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Multi-unit versus single-unit franchising:

Assessing why franchisors use different ownership strategies

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Multi-unit versus single-unit franchising: Assessing why franchisors use different ownership strategies

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Abstract

The aim of this paper is to examine what factors underlie the choice of organizational form when franchisors add new franchised units to their networks. Franchisors may grant new units to existing franchisees (MUF) or to new franchisees (single-unit franchising). We find that this choice depends on the existence of contractual problems (namely, adverse selection and moral hazard), and that several network characteristics influence the magnitude of these problems. In particular, we found a positive relationship between the intensity of the use of MUF and network size, geographical concentration of the units of the network, and industries where customers tend to be non-repetitive.

Keywords: multi-unit, single-unit, franchising, free-riding, shirking, adverse selection

1. INTRODUCTION

Franchising is a cooperative agreement by which one firm (the franchisor) sells the right to market goods or services under its brand name and use its business practices to a second firm (the franchisee) (Combs, Michael, and Castrogiovanni, 2004). As an organizational form, franchising is a hybrid between market and hierarchy (Shane, 1996; Michael, 2000; Bercovitz, 2000). On average, franchisors maintain 15% of the units in their networks as company-owned outlets and franchise the other 85% (Lafontaine and Shaw, 2005).

When franchisors decide to expand their networks through franchised units, two alternatives arise: a franchisor may grant a new outlet to a new franchisee (single-unit franchising) or grant a new outlet to an existing franchisee (multi-unit franchising). The aim of this paper is to examine what factors determine the intensity with which franchisors use the multi-unit option.

When it comes to granting a new unit, two types of contractual problems arise: adverse selection and moral hazard. Adverse selection consists of making the wrong choice for a suitable franchisee candidate. Moral hazard can be defined as post-contractual opportunism, of which there are two types: shirking, or suboptimal effort, and free-riding, which involves the reduction of input or product quality and the reduction of marketing effort, for example, and, in general terms, not fully exploiting the business according to the franchisor's policies).

Company-owned units are managed by employees of the franchisor, who are paid on a fixed wage basis and not residual claimancy. Since these managers are employees and not owners of the business, they have an incentive to shirk but are not interested in free-riding. In order to solve the problem of monitoring employees, a hierarchy problem, the franchisor may opt to franchise the outlets. Single-unit franchising (SUF) reduces shirking since the franchisee is a residual claimant and, consequently, has high-powered incentives to run the business efficiently (thus, control is replaced by an incentive). However, single-unit franchising presents the potential problem of free-riding on the part of the franchisee. Because all the outlets share a common brand across all the units in the

network, a free-riding franchisee could internalize all the positive consequences of being a franchisee (e.g., reduction of costs) while bearing only part of its negative consequences (e.g., brand name image damage, loss of clients) (Brickley and Dark, 1987). Therefore, shirking (a hierarchy problem) is reduced by single-unit franchising (a market solution) at the expense of generating the potential for free-riding (a market problem). In order to reduce the hazard of free-riding, the franchisor may opt for multi-unit franchising (MUF). The reason why MUF reduces this risk is that a franchisee that owns several units has made a greater investment in the brand than a single-unit franchisee. However, this market solution (to provide more powerful incentives) makes the problem of hierarchy reappear, because the multi-unit franchisee then has to monitor the employees of the mini-chain. Therefore, MUF has been viewed as an anomaly from the agency theory perspective (Grünhagen and Mittelstaedt, 2001). Figure 1 summarizes the arguments presented.

In spite of the essential paradox of MUF, this option is of great interest from a theoretical point of view because it is persistent. Kalnins and Lafontaine (2004) documented that in Texas in 1995, 49% of the franchisees of seven large national fast-food chains were multi-unit owners, and that these franchisees owned 84% of all the franchised units in these chains. Other studies have also reported a large use of MUF. Robicheaux, Dant, and Kaufmann (1994) observed that 57% of the chains had multi-unit franchisees. Kaufmann and Dant (1996) reported that 87% of the 160 fast-food franchised systems they surveyed included multi-unit owners, with an average of 33% of franchisees operating more than one unit. Kaufmann and Lafontaine (1994) found that in McDonald's, between 1980 and 1990, 61% of all the new units were opened by existing franchisees. Bradach (1995), employing data on five large restaurant chains, found that the number of multi-unit franchisees ranged from 12.08% to 100%. In a study about franchising in distant markets, Dant and Nasr (1998) found that 100% of the franchisees were multi-unit franchisees.

A central issue examined in franchising literature has been dual distribution (e.g., the coexistence of company-owned units and franchised units in the same chain) (Lafontaine and Kaufmann, 1994; Combs and Ketchen, 2003; Dnes and Garoupa, 2005; Srinivasan, 2006). However, few works have considered to what extent franchisors grant franchisees

single or multiple units (Kalnins and Lafontaine, 2004). In this paper we study what factors explain the intensity of use of MUF from an agency theory perspective. We believe that franchisors employ the MUF option so often because it reduces problems with adverse selection and moral hazard on the part of the franchisee. We find a positive relationship between the intensity of the use of MUF and network size, geographical concentration of the units of the network, and industries where customers tend to be non-repetitive.

The paper proceeds with a brief review of the literature on MUF (Section 2), after which we develop our hypothesis about the intensity of the use of MUF (Section 3). In Section 4, we describe the data, the methods and results, after which we offer our conclusions in Section 5.

2. BRIEF REVIEW OF THE LITERATURE ON MUF

MUF can be defined as the ownership of two or more units of a franchise chain by a single franchisee. However, two different types of MUF can be differentiated: sequential or incremental MUF and masterfranchising. In the former, franchisees are granted additional units one by one on the basis of the good results obtained by operating other units (Bradach, 1995; Kaufmann and Dant, 1996). For example, Kaufmann and Lafontaine (1994) document that this policy is followed by McDonald's. Masterfranchising is the entrance mode most frequently used by franchisors in their internationalization processes (Justis and Judd, 1986; Kalnins, 2005), and two types exist: subfranchising and area development agreements. In subfranchising, the franchisor allows a third party (e.g., the subfranchisor) to grant units (one or several) to others in a country or specific region. While the franchisor is focused on the global strategy of the network, the subfranchisor takes charge of selecting and monitoring franchisees in the corresponding area. Given that subfranchisors have ownership-based incentives because they benefit from royalties charged to franchisees, it is more likely that they will exert a level of effort greater than salaried managers (Shane, 2001). In area development

agreements, the franchisee has the obligation to develop a pre-determined number of units in a pre-specified area and period of time.

Table 1 summarizes the works on MUF. The majority of the empirical studies have focused on the fast-food industry (Kaufmann and Kim, 1995; Bradach, 1995; Kaufmann and Dant, 1996; Kalnins and Lafontaine, 2004; Kalnins, 2005; Grünhagen and Mittelstaedt, 2005). Kaufmann and Kim (1995), Bradach (1995), and Kaufmann and Dant (1996) found that the use of MUF implied greater growth rates of the franchise networks. Kalnins and Lafontaine (2004) studied the factors that derive the choice of organizational form between SUF, MUF, and company-ownership. They found that geographical proximity to other/s unit/s of the network was the most relevant motivation. Bercovitz (2004a, 2004b) find that MUF is chosen when the level of shirking is low and the level of free-riding is high, and suggests that multi-unit expansion opportunities acts as a carrot to prevent franchisee' opportunism. This is a good explanation for incremental franchising but it does not adequately explain area development agreements. Garg, Rasheed, and Priem (2005) contend that the choice between SUF, incremental franchising, and area development agreements is driven by the desire to minimize those agency problems that are more hazardous to the pursuit of a franchisor's primary goals which, following Bradach's (1995), are three: growth, uniformity and local responsiveness. In particular, these authors find that (1) franchisors emphasizing high growth are more likely to use MUF rather than SUF and, within the MUF form, they are more likely to use area development franchising than incremental franchising; (2) franchisors emphasizing uniformity instead of growth are more likely to use area development franchising, and (3) franchisors emphasizing local responsiveness are more likely to use incremental franchising. Kalnins (2005) examined the relationship between the number of units to be developed under a masterfranchising agreement (e.g., the development commitment) and venture survival, showing empirical evidence of a negative relationship. Yin (2006) examined the relationship between MUF and the strategy adopted by individual units. This author found evidence that ownership structures as well as geographic proximity were important determinants of subsequent adaptation of a new strategy.

Most of the literature that has dealt with MUF has focused on the franchisor side. In contrast, Grünhagen and Mittelstaedt (2002, 2005) and Weaven and Frazer (2006) have focused on the franchisee side of MUF. Grünhagen and Mittelstaedt (2002) argued that MUF has two advantages for the franchisee: it allows the franchisee to obtain scale economies and to have a say in the franchisor's decision process. Grünhagen and Mittelstaedt also studied the motivation differences of franchisees under sequential multi-unit agreements and area development agreements. They found that both types were equally investment-oriented but that the sequential multi-unit operators were more likely to seek fulfilment of entrepreneurial goals. Weaven and Frazer (2006) examined motivational differences between single-unit franchisees and multi-unit franchisees. They found that multi-unit owners were more likely to trust the strategic choices of their franchisors, placing relatively more importance upon the business concept and vision, ongoing training and support, the professionalism of the governance structure, and the potential for expansion.

It has been noted that MUF entails a greater alignment of the franchisee's goals with franchisor's goals, because multi-franchisees function as mini-franchisors managing their own mini-chains. Dant and Gundlach (1998) found that high levels of multi-unit ownership lead to higher levels of perceived dependence and lower levels of desire for autonomy on the part of the franchisees. In this sense, Dant and Nasr (1998) hypothesized that multi-unit franchisees would provide more information to their franchisors than single-unit franchisees. Unfortunately, this hypothesis remains untested.

Three main conclusions can be drawn from the literature review in order to justify the interest of this paper. First, only Kalnins and Lafontaine (2004) have examined the determinants of MUF. However, this study is the first in the literature to relate the use of this organizational choice to the adverse selection and moral hazard problems on the part of the franchisee. Second, the dependent variable in this work is not the same as in the study by Kalnins and Lafontaine (2004). We attempted to capture the intensity of use of MUF at the chain level, while Kalnins and Lafontaine (2004) studied what choices franchisors made at the unit level between company ownership, single-unit franchising, and MUF. Third, the data used in this study not only stems from fast-food chains, but

also encompasses chains from a large variety of industries in which franchising is present. Our choice of data allows us to generalize the results and provide a first look into MUF in a wide variety of industries.

3. HYPOTHESES

Franchisors aim to expand their networks because greater growth allows them to achieve scale economies in purchasing and marketing, and greater knowledge of the brand by consumers in turn allows franchisors to improve the profitability of the investments made in the creation, maintenance, and enhancement of the brand name.

When the franchisor chooses to expand the network, two possibilities arise: new unit/s could be granted to either a new franchisee or to an existing one. The first option presents two problems. First, the franchisor faces the risk of adverse selection of the franchisee. Second, a single franchisee with a single-unit may have an incentive to free-ride on the brand name, benefiting from the totality of cost savings, but prejudicing the other members of the network with the negative consequences of free-riding. The second option, i.e. to grant the new unit to an existing franchisee, may help to solve the potential problems caused by granting a unit to a new franchisee in two ways. First, the risk of adverse selection is reduced since the franchisor knows the franchisee (e.g., the results obtained in managing other/s units). Second, the risk of free-riding is reduced since a greater investment in the brand decreases the incentive to free-ride because the franchisee would internalize the negative consequences to a greater extent. However, MUF seems to be inconsequential because it separates ownership from local decision making (Bradach, 1995), and thus the incentive to shirk on the part of the employees of the units reappears. Consequently, MUF creates the problem of monitoring employees.

Taking into account the advantages and the inconveniences that MUF poses, it can be concluded that 1. when the risk of adverse selection is high, 2. when the risk of free-riding is high, and 3. when the cost of monitoring the employees of the multi-unit franchisee is low, franchisors tend to opt for MUF. Since the aim of this paper is to assess

the factors that explain the intensity of the use of MUF, the following hypotheses attempt to identify the factors that correspond to the three situations mentioned above. In particular, four network characteristics are related to the intensity of the use of MUF: the geographical concentration of the units in the network, the network size, the network growth, and non-repetitive customers. We hypothesize that a positive relationship exists between each one of this factors and the intensity of the use of MUF. Table 2 illustrates this.

Geographical concentration of the units in the network. The geographical concentration of the units of the network reduces the problem of shirking because the proximity of the units makes the task of monitoring easier and less costly, since economies of scale can be achieved for control purposes. However, all else being equal, geographic concentration increases, the likelihood of free-riding behaviours.

The positive relationship between the geographical concentration of the units of the network and free-riding is due to two factors. The higher the concentration of units in the franchise network, the more travel costs are reduced and thus the greater the possibility for consumers to benefit from the services provided by one unit (e.g., marketing, information about products) while buying in another unit and the greater the likelihood for franchisees to free-ride at the expense of other units in the network. In addition, the greater the concentration of units, the greater the incentive on the part of the franchisees to free-ride because the negative consequences are shared to a greater extent by the other units. On the other hand, MUF may reduce the potential for free-riding when the units that the multi-unit franchisee owns are geographically concentrated, because the concentration increases the cost of free-riding (e.g., a greater internalization of negative consequences of free-riding) and thus it reduces its likelihood. This argument leads us to our first hypothesis:

Hypothesis 1. There is a positive relationship between the geographical concentration of the units in the franchise network and the intensity of the use of MUF.

Network size. The larger the network, the greater the adverse selection problem and the greater the hazard of free-riding. The positive relationship between the size of the network and the risk of free-riding is due to the fact that, usually, the greater the size of the network, the higher the brand name value. A high brand name value is associated with high quality products and services, which creates a solid reputation and generates customer satisfaction, which in turn generally implies greater sales, mark-ups or market shares. Under these circumstances it is more likely that there will be a larger number of franchisee candidates. Consequently, the adverse selection problem increases, because the difficulty and cost of the selection process increases with the number of candidates.

Moreover, it can be expected that the larger the network is, the greater the free-riding hazard will be, because negative consequences are shared by a larger number of units.

MUF may solve the problem that expansion within a large network generates. First, MUF reduces the adverse selection problem, since the franchisor knows the results obtained by existing franchisees and, thus, knows they are suitable candidates for new units. Second, MUF allows franchisors to reduce the potential for free-riding because franchisees make a greater investment in the brand. Thus, our second hypothesis is:

Hypothesis 2. There is a positive relationship between the size of the franchise network and the intensity of the use of MUF.

Network growth. Network growth increases the adverse selection problem. There are two reasons for this. First, during expansion the franchisor has little time to select and train franchisees and, thus, the opportunity cost of these activities rises (Penrose, 1959; Norton, 1988). Second, the growth of the network constitutes a signal that the network is

profitable, which increases the likelihood of having a larger number of franchisee candidates and, consequently, creates a greater adverse selection problem. Given that, as has been explained above, MUF allows franchisors to reduce the adverse selection of franchisees, we put forward the following hypothesis.

Hypothesis 3. There is a positive relationship between the growth of the franchise network and the intensity of the use of MUF.

Non-repetitive customers. All else being equal, the incentive to free-ride increases when customers are non-repetitive, because the negative consequences of free-riding are internalized to a lesser extent (Brickley and Dark, 1987). According to Brickley and Dark (1987) and Brickley (1999), some industries are characterized by having a greater non-repetitive customers base than others. Therefore, we would expect that the use of MUF allows franchisors to reduce the hazard of free-riding when the customer base is non-repetitive:

Hypothesis 4. Franchisors in non-repetitive industries will use MUF to a greater extent than franchisors in repetitive industries.

4. METHOD AND RESULTS

4.1. Data and method

The data comes from a questionnaire sent to all the franchisors that operated in Spain at the beginning of 2004 according to the Spanish Franchisors Association (AEF), that is, 642 franchise networks. After a pre-test of the questionnaire with 20 franchisors, we contacted the rest of the population. In all cases, we contacted the Expansion Director or

Franchise Director of every chain and asked him/her to respond to the questionnaire. We deleted 32 chains, since they told us that they were not a franchise chain (11 chains) or they were no longer franchising (21 chains). Of the 610 remaining firms we received 145 total responses, of which 138 were usable (22.62% usable response rate). However, the final sample used in this study contained only 81 firms (13.27% rate of response) since this was the number of firms for which we had data on the use of MUF.

The dependent variable was the intensity of the use of MUF, measured as the number of franchised units divided by the number of franchisees at the beginning of 2004. We utilized four independent variables: the geographical concentration of the units in the network, the network size, the network growth rate, and the type of industry where the network operates.

The geographical concentration of the units of the network was proxied by ($\sum$xi wi/ $\sum$wi)*100,000, where xi= number of units of the network in province i divided by the number of inhabitants in province i; wi= number of units of the network in province i (i=1,…,52).

Network size was measured as the total number of outlets of the chain, both franchisor-owned and franchisee-owned.

Network growth was measured as the logarithm of the average annual rate of growth in each chain between 1999 and 2004.[1]

Finally, the type of industry was measured by a dummy variable. Following the same criteria used by Brickley and Dark (1987) and Brickley (1999) in other franchising studies, this variable equals 1 for sectors in which customers tend to be non-repetitive (that is, fast food and chain restaurants and car-rental agencies), and 0 for sectors in which customers tend to be repetitive (i.e., clothing stores, automotive services).

[1] Since the data were not distributed in a regular fashion, we opted for this logarithm.

Table 3 shows, by sectors, the average values of the following variables: network age (number of years franchising), the intensity of the use of MUF, the geographical concentration of the units of the network, the network size, and network growth rate. Table 4 shows descriptive statistics and correlations between the dependent and independent variables. The intensity of the use of MUF is positively correlated to the geographical concentration of the units of the network and to the size of the network. Additionally, the correlation between the geographical concentration of the units of the network and network size is also positive and significant. To check whether the correlation between the geographical concentration of the units in the network and the intensity of the use of MUF (the relationship posited by hypothesis 1) was derived from the correlation between the geographical concentration of the units in the network and network size, we correlated the geographical concentration of the units in the network and the intensity of the use of MUF controlling for network size. The correlation obtained was positive and significant ($r=0.62$, $p<0.000$), which shows that the correlation between the geographical concentration of the units of the network and the intensity of the use of MUF is not spurious.

To regress the dependent variable on the independent variables we used a tobit model because the dependent variable was censured on the left (StataCorp., 2005) and, in this case, ordinary least squares (OLS) would have generated biased estimations (Pindick and Rubinfield, 1998). In particular, the dependent variable equaled 1 in cases where the number of franchised units and the number of franchisees were the same.

4.2. Results

Table 5 shows the results of the tobit analysis. We ran four models. Model 1 includes the four independent variables considered. Hypothesis 1, which posited a positive relationship between the geographical concentration of the units of the network and the intensity of the use of MUF, is supported ($\beta=0.56$, $p<0.000$). This result at the chain level is consistent with that obtained by Kalnins and Lafontaine (2004) at the unit level.

Therefore, the data suggest that MUF reduces both shirking and free-riding problems when the units are geographically close.

The geographical concentration of the units in the network has been also considered a factor that favours the use of MUF for reasons other than agency considerations. In particular, it has been contended that granting new units to existing franchisees allows the franchisor to benefit from the talent, skills, knowledge, and experience that the franchisees possess in managing other units in the same market (Darr, Argote, and Epple, 1995; Bates, 1998; Kalnins and Lafontaine, 2004; Kalnins and Mayer, 2004). Darr, Argote, and Epple (1995) observed that the geographical proximity among units facilitated the transfer of knowledge. In fact, the value of knowledge depends on the extent to which it is related to actual market conditions. For example, in a case study on one of the largest U.S. pizza restaurant chains, Yin (2006) described how the chain was established in the 1950s and originally followed a full-service, dine-in restaurant strategy but due to increased competition in the industry, the company decided in 1986 to pursue the home delivery segment and to persuade its franchisees to follow this strategy. Two different solutions to entering the delivery market emerged: setting up delivery-only units (i.e. with no dine-in facilities) or add delivery to already established dine-in restaurants. Yin (2006) found that geographic proximity was an important determinant of subsequent adoptation of a new strategy. Kalnins and Lafontaine (2004) also observed that the franchisors took into account the specific knowledge that the franchisees possessed when it came to granting new units. In another study, Bates (1998) argued that MUF had a lesser likelihood of failure since multi-unit franchisees could benefit from their experience, and Kalnins and Mayer (2004) found that local experience reduced unit failure. Therefore, the geographical concentration of the units in the network appeared to be a primary determinant of MUF. In this sense, this work provides empirical evidence that relates this relationship to the existence of agency problems.

Hypothesis 2 was also supported, since we found a positive and significant relationship between the size of the network and the intensity of the use of MUF (β=0.01, $p<0.000$). This result suggests that franchisors employ MUF more intensively to reduce the adverse selection and moral hazard problems that increase in direct proportion to network size.

However, hypothesis 3, which posited a positive relationship between the growth of the network and the intensity of the use of MUF, was not supported. This may be due to the fact that networks have expanded into areas where there had been no previous units, and thus single-unit franchising was the only option. Also following this line of reasoning, franchisees may not be willing to pursue other units unless they are spatially proximate.

Finally, we found a positive and significant relationship between repetitive industries and the intensity of the use of MUF (β=-0.88, $p<0.002$). This result suggests that MUF is employed more intensively by franchisors in non-repetitive industries because of the greater potential for free-riding.

Model 2 includes the same variables as model 1 but also sector dummies as control variables. The results are the same as the obtained in model 1 and sector dummies are not significant.

A potential problem of tobit models is that the maximum likelihood estimator is inconsistent if there is heteroskedasticity (Long, 1997; Cameron and Trivedi, 2005). To test if this problem is present we performed the same tobit analysis as done in model 1 and model 2 but with robust standard errors. Model 3 consists of the same model as model 1 but with robust standard errors. Results did not vary, that is, model 3 shows the same results as model 1: a positive relationship between the intensity of the use of MUF and three independent variables (the geographical concentration of the units of the network, the network size, and non-repetitive sectors). Model 4 is the same model as model 2 but including sector dummies as control variables. The results show a positive relationship between the intensity of the use of MUF and the geographical concentration of the units of the network, and a positive relationship between the intensity of the use of MUF and non-repetitive sectors. However, the relationship between the use of MUF and non-repetitive sectors is not significant. Sector dummies were again not significant.

5. CONCLUSIONS

In this paper we have studied what factors explain the intensity of the use of MUF (e.g., the ownership of two or more outlets of the same franchise network by a single franchisee). The main contribution of the work is that we relate the use of MUF to the existence of agency problems in the franchisor-franchisee relationship. In particular, we posit that franchisors may use MUF as an incentive mechanism that may help to reduce the adverse selection risk and the moral hazard risk involved in single-unit fanchising. In this sense, we have found evidence that the geographical concentration of the units in the network, the size of the network, and a non-repetitive customer base, are related to the intensity of the use of MUF. Other franchising studies have related the use of MUF to other reasons different from agency motivations, such as the need of taking advantage of a franchisee's experience and skills or financial concerns (Kaufmann and Dant, 1996). Since this work provides a complementary explanation of why franchisors utilize MUF, an interesting future research question would be to survey franchisors with a view to assessing directly a franchisor's motivations to use MUF and to what extent these motivations determine the franchisor's decision-making.

However, it is necessary to point out that this work has two limitations. Unfortunately our data did not allow us to distinguish between different types of MUF, therefore future research is needed to examine whether the factors presented in this work play the same role in every type of MUF. In addition, it would be necessary in future studies to assess the relationship between the growth of the network and the intensity of the use of MUF controlling for each franchise network's individual growth pattern. It is possible that the lack of support for a positive relationship between network growth and the intensity of the use of MUF is due to the fact that networks expand into new areas, where there had been no previous units, thus predetermining single-unit franchising as the only option.

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Figure 1. The multi-unit franchising paradox

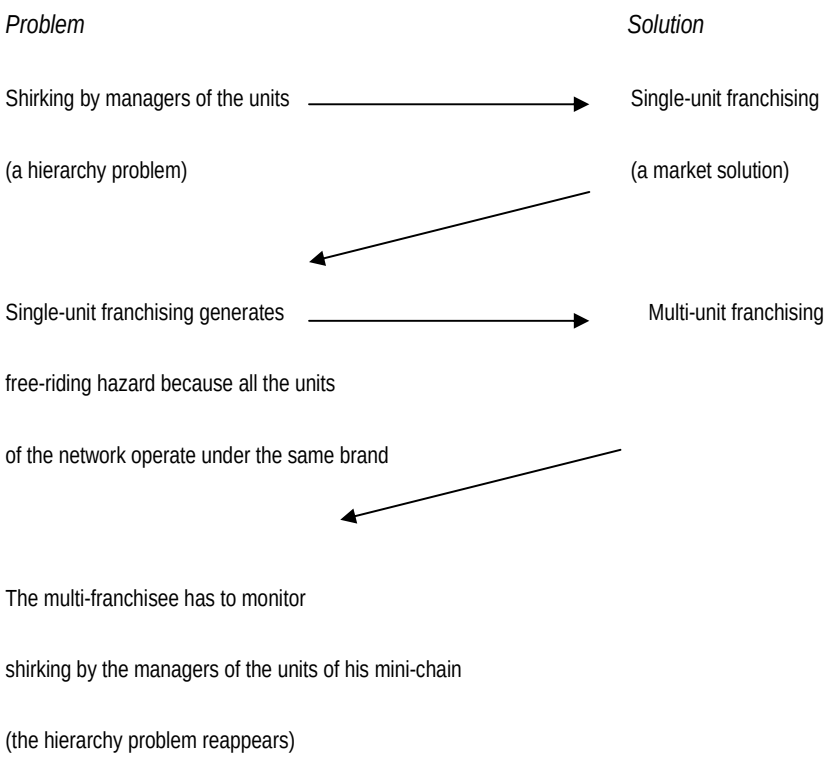

Table 1. Literature on multi-unit franchising

Work	Focus		Unit of analysis		Types of multi-unit franchising		
	Franchisor	Franchisee	Chain level	Outlet level	Sequential multi-unit	Master franchising	
						Subfranchising	Area development
Justis and Judd (1986)	•		•			•	
Kaufmann and Kim (1995)	•		•			•	•
Bradach (1995)	•		•		•		•
Kaufmann and Dant (1996)	•		•		•		•
Grünhagen and Mittelstaedt (2002)		•					
Kalnins and Lafontaine (2004)	•			•	•		
Bercovitz (2004a, 2004b)	•		•		•		
Kalnins (2005)	•		•			•	•
Garg, Rasheed, and Priem (2005)	•		•		•		•
Grünhagen and Mittelstaedt (2005)		•			•		•
Weaven and Frazer (2006)		•					
Yin (2006)			Multi-unit level				
This article	•		•		*		

* Note: Our data do not allow us to distinguish between different types of multi-unit franchising, but presumably it consist of sequential multi-unit franchising, since master franchising is usually employed in internationalization processes (Justis y Judd, 1986).

Table 2. Factors that favour the use of multi-unit franchising

		Factors that favour the use of multi-unit franchising		
		High risk of adverse selection	High risk of free-riding	Low risk of *shirking*
Network characteristics	Geographical concentration of the units of the network		+	+
	Network size	+	+	
	Network growth	+		
	Non-repetitive customers		+	

Table 3. Average statistics of the sample by sectors

Sector	N	Years franchising	Intensity of the use of multi-unit franchising	Geographical concentration of the network	Network size	Network growth
Travel agencies	3	11.66	1.04	0.55	112.66	0.31
Real state agencies	2	3.5	1.83	3.02	19.5	0.71
Grocery	5	8.2	1.40	1.42	56.6	0.21
Consulting firms	3	8.66	1.01	0.28	50	0.11
Clinics	3	5.33	1.04	0.16	14	0.20
Furniture and household goods	6	14.33	1.26	0.28	56.33	0.18
Miscellaneous retail	13	9.07	1.08	0.32	32.61	0.10
Fast-food and restaurants	18	7.44	1.43	0.46	30.16	0.33
Car services	6	15.33	3.23	1.65	110.16	0.14
Miscellaneous services	9	6.88	1.11	0.25	23.11	0.16
Clothes and shoes stores	13	7.38	1.19	0.36	46.84	0.22

Table 4. Descriptive statistics and correlations (N=81)

Variable	Mean	S.D.	Min	Max	1	2	3	4	5
1. Intensity of the use of multi-unit franchising	1.38	1.30	1	12.4	1.00				
2. Geographical concentration of the network	0.58	1.11	0.07	8.27	0.76***	1.00			
3. Network size	44.87	51.65	5	327	0.64***	0.54***	1.00		
4. Network growth	0.22	0.23	-0.21	1.09	-0.02	-0.01	0.02	1.00	
5. Repetitive industry	0.75	0.43	0	1	-0.25*	-0.12	0.00	-0.23*	1.00

Nota: ***p<.0000, *p<0.05

Table 5. Tobit regression explaining the intensity of the use of multi-unit franchising (N=81)

Independent variables	Model 1			Model 2			Model 3			Model 4		
	Coefficient	Standard error	t-ratio	Coefficient	Standard error	t-ratio	Coefficient	Robust Standard error	z	Coefficient	Robust Standard error	z
Geographical concentration of the units of the network	0.56	0.12	4.68***	0.49	0.16	3.02**	0.56	0.26	2.09**	0.49	0.27	1.82***
Size of the network	0.01	2.70e-03	5.53***	0.01	3.17e-03	4.51***	0.01	5.02e-03	2.98*	0.01	4.06e-03	3.52+
Network growth	-0.19	0.54	-0.35	-0.20	0.62	-0.33	-0.19	0.97	-0.20	-0.20	0.64	-0.32
Repetitive industry	-0.88	0.28	-3.15**	-1.40	0.74	-1.90+	-0.88	0.37	-2.40*	-1.40	0.96	-1.46
Constant	0.61	0.31	1.97+	1.32	0.81	1.63	0.61	0.42	1.46	1.32	0.99	1.33
Sigma	0.94	0.10		0.87	0.09		0.94	0.14		0.87	0.12	
Ln sigma							-0.05	0.15	-0.39	-0.13	0.14	-0.93
Sector dummies	No			Yes			No			Yes		
Log likelihood	-76.68			-73.92								
Log pseudolikelihood							-76.68			-73.92		
LR chi-square	73.96***			79.50***								
Wald chi-square							31.52***			54.31***		
Pseudo R^2	0.32			0.34								

Note: ***p<0.001, **p<0.01 *p<0.05, +p<0.1.

37 of the 81 franchise chains included are left-censored (do not use multi-unit franchising)