carry out a theoretical review of the reasons for franchising, focusing on the capital scarcity argument. In the third section, we describe the process followed for obtaining data, the sources used and the econometric model adopted. Finally, we state the results and conclusions of the study, in sections four and five respectively.

⁵ At an international level, only the article by Minkler and Park (1994) on North American companies includes this methodology for comparing the financial argument. The studies by Pénard, Raynaud and Saussier (2003), based on a sample of French companies, and by Lafontaine and Shaw (2005), focusing on the US market, as well as that by Minkler and Park (1994), also use panel data but for comparing other arguments, not the matter of lack of funding.

2 Theoretical Review

2.1 The classic hypothesis: aligning incentives

The most widely-accepted explanation for franchising is that it solves the agency problem between the chain and those responsible for the individual establishments. This problem means that, when the owner and the manager are not the same person, the latter may pursue their own interests instead of those of the principal they represent (making less effort, using the company car for personal reasons, etc.). The reason for such behavior is that the manager does not have to bear all the costs, especially when a fixed wage is paid. An agency cost is therefore generated because the managers' and the company's incentives are different (Rubin, 1978; Brickley, Dark and Weisbach, 1991). By converting the manager of an establishment into a franchisee, granting him or her the residual rights on the establishment (such as the residual rent), the interests of the parties are much better aligned.

Franchising therefore becomes more attractive when there is a greater possibility of opportunistic behavior by the agent (or manager of the establishment). This leads us to draw up the following hypothesis:

H1: The greater the risk of opportunism on the part of the agent, either because of the need for a great effort on the part of the manager or because of the high costs of supervision, the more likely it is that franchising will be adopted.

The empirical evidence supporting this argument is practically unanimous. Authors such as Brickley and Dark (1987), Norton (1988), Brickley, Dark and Weisbach (1991), Minkler (1990), Lafontaine (1992, 1995), López and Ventura (2002), Perales and Vázquez (2003), Lafontaine and Shaw (2005) and Castrogiovanni, Combs and Justis (2006) find that the greater the cost of supervising those responsible for the establishments, the more likely it is that franchising will be adopted. In other words, owned establishments will be located in places in which control costs are low, whereas franchised establishments will exist where the cost of control is greater. Caves and Murphy (1976), Lafontaine (1992), Scott (1995), Slade (1996), Bercovitz (1998), López and Ventura (2002) and Perales and Vázquez (2003) note a greater tendency to franchise establishments in locations in which the effort of the manager is key for the success of the establishment.

2.2 Risk premium and financial costs

In spite of the clear empirical results supporting the above argument, entrepreneurs continue to insist that one of the main reasons for using franchising is that it obviates the need to search for funds. Lafontaine (1992), for example, found that

76 out of 130 of the franchisors questioned for his study saw franchising as a mechanism for gaining the funds needed to grow their businesses fast. Dant (1995) also noted that lack of capital was one of the main reasons why companies started franchising, with 60% of the entrepreneurs interviewed stating access to capital as the reason for using the franchise system. Moreover, in a recent study, only 23% of Spanish chains considered it “essential” for the franchisee to be personally responsible for the business (Sánchez Gómez, 2006, p. 102), thus contradicting the claim that the main reason for using a franchise is to align interests.

Access to limited resources is another of the alternative arguments used to explain the use of franchising (Oxenfeldt and Kelly, 1969). These authors state that the franchisor will decide to franchise some of his establishments when faced with difficulties for obtaining limited funding. Obtaining the capital needed for expanding the company is the typical situation (Oxenfeldt and Kelly, 1969; Ozanne and Hunt, 1971; Caves and Murphy, 1976)⁶. Franchisees often provide a large proportion of the investment needed to set up the new establishment, so the franchisor’s effort is much smaller. However, it is unlikely that franchisors reason in terms of financial effort, but rather in terms of capital costs which are more relevant for them. So the question to be asked is why the cost of expanding the business through franchising seems lower (although it is the dominant form)⁷ than that of other formulae such as borrowing or finding new financial partners (leading to growth in the form of “owned” establishments).

An initial explanation is that during the first few years of life of a chain, the franchisor is not a well-known company so there may be doubts as to the viability of the business, making it difficult to obtain the necessary funding to expand the commercial network. The problem can be solved by franchising and, in the long term, once the company has gained access to funding, the franchisor can recover control of the network by re-purchasing the establishments (Oxenfeldt and Kelly, 1969; Hunt, 1973).

There are at least three weak points in this argument. The first is that it does not explain why it is possible to convince the prospective franchisees but not the banks or, rather, the private equity firms that specialize in this type of operation. The second, proposed by Rubin (1978) and better known, is that it seems riskier for an individual to become a franchisee than a shareholder in the same franchise business. Variability in results for a franchisee depends on a single establishment, whereas for a shareholder they depend on global results (Rubin, 1990; Norton, 1995). If the results of all the chain’s establishments are taken together, the individual risk of each establishment is likely to be eliminated, leaving only the actual business risk which exists in any method of obtaining resources. So, if franchises are more risky, franchisees will demand greater compensation, making this a very costly way of obtaining funds for the franchisor.

Thirdly, a franchise contract means that the franchisor (principal) shares the risk (business variability) with the franchisees (agents). If we assume that the

⁶ Other important resources that can be obtained by franchising are management skills (Oxenfeldt and Kelly, 1969; Norton, 1988) and local information (Minkler, 1990).

⁷ The results of our data base show that in Spain 64% of establishments are franchises.

agents are more risk averse than the principals, as established by many agency models, then franchising would not be the most efficient financing mechanism because the use of owned establishments (financed with shareholders' equity or debt) would be a better means of assigning the risk (with a lower risk premium). In order for this argument to be valid, both franchisor and franchisee should be risk neutral.

Combs and Ketchen (1999) improve the argument by explaining that franchisees may be a cheaper formula for financing because they reduce two types of cost: a) by managing the business directly, the creditor of the residual rent does not incur agency costs between the owner and the manager; and b) if the franchisee invests directly and accepts the consequences of his own decisions, there will be less probability that candidates will try to hide their skills (in contrast with the typical process of selecting employees) (Shane, 1996). So this argument would explain why the owners of chains state that franchising is an attractive form of financing. But Combs and Ketchen (1999) do not explain why the franchise contract (franchisor – franchisee – employees) generates fewer agency costs than an ownership contract (owner – manager – employees). Additionally, it is increasingly frequent for a franchisor to invite participation from other shareholders, normally investors (*Franquicias hoy*, April 2007, p. 34). This even complicates more the franchise contract, and consequently it raises agency costs, because it probably adds a new relationship, being then the sequence of contracts now: owner – manager – franchisee – employees.

A parallel explanation is to reconsider the argument that franchising is a good way of obtaining funds, especially when other forms are costly, but this requires rebuttal of the poor risk assignment argument. According to this, because there is greater risk, franchisees must demand a higher risk premium if they are to act rationally, but if they demand it and are accepted, it would be the franchisors that are no longer acting rationally because they have more efficient forms of financing. This paradox can be resolved if we consider that the risk perceived by the franchisee of investment x in chain j is lower than if he becomes a shareholder in the same chain j investing the same amount x . This is because, through a franchise contract, the investor (franchisee) has more capacity for influencing the result of the investment than a shareholder, especially if the company is a limited liability company that is not listed on the stock exchange (as is typically the case of many franchisors, especially in Europe).

Milgrom and Roberts (1992, p. 219) argue that the value generated in a relationship is greater when we introduce variables in remuneration to reduce the error in calculating the agent's effort (in this case, the result of the investment). The variability in the results of a specific establishment will depend, amongst other things, on the effort of the franchisee, his skills, business model, how he adapts this model to the characteristics of the local market and a random component which we shall call "nature". The franchisee is the person who knows best his level of effort and skills so, considering also that he is from the local area so knows the local market well, then the variability perceived by the franchisee will

be relatively small (only nature and, perhaps, if the business is suitable or not). If, instead, the same franchisee were to become a shareholder, then the perceived variability would be much greater because, apart from the variability that stems from the actual nature of the business and, perhaps, knowing whether the business suits the local situation, he has no information about the effort to be made by the agents managing the establishments, nor about their skills. The perceived variability is therefore greater and the risk involved will lead to a demand for higher return on assets. If, moreover, the investor becomes a minority shareholder in a closed limited company, the risk of becoming trapped with no room for movement is even greater.

This argument suggests that the conventional principal-agent model is not applicable when the parties do not consider only the component described as “nature” to be random but also all the variables over which they do not have direct control. Barzel (1989, p. 56) argues that the party may become more of a residual claimant depending on their capacity for influencing results because this would reduce transaction costs, especially the problems of measurement and debates as to who should sustain any losses. Assignment of part of the establishment risk to the franchisee is therefore optimal because this is the party that is most likely to influence the result, thus bringing down transaction costs. A shareholder may run a lower risk from “nature” but may perceive more risk because he cannot control the action of other owners of production factors even though their action may be relevant for the success of the business. This approach fits in with the fact that Allen and Lueck (2002) do not find any empirical evidence to support the risk argument in the traditional model of the principal-agent theory in sharecropping contracts and that their results fit in better with the problems of measurement and of transaction costs of the Economics of Transaction Costs (Allen and Lueck, 2002, pp:95-119).

From the above, we can establish the hypothesis that franchising is a method of funding that serves as an alternative to other methods that facilitate the opening of owned establishments and that it will be chosen depending on the relative costs of all the methods:

H2: The greater the costs of alternative sources of finance, the more likely it is that franchising will be adopted.

Arguments against this hypothesis include the practice of some companies of financing their own franchisees and that large companies also use franchising, even though they should have no problem for gaining access to capital (Brickley, Dark and Weisbach, 1991; Carney and Gedajlovic, 1991; Combs and Castrogiovanni, 1994).

We consider, along the same lines as Combs and Ketchen (1999), that the financial argument complements rather than substitutes the incentive alignment argument. It is therefore necessary to control for the effect of both to see if the two arguments are still relevant. The chains that finance their own franchisees are a minority and are very large, such as McDonalds or, in Spain, Telepizza. For such

organizations, it is probably more important to control the network and find managers who are keen to work than to find the means of funding. This does not mean, however, that smaller, less well-known organizations find financing a problem.

The empirical evidence on this argument is confusing, partly because variables have been used that do not exactly represent the idea of scarcity of capital or of the relative costs of other sources of funding. Also because some statistically relevant data seem to support the argument but do not prove it outright. In the former case, Thompson (1992) and Martin and Justis (1993) obtain evidence of greater use of franchising the greater the initial investment needed to open a new establishment. But, since the investments involved are almost always below 79,000€ the investment is actually small: many bank managers would be prepared to finance such amounts without even consulting their risk departments.

In the second case, Caves and Murphy (1976), Lafontaine and Kaufmann (1994), Combs and Castrogiovanni (1994) and Dant and Kaufmann (2003) note a higher proportion of owned establishments in more mature franchise chains. Dant and Kaufmann (2003) and Castrogiovanni, Combs and Justis (2006) obtain a negative relationship between the percentage of franchised establishments and the size of the chain, thus supporting this argument. Martin and Justis (1993) compare the growth of mature and immature franchise chains⁸, reaching the conclusion that it is the latter that depend most on franchising at times when it is difficult to gain access to the capital market. This same variable has been used by other authors such as Thompson (1992) and Combs and Castrogiovanni (1994). Sen (1993) notes that the youngest chains set higher entry fees for their franchisees than more mature chains, indicating that the former face greater difficulties in obtaining funds. Finally, Michael (2003) points to the existence in the market of “first mover advantages” in the restaurant sector, allowing entrepreneurs willing to franchise to gain a competitive advantage over other companies in the sector⁹.

⁸ These authors state that immature franchise chains are those that have been in the market for less than 10 years, having a total number of establishments that is equal to or less than the average number of establishments in the sector.

⁹ This author shows with this result that franchising is a mechanism for acquiring funds because the existence of advantages for whoever takes the first move is one of the key assumptions in the scarcity of capital argument. So, “Initially many franchisors establish franchises in order to penetrate the market as widely and rapidly as possible, thus preempting valuable territory from competitors” (Oxenfeldt and Kelly 1969, p.74).

However, it is only Norton (1995) and Combs and Ketchen (1999) who have used more specific measures for capital scarcity, such as the loan or liquidity ratio, obtaining evidence that franchising can really be an alternative means of funding. The studies based on direct surveys also support the financial argument. Mc Guire (1971, p.6) states, "...the single most important reason for adopting franchised distribution would be to conserve or acquire capital, while at the same time attempting to establish an effective distribution network as quickly as possible". Similar results are obtained by Lafontaine (1992) and Dant (1995). Finally, Table 1 shows some of the studies that have analyzed this argument.

Table 1: Effect of capital scarcity on the probability of franchising

Author(s)	Year	Data	Measurement	% of franchisees
Caves and Murphy	1976	Sector data	Age	(-)
Brickley and Dark	1987	1. Companies in different sectors	1. Initial investment	-
		2. Establishments in 36 chains in different sectors	2. Initial investment	-
Brickley, Dark and Weisbach	1991	1. Sector data on a national level	1. Size	(+)
		2. Establishments in 36 chains	2. Initial investment	-
Carney and Gedajlovic (1991)	1991	128 Canadian companies in different sectors	1. Size	(+)
			2. Age	(+)
			3. Initial investment	+
Thompson	1992	Franchises in different sectors	1. Initial investment	+
			2. Growth	+
Lafontaine	1992	Business franchises in all sectors	Initial investment	-
Martin and Justis	1993	57 franchise chains in fast food, hotels and convenience store sectors	1. Initial investment	+
			2. Growth	+
Lafontaine and Kaufmann	1994	130 surveys amongst Presidents of franchise systems in the US	1. Age	(-)
			2. A dummy variable with value 1 if the franchisor is a subsidiary of a larger company.	(-)

Note: The brackets in the last column indicate that the variable used for estimating difficulty of access to funding is inversely related to the size of the funding, so the sign is likely to be the opposite of what was expected.

Author(s)	Year	Data	Measurement	% of franchisees
Minkler and Park	1994	Data panel 1975-1989	1. Real interest ratio	-
			2. Growth	-
			3. Age	(+)
Combs and Castrogiovanni	1994	558 franchise chains	1. Size	(+)
			2. Age	(-)
			3. Growth	+
Norton	1995	25 franchise and 25 non-franchise chains	Debt ratio in books and on market	+
Combs and Ketchen	1999	91 restaurant chains	1. Pert	(-)
			2. Debt ratio	+
			3. Liquidity	(-)
			4. Return on assets	(-)
López and Ventura	2002	270 franchise head offices operating in Spain	1. Initial investment	-
			2. Age	(-)
			3. Growth	-
Dant and Kaufmann	2003	152 surveys on fast food chains	1. Size	(-)
			2. Age	(-)
			3. Internal access to funding	(-)
Castrogiovanni, Combs and Justis	2006	439 franchise chains	1. Size	(-)
			2. Age	(+)

Note: The brackets in the last column indicate that the variable used for estimating difficulty of access to funding is inversely related to the size of the funding, so the sign is likely to be the opposite of what was expected.

3 Methodology

3.1 Data compilation

The above hypotheses were tested using a data panel with information on Spanish franchise chains operating in Spain during the period 1996-2002. The data used were mostly obtained from the Professional Franchise Guides published by Tormo & Asociados, the starting-point for the data base, and by Barbadillo & Asociados, from the Spanish Yearbook on Franchising, published by Franchisa, and from the Official Book on Franchises in Spain, published by the Spanish Association of Franchisors. We started out with the guides giving data for 1996 and gradually added all the chains that appeared year by year.

All this was completed with information obtained from the franchisors' web sites, annual reports and press items, with a view to resolving three problems. First, some data were inconsistent amongst the different guides. Second, when data on new channels was added, it was found that several chains changed their name from one year to the next so that it was not clear if the company was the same one or a new one with a similar name. These problems were resolved one by one on the basis of all the available information. Finally, any chains that the guides reported as being Spanish but that in fact were not were removed from the data base.

The financial information was obtained from the SABI data base, which informs on all companies operating in Spain. Eventually, after checking all the information in the data base, the final sample comprised 1,229 chains. However, because of the missing information on some variables it was necessary to use many fewer chains in the regressions.

3.2 Description of the model and variables

The empirical model was chosen taking into account the potential dynamic nature of the ownership structure of franchise chains suggested in the results obtained by Pénard, Raynaud and Saussier (2003) and Lafontaine and Shaw (2005). In these two studies, the graphs show that franchise chains seem to develop until they achieve a target ownership structure, after which they remain more or less stable. Franchise chains will therefore readjust their structure periodically towards what they consider to be the target proportion of owned and franchised establishments, which they are not prepared to depart from. Since the estimation was carried out graphically in previous studies, we needed to analyze whether this target level really exists and, if so, at what rate the company moves towards it. Partial-adjustment dynamic models suit this approach. They establish that changes in the percentage of franchised establishments ($PFDOS_{it} - PFDOS_{it-1}$) partially absorb

the difference between the target percentage of franchised establishments for period t ($PFDOS_{it}^*$) and this percentage for period $t-1$ ($PFDOS_{it-1}$):

$$(PFDOS_{it} - PFDOS_{it-1}) = \alpha(PFDOS_{it}^* - PFDOS_{it-1}) \quad [1]$$

where coefficient α , $\in [0, 1]$, measures the speed of adjustment, and is inversely related to the costs of the adjustment that prevent them from reaching the desired structure. We thus obtain:

$$PFDOS_{it} = \alpha PFDOS_{it}^* + (1 - \alpha) PFDOS_{it-1} \quad [2]$$

If the adjustment costs are zero, that is, $\alpha=1$, $PFDOS_{it} = PFDOS_{it}^*$, then franchise chains automatically reach their target for franchised establishments. If, on the other hand, $\alpha=0$, $PFDOS_{it} = PFDOS_{it-1}$, the transaction or adjustment costs are so high that the chains never reach their target proportion. The process of adjustment is a balance between the costs of adjustment towards the target proportion of franchised establishments and the costs of not being in balance.

Since the desired level of franchised establishments cannot be observed, we consider that it can be modelled as a linear function of capital scarcity and of franchisors' incentive systems. This leads us to the following equation:

$$PFDOS_{it}^* = a_0 + a_1 INVINI_{it} + a_2 END_{it} + a_3 LIQUID_{it} + a_4 Re_{it} + a_5 ANTG_{it} + a_6 EXTJ_{it} + a_7 PMIN_{it} + \mu_{it} \quad [3]$$

where $PFDOS_{it}^*$ is the target level for franchised establishments in chain i in year t , and its explanatory variables are initial investment (INVINI), debt ratio (END), liquidity ratio (LIQUID), return on assets (Re), age of the chain (ANTG), establishments in foreign countries (EXTJ) and minimum population (PMIN). If we include equation (3) in equation (2), considering that the estimators were calculated using panel data, we obtain:

$$PFDOS_{it} = \alpha a_0 + (1 - \alpha) PFDOS_{it-1} + \alpha a_1 INVINI_{it} + \alpha a_2 END_{it} + \alpha a_3 LIQUID_{it} + \alpha a_4 Re_{it} + \alpha a_5 ANTG_{it} + \alpha a_6 EXTJ_{it} + \alpha a_7 PMIN_{it} + \sum_{t=1996}^{2002} Y_t + \gamma_i + \mu_{it}$$

where $\sum_{t=1996}^{2002} Y_t$ is a set of dummy time variables for each year including any invariant time effect for the company that is not included in the regression. We also include γ_i , which is the company effect and which we assume to be constant for company i over year t ; and μ_{it} , which is the error term.

In the estimates, we apply the generalised method of moments (GMM) drawn up for dynamic panel data models by Arellano and Bond (1991). This methodology was specifically devised to resolve econometric difficulties that are relevant in

this work: (a) the presence of unobservable individual effects (in this case, company effects). These are eliminated by taking first differences for all the variables; (b) the autoregression process in the data on behavior of the target level of franchised establishments (that is, the need to use a model with lagged dependant variables to find the dynamic nature of decisions on the ownership structure of chains); and (c) possible endogeneity in the independent variables. The panel estimator controls for this possible endogeneity by using internal instruments, that is, instruments that are based on lagged values for the explanatory variables.

The consistency of the GMM estimator depends on the validity of the instruments, which is checked by two tests suggested by Arellano and Bond (1991). The first is to over-identify the Sargan restrictions, proving the joint validity of the instruments for estimating GMM. This test confirms the lack of correlation between the instruments and the error term in our model. The second test examines the hypothesis of the lack of series correlation in first difference residuals (m_2). In our models, this hypothesis is always refuted. Even if there is a first-level series correlation (m_1) in the differentiated residuals, this is caused by the first difference in the models.

Variables

The dependent variable is defined as the percentage of franchised establishments in the total. The independent variables indicating capital scarcity for the company and the agency argument are described below. Table 2 shows the descriptive statistics, and Table 3 the correlation amongst the variables.

a) Initial investment in the establishment (INVINI), defined as the amount, in millions of euros, that the franchisee must pay to set up the business, including the entry fee. We believe the initial investment gives an idea of the funds needed for growth in the chain. We believe the higher the initial investment, the more funds will be needed by the franchisor to achieve growth in the chain and, therefore, the latter is more likely to resort to franchisees as a source of finance¹⁰. Although this variable was used to measure the investment risk and the financial argument, it was only used in this way when there were no other more precise variables to show the scarcity or costs of other sources of funding.

b) Debt ratio (END), defined as $((\text{Total Liabilities} - \text{Shareholders' Equity}) / \text{Total Liabilities}) \times 100$. This reflects the weight of short and long-term debt over the company's total liabilities¹¹. As the level of debt in a company grows, its capacity for obtaining further funding for expansion decreases. It therefore seems reasonable for it to resort to franchising, which would provide a large proportion of the funds needed.

¹⁰ This variable has been used by many authors including Brickley and Dark (1987), Brickley, Dark and Weisbach (1991), Thompson (1992), Lafontaine (1992), Martin and Justis (1993) and López and Ventura (2002).

¹¹ Norton (1995) and Combs and Ketchen (1999) used this variable.

c) Liquidity ratio (LIQUID), defined as (Working assets - Stocks)/Liquid liabilities. This is inversely related to debt. It seems reasonable that, when a company has funds to invest, one of the first options should be to re-invest in the company itself. We would therefore expect a negative link with the likelihood of franchising.

d) Return on assets (Re), defined as Operating results / Total assets. This indicates the company's performance achieved as a result of its investment in assets, irrespective of its financial structure¹². We consider that the greater the return on assets, the lower the likelihood that a company will franchise because, with greater returns on its own investments, the company is likely to be more interested in using other sources of finance apart from franchising¹³.

e) The ANTG variable covers the number of years that the different chains have been working as franchises in Spain¹⁴. It is assumed that the less experience a franchisor has, the more difficult it will be to obtain finance, so it is more likely that it will turn to franchisees for funds.

f) Establishments in foreign countries (EXTJ) estimates the effort required and difficulty involved in supervising the manager by measuring the number of establishments held by each chain in foreign countries. Since franchising makes it cheaper to supervise a set of dispersed units, the chains with the largest numbers of establishments outside Spain will be those with the largest proportion of franchised establishments. This is because, having an extensive, complex network, they need to resort more to franchising because they are unable to supervise the managers of their establishments directly¹⁵.

g) Minimum population (PMIN) measures the effort needed to achieve success for the establishment. It covers the minimum population required by the chain, in millions, in a specific town for a franchisee to open an establishment there. It will be the chains offering more specialised products or services that require a larger minimum population, because the demand is small and they have to achieve returns on the investment made. So, if a small percentage of the population is interested in the product, each customer is very important for the business and the manager of the establishment has to make a greater effort to attract and retain each one.

¹² Combs and Ketchen (1999) use this variable, amongst others, to test the financial argument.

¹³ Such as borrowing or expanding share capital.

¹⁴ This same variable was used by Caves and Murphy (1976), Lafontaine and Kaufmann (1994), Minkler and Park (1994), Combs and Castrogiovanni (1994), López and Ventura (2002), Dant and Kaufmann (2003) and Castrogiovanni, Combs and Justis (2006).

¹⁵ Lafontaine (1992) and Castrogiovanni, Combs and Justis (2006) also use this variable as a proxy for the cost of supervision.

Table 2: Descriptive statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
PFDOS	0.642	0.307	0.000	1.000	2765
INVINI	0.079	0.104	0.000	1.683	3138
END	82.305	59.354	0.000	993.220	3782
LIQUID	4.019	98.439	-2.230	5267.020	3747
Re	-0.035	1.092	-33.784	10.318	3792
ANTG	5.304	6.657	0.000	84.000	5469
EXTJ	11.522	134.729	0.000	6000.000	2706
PMIN	0.058	0.065	0.000	0.750	2134

Table 3: Correlations

	PFDOS	INVINI	END	LIQUID	Re	ANTG	EXTJ	PMIN
PFDOS	1.00000							
INVINI	-0.1131	1.00000						
END	0.0057	-0.0836	1.00000					
LIQUID	-0.0356	-0.0306	-0.1741	1.00000				
Re	0.1273	0.0450	-0.1546	-0.1209	1.00000			
ANTG	0.1594	0.0507	-0.1540	0.0542	0.0805	1.00000		
EXTJ	0.0485	-0.0074	-0.0490	0.0035	0.0217	0.0487	1.00000	
PMIN	-0.1043	0.3060	-0.0090	-0.0139	0.0265	-0.0277	-0.0351	1.00000

4 Results

Table 4 gives the results of the econometric model obtained using the Stata 8.0 programme. In the first column, we consider initial investment, debt and age as ways of measuring financial aspects. In the second column, we consider the company's liquidity instead of debt, given the link between them. And in the third column we consider return on assets for the same reason. In parallel, in all cases we considered the variables for minimum population and the presence of establishments in foreign countries to estimate the agency argument. We also consider a group of dummy variables by year, in an attempt to note time effects.

The method for calculation uses a number of instruments, including lags on variables, to solve the problem of endogeneity in some variables. In our case, we consider there may be endogeneity in debt, liquidity ratio, return on assets, initial investment and the presence of foreign establishments, with only the age of the

chain being exogenous. The coefficients for these instruments are not given, this being a convention in this methodology and also to simplify the table.

Table 4: Factors determining the probability of franchising

Variable	Model 1	Model 2	Model 3
PFDOS	0.2190*** (5.90)	0.3116*** (8.73)	0.2639*** (8.47)
t-1			
INVINI	0.0738 (0.71)	-0.0312 (-0.33)	0.0408 (-2.90)
END	0.0003** (2.18)		
LIQUID		-0.0044** (-2.28)	
Re			-0.0287* (-1.78)
ANTG	0,204** (1.96)	0.0072 (1.53)	0.0050 (1.37)
EXTJ	0.0000 (0.01)	0.0002 (1.31)	-0.0002* (-1.70)
PMIN	-0.5740*** (-2.62)	-0.2810** (-1.81)	-0.2630 (-1.12)
dy98	0.0097*** (3.16)	0.0103** (2.47)	0.0126*** (4.54)
dy00	-0.0113* (-1.81)	-0.0124* (-1.94)	-0.0042 (-0.75)
dy01	-0.0389*** (-4.01)	-0.0429*** (-4.30)	-0.0334*** (-3.55)
dy02	-0.0574*** (-4.14)	-0.0547*** (-3.69)	-0.0453*** (-4.08)
m1	-1.69*	-1.79*	-1.74*
m2	-1.30	-1.50	-1.12
Sargan Test	45.77	45.82	42.34
Observa- tions	322	322	325
Chains	156	157	158

Note: Statistic t in brackets ***, **, * = Significant at 99%, 95% and 90% respectively.

Firstly, it should be noted that both the debt parameters in the first column and the liquidity ratio in the second as well as return on assets in the third are significant and have the expected sign, as predicted by the financial argument. This is clearly in support of the financial argument. The greater the liquidity and return on assets and the lower the debt, the lower the use of franchising.

Secondly, it is surprising to note the lack of significance of the initial investment and opposite sign for experience. The initial investment variable has been used in many other prior works, with very varying results¹⁶. A probable explanation for this is that there is a double opposing effect. On the hand, the funding problem leads franchisors to try to franchise some of their establishments but, on the other, it is difficult to find franchisees. This is because the greater the value of the initial investment, the greater the risk taken by the manager of the establishment and the greater the tendency for the franchisor to integrate its points of sale as this allows assignation of the risk variability to the party for whom this is least costly, namely, the franchisor¹⁷.

Experience is also significant in the first model but with the opposite sign, positive. This indicates that the greater the experience, the more franchised establishments there will be. This is a result that cannot be based on capital scarcity. However, in the other models it is not significant and the parameter varies substantially so there are doubts about the soundness of this result. Moreover, it must be seen in opposition to the general trend noted in time variables, most of which are significant, to reduce the tendency to franchise. Both the significance and the coefficients for the time variables indicate that, in comparison with the reference year of 1999, the percentage of franchised establishments gradually decreases. These results tally with the general trend noted by Pénard, Raynaud and Saussier (2003) and Lafontaine and Shaw (2005).

With regard to the variables on the agency argument, the results vary. While the EXTJ variable, which aims to measure the costs of supervising the manager of the establishment, is positive as expected although not significant, in the first two models, the PMIN variable is negative in all the models and significant in the first two. This goes against our predictions.

¹⁶ While authors such as Brickley and Dark (1987), Brickley, Dark and Weisbach (1991), Lafontaine (1992) and López and Ventura (2002) find that the greater the initial investment the lower the probability of franchising, going against the financial argument, others such as Thompson (1992) and Martin and Justis (1993), find the opposite.

¹⁷ The franchisee is more risk averse than the franchisor because, while the former is usually an individual entrepreneur whose assets or income is related to the results of his own establishment, the latter is normally a larger company, probably having another financial partner which may even be a private equity company. Authors such as Brickley and Dark (1987), Brickley, Dark and Weisbach (1991), Lafontaine (1992, 1993, 1995) and Perales and Vázquez (2003) support this argument.

Finally, we note that the partial adjustment model for ownership structure is verified. The coefficient of the lagged dependent variable is very significant. This gives us an adjustment speed of 78-69%. Such a high speed is to be expected because franchisors are able to use good tools for adjusting it. But it should be remembered that they cannot always find the franchisees they are looking for, especially not in the towns in which they are interested. This may force them to open up owned establishments in order to preserve their competitive edge or to occupy promising premises of the sort that are not easy to find in large towns.

5 Conclusions

This study analyses whether the difficulty of gaining access to limited resources, especially funding, is a determinant factor for the probability of franchising for Spanish chains. We argue that the cost of achieving business growth through franchising is lower than that of other formulae such as debt or the introduction of new financial partners. This goes against much of the existing literature. We took a data panel with information on franchise chains operating in Spain during the period 1996-2002. This methodology allows us to control for unobservable heterogeneity and to note the individual effects for each chain, which cannot be observed in cross-cutting regressions. We also use a dynamic partial-adjustment model for ownership structure of the chains, with the generalised method of moments in first differences. This allows us not only to introduce autoregression but also to use endogenous explanatory variables.

The results obtained show clearly that the greater a chain's liquidity and return on assets and the lower its debt, the less probable it is that it will franchise establishments. This supports the capital scarcity argument. However, the initial investment variable is not significant and the variable for age of the chain does not have the expected sign. These last two results tie in with much of the previous literature studying the effect of capital scarcity on the probability of franchising. This apparent contradiction may be due to the variables used in such studies. Since there are no variables to directly estimate capital scarcity, indirect variables have traditionally been used for age or size of the chain even though they might reflect a dual, opposing effect – on the one hand, the greater the initial investment, the more difficult it is for the franchisor to find the resources needed to expand the business so he is more likely to resort to franchising as a means of funding but, on the other, the risk faced by potential franchisees, who are more risk averse than the franchisor, would be greater so the franchisor would choose to keep the establishments under his ownership. With regard to the age variable, this might measure the result of the franchisor's effort rather than the ease or difficulty for obtaining funding because, after developing his business for a number of years, he has now created a good image so it will be easier to attract good, new franchisees as they know they are entering a profitable business.

Finally, we verify the partial adjustment of the ownership structure, with a very significant lagged dependent variable. This gives a very high adjustment speed of 78-69%. This was to be expected because the franchisors have good tools for adapting it.

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