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The Effects of New Franchisor Partnering Strategies on Franchise System Size

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Many young firms use strategic actions to attract partners who help them increase the size of their operations quickly. This article examines the use of strategic actions to attract partners and increase system size in the context of franchising. We build on research in entrepreneurship, marketing, organization theory, strategic management, and finance to develop specific hypotheses about the influences of franchisor pricing policy and strategic control decisions on system size. We test these hypotheses empirically, using panel data on a sample of 1,292 business format franchise systems from 152 industries that were established in the United States between 1979 and 1996 and followed from their inception forward in time. Our model accounts for the endogeneity of strategic decisions, controls for unobserved firm and industry factors, and accounts for selection effects due to system failure. The results show that franchisors that grow larger (1) lower royalty rates as the systems age, (2) have low up-front franchise fees that rise over time, (3) own a small proportion of outlets and lower that percentage over time, (4) keep franchisees' initial investment low, and (5) finance their franchisees.

Key words: firm size; franchising; pricing; ownership; econometric model
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1. Introduction

Organization theory and strategic management research have long held that a firm's ability to partner with other firms helps to increase the size of its operations quickly (Eisenhardt and Schoonhoven 1996, Stuart et al. 1999). The value of partnering has led to a wealth of research that examines how young firms attract other firms to work with them (Bruderl et al. 1992, Eisenhardt and Schoonhoven 1996, Powell et al. 1996).

Much of the research on the efforts of firms to attract partners has focused on their use of reputation, social ties to prominent actors, or the exploitation of observable assets to attract others (Stuart et al. 1999). However, as Bhide (2000) has observed, most young firms lack all three of these things and must attract partners through strategic actions. This paper discusses strategic actions by firms to attract partners, focusing on the empirical setting of business format franchising.

Prior research has shown that the size of a franchise system depends, at least in part, on the franchisors' ability to attract franchisees to work with them (Dant and Kaufmann 2003, Lafontaine and Kaufmann 1994). Franchisors can adopt specific strategies to facilitate the attraction of franchisees and expand system size (Gallini and Lutz 1992). In this article, we argue that the key strategies involve pricing policy—which we define as decisions involving royalties on sales to end users, up-front franchise fees paid by franchisees to franchisors, and initial investment made by the franchisees—and strategic control—which we define as decisions about ownership of outlets and the approach to financing those investments—because research has shown that these strategic decisions are central to securing channel partners, such as distributors, dealers, wholesalers, and retailers (Anderson and Weitz 1992).

Prior research in franchising has looked at determinants of pricing policy decisions (Agrawal and Lal 1995, Kaufmann and Dant 2001, Lal 1990), drivers of strategic control decisions (Dant and Kaufmann 2003, Dant et al. 1996, Kalnins 2004, Lafontaine and Kaufmann 1994, Lafontaine and Shaw 2005), determinants of survival of franchisors (Shane 1996, Shane and Foo 1999), and the influence of ownership mix on franchisor performance (Sorenson and Sorenson 2001). However, analysis of the influence of these strategic actions on franchise system size is limited.

A notable exception is Srinivasan (2004), who examines how dual channels (owned and franchised outlets) affect a franchisor's sales. However, Srinivasan's (2004) variable of interest is sales per outlet, and her focus is dual channels, while our focal variable is the number of outlets in the franchise system and its relationship with franchisor's strategic actions.

One reason there is not much empirical research on the drivers of franchise system size is that research needs to carefully correct for three important issues: (1) the problems of sample selection due to franchise system failure, (2) the effects of unobserved variables on franchisor performance, and (3) the endogeneity of strategic decisions. First, many young franchisors fail, making it important to correct for such failure in empirical studies (Shane and Foo 1999). Second, much prior empirical research in franchising suffers from the confounding of the effects of unobserved variables (Barney 1991) with those of strategic actions. Thus, any evidence of the effects of strategic actions on performance in prior studies may be an artifact of these unobserved characteristics (Lafontaine and Shaw 1999). Finally, much previous empirical research in franchising does not treat decisions, such as those on pricing policies and strategic control, as endogenous, potentially biasing estimates of their effects on firm performance. Thus, rigorous empirical research is necessary to have an accurate understanding of the relationship between strategic decisions and franchise system size.

In this paper, we develop specific hypotheses about the effect of franchisors' strategic actions on franchise system size. We test the hypotheses using panel data on 1,292 business format franchise systems from 152 industries established in the United States between 1979 and 1996. We estimate a model of franchise system size that accounts for the endogeneity of royalty rate, franchise fees, and ownership; controls for unobserved firm heterogeneity; and controls for selection effects due to possible system failure. The results show that franchisors that grow large lower their royalty rates as the systems age, have low up-front franchise fees and raise them over time, own a small proportion of outlets and lower that percentage over time, make initial franchisee investment low, and finance franchisees.

Some of these results are counterintuitive. For example, the relationships we uncover between franchise system size and royalty rate and between system size and franchise fees contradict those proposed by Lafontaine (1993) and Lafontaine and Shaw (1999). Our results suggest that franchisors that become large lower their royalty rates as their systems age and charge low up-front franchise fees and raise them over time.

This paper proceeds as follows. The next section discusses the setting of the study. The third section provides a conceptual framework and presents the specific hypotheses that are tested. The fourth section presents the data, and the fifth section covers the model. Section 6 describes the results. The final section discusses the findings and outlines the implications, limitations, and conclusions for this study.

2. The Setting: Business Format Franchising

Franchising is an economically important form of entrepreneurship. The U.S. Commerce Department estimates that there are more than 500,000 franchised outlets in over 2,500 franchise systems, accounting for 13.5% of the U.S. gross domestic product and 35% of retail sales, and employing eight million workers (Lafontaine and Shaw 1999). Business format franchising exists in a variety of industries, from the Internet to banking, but is most common in eating and drinking establishments, business services, and retail (Lafontaine 1992, Shane 1996).

A business format franchise is a network of legally independent organizations that jointly exploit a common asset—the franchisor's plan for the provision of a product or service to end customers. Under a business format franchise arrangement, the franchisee obtains the right to use the franchisor's brand name and business plan in return for paying a royalty and franchise fees and agreeing to oversight by the franchisor (Shane and Foo 1999).

Franchise system size is of paramount concern to franchisors, especially young franchisors (Shane 1996). Not only is this a key managerial issue in marketing channels in general (Anderson and Weitz 1992), but it is also central to franchising as a business strategy (Shane 1996). First, as brand name is important in many franchised businesses and there are economies in advertising and promotion, the per unit cost of promoting the brand name is lower for larger systems. Therefore, many franchisors grow their systems to build their brand names more efficiently (Shane 1996). Second, many franchised businesses have a high fixed cost of development relative to the marginal cost of additional applications. As a result, a large system is important to reducing the average cost of opportunity exploitation and making the business more profitable. Third, larger franchise systems often have greater bargaining power than smaller systems. As a result, a large system provides franchisors with the ability to obtain lower cost inputs, thereby improving profitability (Gallini and Lutz 1992, Lafontaine 1993). Fourth, many of the new venture opportunities exploited by franchisors are unproven. To minimize the cost of bearing the uncertainty of new venture opportunities,

franchisors often start their systems on a small scale and expand if they discover that demand exists and that they have the capabilities to meet that demand (Caves 1998). As a result, franchisors are often established below minimum efficient scale and need to become large to survive (Geroski 1995).

Franchised businesses involve high up-front fixed costs, exploit uncertain business concepts, and take advantage of size-based bargaining power, all of which encourage the adoption of strategies to expand system size (Shane 1996). Therefore, understanding which strategies are associated with large franchise systems is an important issue for management scholars to address.

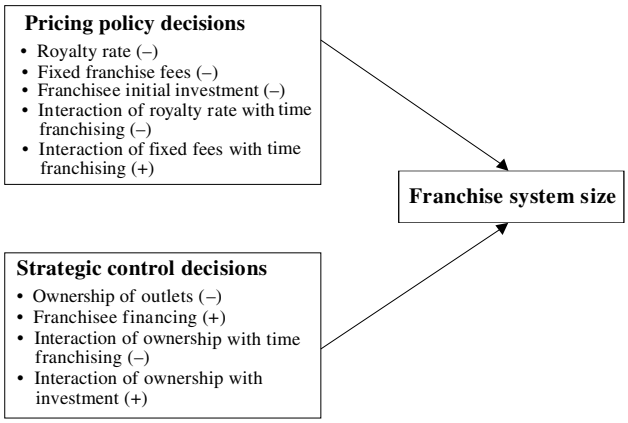
3. Conceptual Development and Hypotheses

We propose a conceptual framework in which we identify the determinants of franchise system size. Although a number of variables potentially influence franchise system size, we focus on those determinants that involve strategic actions by the franchisor and treat other determinants as control variables. There are two broad categories of these strategic determinants of franchise system size: pricing policy and strategic control. Under pricing policy, the key strategic decisions of the franchisors include those of royalty rate, up-front fixed fees, and franchisee initial investment. A franchisee's initial investment includes capital expenditures on items such as real estate, training, equipment, and consulting fees. Under strategic control, the strategic franchisor decisions include proportion of ownership of the outlets and the decision to finance the franchisees.

The franchisor's decision variables also include franchisee training and advertising, but we do not focus on these variables for two major reasons. First, these variables can be viewed as recoverable by the franchisor as part of franchisees fixed costs (up-front fees and initial investment). Second, we do not have data on these variables to model their effects in our subsequent empirical analysis. But because we control for unobserved heterogeneity, omission of these variables does not pose a significant problem in our estimation of the effects of our focal interest. We develop hypotheses relating franchise system size to franchisor strategic decisions primarily based on a theory of signaling by the franchisor to the franchisee of the attractiveness of the franchise. The conceptual framework appears in Figure 1.

The size of a franchise system depends on the ability of the franchisor to attract franchisees after the franchise system is established. This process requires strategic actions on the part of the franchisor to signal the attractiveness of the franchise, because uncertainty and information asymmetry make it difficult for

Figure 1 Conceptual Framework of Drivers of Franchise System Size



potential franchisees to discern which franchise systems are worth investing in. When they first begin to franchise, franchisors cannot easily demonstrate the value of their assets because the major asset that they offer to franchisees—the business format—is intangible and therefore hard to value prior to purchase (Gallini and Lutz 1992, Lafontaine 1993). For example, it is difficult to know in advance whether the recipes of a new fast food chain will prove to be popular with consumers.

In fact, many business formats offered by new franchisors are not valuable. Research has shown that most of the franchise systems established every year die quickly (Shane 1996, Shane and Foo 1999). This pattern makes potential franchisees skeptical of the value of business formats offered by franchisors when they first begin to franchise. Moreover, these franchisors cannot use their reputations as franchisors to attract franchisees, because they have not yet developed these reputations (Gallini and Lutz 1992).[1]

When they first start to franchise, franchisors cannot convince potential franchisees to partner with them simply by claiming that the business format is valuable. All franchisors (those offering business formats that are both valuable and not valuable) have an incentive to claim that they are offering a valuable business format because claims of value, if believed by potential franchisees, will result in sales of outlets (Desai and Srinivasan 1995). As a result, practitioners strongly urge potential franchisees not to believe new franchisors' claims but to "investigate before they invest" (Lafontaine 1993, p. 259).

3.1. Pricing Policy Decisions

Given the ineffectiveness of just "claiming" value as a way to persuade potential franchisees to partner with

[1] For example, McDonald's can point to its global network of franchised outlets, the fact that 1 in 10 Americans once worked at McDonald's, and the ubiquitous experience of sampling McDonald's food as evidence that its business format franchise is valuable.

them, franchisors must take strategic actions to attract the franchisees. By adopting an appropriate pricing policy or franchise contract terms, the franchisor can credibly signal the attractiveness of the franchise.

Franchisees pay a price to the franchisors for the use of their business formats primarily through two avenues: royalties paid as a percentage of the franchisee's sales to end customers and up-front fixed franchise fees. Franchisees also incur initial costs to open a franchise. Although the franchisor does not necessarily extract rents from these investments, it can use this investment level as a signal to indicate the value of the franchise. We develop hypotheses on royalty rate, fixed fees, and franchisee initial investment, in that order.

Young franchisors without established reputations face a problem attracting franchisees. Potential franchisees do not know if the value of the system is going to be high enough to justify the royalty rate that they would have to pay to the franchisor. Franchisors cannot charge a high royalty rate for a system that has limited value, because franchisees receive their compensation as revenues net of all costs, including the royalty rate. If the franchisees have to pay a high portion of their sales for a system that generates low revenues, the franchisees will not make enough money to cover their costs.

Because royalties depend on the value of the system's business concept, the royalty rate can provide a credible signal of system quality and affect system size by impacting the ease of attracting franchisees. We posit that systems that have lower royalty rates will find it easier to attract franchisees than systems that have higher royalty rates. The lower the royalty rate the franchisor charges, the greater the likelihood that the value of the system will be high enough to justify that royalty rate. As a result, the ability to attract franchisees will be greater. This reasoning leads to the first hypothesis:

Hypothesis 1a. *The size of a franchise system is negatively related to its royalty rate.*

As franchise systems get older, this relationship is likely to become more negative for at least three reasons. First, the franchisor's major contribution to the franchise system lies in the development of the initial business format that the franchisees use to serve end customers. Over time, many of the improvements made to business format franchise systems originate with franchisees rather than with franchisors (Darr et al. 1995, Love 1986). Given this shift in the locus of improvements over time, franchisors need to give franchisees an incentive to further develop the system and enhance its size. Because franchisees are motivated by their profits from operating outlets (Castrogiovanni et al. 1993), which are reduced by royalty payments, those franchisors that lower their royalty rates as they age are more likely to be larger in size than others.

Second, as franchisors age, they saturate markets with outlets. This saturation reduces individual franchisee's profits and makes it harder for the franchisor to attract new franchisees. Franchisors that increase the franchisee share of profits from operating outlets by reducing their royalty rates as the system ages can compensate the franchisees for the saturation of markets and add outlets.

Third, as the system ages, the average tenure of the franchisees and their familiarity with the franchise concept increases. As familiarity increases, the franchisee's expertise relative to the franchisor increases, leading to unwillingness to pay high royalties to the franchisor. Therefore, as the system ages, the negative relationship between system size and royalty rate becomes more pronounced. These arguments yield the next hypothesis:

Hypothesis 1b. *As the system ages, the relationship between size and royalty rate becomes more negative.*

The fixed franchise fee is the other pricing variable that franchisors use to attract new franchisees and add outlets to the system. To attract franchisees, franchisors need to set their franchise fees at a level appropriate for the value of their brand name and the services they are providing to their franchisees. When the franchisor first begins franchising, its brand is likely to be underdeveloped and the services that it provides to its franchisees relatively limited. Under these circumstances, attracting franchisees is facilitated by charging a low franchise fee. If a franchisor's up-front fixed fee is high, franchisees are more likely to find it too high to justify buying into the system, given that the value of the business format is unproven. In contrast, when up-front fixed fees are low, even franchise systems with relatively underdeveloped brands and limited services will be of a high enough value to justify the up-front fixed fee. Consequently, with a low up-front fixed fee, more franchisees will be attracted to a franchisor even if the franchisor's business format is unknown and uncertain. This argument leads to the following hypothesis:

Hypothesis 2a. *The size of a franchise system is negatively related to its up-front fixed franchise fees.*

Over time, however, this negative relationship will likely become less negative, prompting business format franchisors to change this pricing policy for several reasons. First, the operation of a business format franchise system generates information about the value of the business format, leading franchisors to develop reputations. As these reputations develop, the value of the strategy of maintaining

a low franchise fee declines. The reputation that the firm develops provides an alternative mechanism for attracting franchisees, so the franchisor can afford to have higher fixed fees and still attract new franchisees and add to its outlets.

Second, royalties on gross sales create incentive distortions (Gallini and Lutz 1992, Lafontaine 1992). Because royalty payments reduce franchisee profits, franchisees have an incentive to minimize their royalty payments by underreporting sales. Therefore, franchisors must monitor franchisees to ensure that they accurately report their sales. By shifting its compensation to up-front fees, franchisors can reduce the franchisee incentive to underreport sales and, consequently, the cost of monitoring franchisees (Shane 1998a). This strategy will likely attract more franchisees, enabling the system to become larger.

Third, the moral hazard problem that a franchisor experiences with franchisees may decrease over time. As the franchise system ages, the franchisor can better observe the service level of its franchisees through established monitoring systems. When observability is high, large franchisors tend to have higher franchise fees (Desai and Srinivasan 1995). These arguments lead to next hypotheses:

Hypothesis 2b. *As the system ages, the relationship between size and fixed fees becomes more positive.*

The franchisor can use the initial investment required from the franchisee as a strategic variable to influence the size of the franchise system. A high initial investment can dissuade potential franchisees, who might be risk averse, while a low initial investment can attract franchisees reluctant to commit to high investment levels before experiencing success (Gallini and Wright 1990). As a result, franchise systems with lower required franchisee initial investment have an easier time attracting franchisees than do other franchise systems. These arguments lead to the following hypothesis:

Hypothesis 3. *The size of a franchise system is negatively related to franchisee initial investment.*

3.2. Strategic Control Decisions

As they evolve from inception, franchisors also attract franchisees to their business formats by exercising strategic control through decisions on ownership of outlets and on financing franchisees. Contractual organizational arrangements, like franchising, allow firms to grow faster than hierarchical organizational arrangements like company-owned outlets do (Shane 1996). By using franchisee funds to operate outlets, franchisors can minimize the size of the capital investment they need to grow (Kaufmann and Lafontaine 1994). In addition, firm size is inhibited by the risk that firms must bear in becoming large. This risk is spread to other parties if the firm uses franchising (Martin 1988). Furthermore, franchising provides stronger incentives than company ownership to outlet operators to work hard, and this incentive also increases the size of firms (Lafontaine 1992). Because economies of scale exist in most businesses in which franchising operates, franchise systems need to become large quickly or else they will be disadvantaged when competing with established firms, which can advertise more efficiently or exploit scale economies in purchasing supplies. Therefore, having too many company-owned outlets provides a drag on expanding the size of franchise systems, which hinders their ability to attract franchisees. This leads to our next hypothesis:

Hypothesis 4a. *The size of a franchise system is negatively related to the proportion of company-owned outlets in the system.*

This relationship is likely to become more negative as the system ages, enabling franchisors to decrease their ownership of outlets as the system ages. First, according to the signaling theory, to become bigger as the system ages, a franchisor may have to decrease ownership because ownership is no longer a required signal to demonstrate the value of the system as the business format develops a reputation over time (Gallini and Lutz 1992).[2]

Second, nonhierarchical organizational forms like franchise systems tend to get bigger than hierarchically organized firms (Baum and Ingram 1998, Darr et al. 1995). In contrast to company-owned outlets, franchised outlets require smaller levels of capital expenditure, demand less expenditure on employee selection, and require less managerial oversight (Shane 1996). Therefore, as their systems age, franchisors increase the proportion of franchised outlets to become bigger (Ingram and Baum 1997, Shane 1996).

Third, there may be synergistic benefits of dual distribution (Lafontaine and Kaufmann 1994, Srinivasan 2004). Therefore, companies may limit the proportion they own to a level necessary for quality control (Lafontaine and Shaw 2005) and focus their attention on growth through franchising. As a result, the proportion of company-owned outlets decreases over time.

Fourth, franchised outlets tend to outperform company-owned outlets (Krueger 1991). Hired employees lack ownership incentives, leading them

[2] As Gallini and Lutz (1992) explain, "A franchisee that considers joining a long-established chain has relatively good information on product demand. When a large number of outlets have operated for many years, most consumers are familiar with the product. A potential franchisee may well have direct experience with the product and can readily observe the number of customers at nearby outlets."

to shirk (Alchian and Demsetz 1972). Franchising reduces the incentive to shirk by turning outlet operators into residual claimants. This residual claimancy leads the operators of franchised outlets to work harder, making their outlets more profitable (Krueger 1991). Thus, franchisors would like to franchise a greater proportion of their outlets and will shift in this direction when company ownership of outlets is no longer important to attract franchisees. These arguments lead to the following hypothesis:

Hypothesis 4b. *As the system ages, the relationship between size and proportion of company-owned outlets becomes more negative.*

However, when outlets require a large initial investment, company ownership of outlets is important to enhancing system size for several reasons. First, when franchisees make a large investment in a franchise system, they bear significant risk. One of the sources of this risk is that the system into which they are buying has limited value. This risk can be mitigated if the franchisor demonstrates the value of the system by owning outlets directly. By owning outlets, the franchisor makes its own compensation dependent on the value of the business format, thus providing a credible signal of its value (Gallini and Wright 1990). When the size of the franchisee investment is small, this signal is relatively unimportant. However, when the size of the franchisee investment is large, the need for such a signal to attract franchisees becomes dominant.

Second, the number of potential franchisees that can purchase outlets shrinks when the size of initial investment becomes large. As a result, the ability of a larger organization to raise capital becomes more important in facilitating size than the ability to attract franchisees. These arguments lead to our next hypothesis:

Hypothesis 4c. *Ownership of outlets moderates the negative relationship between franchisee initial investment and franchise system, making the relationship less negative for franchisors that own a greater proportion of the outlets in the system than for franchisors that own a lesser proportion of outlets.*

Franchisors can also finance new franchisees to get them started and thereby reduce the franchisees' risk levels. Financing of franchisees also signals the franchisor's commitment to and control over the system size and its seriousness about the success of the franchisees. Entrepreneurs can convince their potential investors or partners of the value of their businesses by investing in or funding them (Leland and Pyle 1977). Moreover, financial commitment by a channel partner (in this case, the franchisor) helps to build trust and maintain size and continuity in channel systems (Anderson and Weitz 1992). Furthermore, financing allows more franchisees to separate entrepreneurial talent from financial resources (Carney and Gedajlovic 1991), thereby helping them concentrate on the success of their outlets. Indeed, franchisors that offer financing to potential franchisees enjoy greater sales than those who do not (Srinivasan 2004). Greater sales are typically associated with a larger number of outlets. This reasoning yields our last hypothesis:

Hypothesis 5. *The system size of a franchisor that finances its franchisees is greater than that of a franchisor that does not finance its franchisees.*

4. Data

The hypotheses focus on the size of business format franchisors from the time they begin to franchise. Therefore, to test these hypotheses, one needs a sample of business format franchisors followed from the time they begin to franchise forward, for which data on contract terms, ownership strategy, and size are available (Lafontaine 1993).

These data are available from *Entrepreneur Magazine* for franchise systems established in 1979 and later (Lafontaine 1993). *Entrepreneur Magazine* annually identifies all franchise systems in operation in the previous year and summarizes important information about the system, including the headquarters location, royalty rates, fixed franchise fee, initial investment requirements, financing policies, and the number of company-owned and franchised outlets in the system (Shane and Foo 1999). We use data assembled by Shane and Foo (1999) from *Entrepreneur Magazine* on 1,292 U.S.-headquartered companies that began franchising in the United States between 1979 and 1996 and were followed from the point when they initiated franchising until 1996.[3]

According to previous researchers, the *Entrepreneur Magazine* records capture most franchise systems (Lafontaine 1993). Moreover, the information presented is highly accurate both because *Entrepreneur Magazine* verifies the information and because potential franchisees are likely to check this information before investing (Scott 1995).

The *Entrepreneur Magazine* list is also representative of the population of franchisors. Shane (1996) examined 138 franchise systems that were first established in the United States in 1983 and found that the data provided by *Entrepreneur Magazine* and another franchise guide, *Franchise Annual*, were not significantly different. Shane (1998b) showed that there were no

[3] These franchise systems can be viewed as young or new franchise systems as they first began to offer franchises for sale in the year of observation in the data.

significant differences between those franchise systems listed as starting between 1981 and 1983 in *Entrepreneur Magazine*, *Franchise Annual*, and *Franchise Opportunities Handbook*, on any of the variables examined in this study. Our interest is in explaining the strategic drivers of the size of franchise systems.

5. Operationalization of Variables and Model

In this section, we discuss the operationalization of focal and control variables, selection correction, and the empirical model and its estimation, including controlling for unobserved heterogeneity and the endogeneity of marketing actions.

5.1. Operationalization of Focal Variables

The operationalization of the variables appears in Table 1. We measure the dependent variable, *size of the franchise system*, as the natural logarithm of the number of outlets in the franchise system in the year of observation. As explained earlier, the number of outlets in the system is a good measure of size, and changes in this variable represent system size (Lafontaine 1992).

We operationalize the independent variables from data reported in *Entrepreneur Magazine*. All variables are updated annually for each franchise system for each year it was in operation between 1979 and 1996. Consistent with prior research (e.g., Lafontaine 1992, 1993), we measure *royalty rate* as the percentage of sales that franchisees must pay to the franchisor in the year of observation. Following Shane and Foo (1999), if the franchise system reported a range of royalty rates, we calculate the average rate. If the franchise system reported a flat dollar amount of royalty, we divide this amount by the industry average level of sales for an outlet to normalize the dependent variable. We measure the portion of the franchisor's compensation that comes in the form of an up-front franchise fee as the dollar amount of the *franchise fee* in the year of observation (Shane and Foo 1999). If the franchisor reported a range of fees, we use the mean of those values. Following prior research (e.g., Brickley and Dark 1987, Brickley et al. 1991, Lafontaine 1992, Thompson 1994, Scott 1995), we measure the dollar value of the *franchisee*'s *initial investment* to open an outlet in the system in the year of observation. Both franchise fees and franchisee initial investment are measured in inflation-adjusted dollars. We measure the *proportion of company-owned outlets* as the ratio of company-owned outlets to the total number of outlets in the system. Following Lafontaine (1992), we measure *franchisee financing* as a dummy variable of one if *Entrepreneur Magazine* reports that the franchisor finances the franchisees' purchase of outlets in the year of observation. Consistent with previous literature (e.g., Shane 1998a, Shane and Foo 1999), for each year of observation, we measure *time franchising* as the number of years since the franchise system was established.

Table 1 Operationalization of Constructs/Variables

Constructs/variables	Measures
Franchise system size	Number of outlets in the system (company owned and franchised)
Royalty rate	Average percentage of sales that franchisees paid to the franchisor on an ongoing basis
Franchise fee	Average amount paid by the franchisee to the franchisor as up-front fee to open an outlet
Proportion of company-owned outlets	Ratio of company-owned outlets to the total number of outlets in the system
Franchisee initial investment	Amount of expenditures incurred by the franchisee to open an outlet
Franchisee financing	Dummy variable, which equals 1 if franchisor provides financing to the franchisee and 0 otherwise
Time franchising	Number of years from the inception of the franchisor until the year of observation
Franchisor reputation	*Entrepreneur Magazine's* ranking of the franchisor (up to 500 and reverse coded)
Regulation	Dummy variable, which equals 1 if the franchisor is headquartered in a state with franchise regulations during the year of observation and 0 otherwise

5.2. Operationalization of Control Variables

We also control for reputation and time and industry dummy variables that prior research has suggested are important in explaining the attraction of franchisees to franchise systems. Media certification could significantly influence system size. We control for the media certification measure that *Entrepreneur Magazine*'s panel of experts assigned to the system in the year of observation (reverse coded). Shane and Foo (1999) found that this ranking captured franchise system reputation well and therefore should influence the attraction of franchisees.

To parcel out time effects, we control for the year of observation with a series of 17 dummy variables for each of the years 1980–1996 (1979 is the base year). We measure industry effects through a series of dummy variables for 151 industry groups to which *Entrepreneur Magazine* assigns the franchise systems (restaurants is the base industry).

5.3. Selection Correction

Because the failure of a new franchise system precludes its ability to attract franchisees no matter what strategic actions it undertakes, we also control for franchisor failure in our regression models to predict system size. About one-fourth of new franchisors fail in the first 10 years, and the failure rate is highest

in the first 4 years (Shane and Foo 1999). The inclusion of a selection-correction control variable eliminates an important form of omitted variable bias that can create inconsistent estimates of predictor variables (Greene 2003). To create this selection-correction variable, we use Lee's (1983) generalization of a Heckman selection-correction model. Specifically, the correction uses predicted probabilities for system failure to generate a sample correction variable lambda:

$$\lambda_{it} = \frac{\phi[\Phi^{-1}(F_i(t))]}{1 - F_i(t)}, \quad (1)$$

where $F_i(t)$ is the cumulative hazard function for project (franchise system) i at time t, ϕ is the standard normal density function, and Φ^{-1} is the inverse of the standard normal distribution function (Lee 1983).

In constructing λ_{it}, it is important to measure at least one variable that affects system failure but does not affect system size. Based on the work of Shane and Foo (1999), which showed that the laws of the states in which franchise systems are headquartered influence their survival, we include the regulation variable as an additional exogenous covariate. We measure regulation with a dummy variable that takes the value of one if the franchisor is headquartered in a state governed by franchising regulations, and zero otherwise.[4]

The selection-correction variable λ_{it} is included as a control in the model that predicts franchise system size. This variable should predict system failure but not system size. Regulation imposes additional costs on franchisors. Brickley and Dark (1987) and Brickely et al. (1991) show that operating in regulatory states increases the cost of operations of franchisors significantly. Franchisors headquartered in regulated states have to incur these greater costs. Otherwise, they will be unable to operate their franchise systems. As a result, franchisors headquartered in regulated states become as large as franchisors in nonregulated states, but they do so at the expense of their profit margins. Because franchisors founded in regulated states have lower profit margins, they have higher failure rates.

5.4. Firm Fixed Effects

Much of the existing research on the relationship between franchisor strategic actions and firm performance infers effects from static cross-sectional analyses. These analyses face important methodological limitations, most notably the confounding of unobserved heterogeneity about the firms or industries with their strategic actions. Unobserved attributes, such as unobserved management talent, likely influence firm performance (Barney 1991).[5] If these unobserved differences are correlated with strategic actions (as would be the case if a franchisor with a better product or more competent management charged a higher price than other franchisors), then evidence for the effects of strategic action on performance may be an artifact of these unobserved characteristics (Lafontaine and Shaw 1999). For example, Subway's pricing strategy may appear to lead to better performance than the pricing strategy at Joe's Sandwich Emporium, when in fact, that relationship is an artifact of the unobserved relationship between the quality of Subway's sandwich shop operations and its pricing strategy.

Given the potential for correlations between the unobserved characteristics of a business format franchisor and its strategic actions to bias coefficients from tests of the effect of strategic actions on system size, we test these effects through the use of firm fixed-effects estimation (Greene 2003). By using these fixed effects, we can parcel out the effect of unobserved firm-level factors, such as the quality of the firm's business format, and obtain unbiased estimates of the relationship between strategic action and system size (Griliches 1986).

5.5. Model Specification

We first used a linear regression model to examine the relationship between franchisor strategic actions and franchise system size. Initial investigation, however, revealed that both the independent and dependent variables were not normally distributed. In such a case, linear regression analysis might yield biased and noninterpretable parameter estimates (Kennedy 1979). Therefore, following Kennedy (1979), we take the natural logarithms of the dependent variable and all independent variables except the dummy variables (e.g., franchisee financing) on both sides of the regression equation before estimation because the log-log transformation yielded linear relationships in the variables. Moreover, we also subsequently report robustness checks with nonlog variables and find no substantive differences from our main regression analysis with the log variables.

The fixed-effect regression model for franchise system size is given by

$$\ln \mathrm{TOUT}_{it} = \alpha_0 + \alpha_1 \ln(1 + \mathrm{ROY})_{it} + \alpha_2 l\mathrm{ROYTIM}_{it} + \alpha_3 \ln \mathrm{FFEE}_{it}$$

[4] The headquarters of the franchisors were widely distributed across 48 states in the United States. California is the state in which the highest number of franchisors were headquartered (21.7%), followed by Tennessee (7.2%), Florida (6.2%), and Texas (6.0%). About 41.8% of the franchisors in our sample were headquartered in states with franchise regulations.

[5] For example, Lafontaine and Shaw (1999) have shown that firm effects, which capture differences in production technologies and the quality of knowledge transferred to franchisees, explain approximately 80% of the variance in royalty rates and franchise fees.

$$+ \alpha_4 l\text{FFTIM}_{it} + \alpha_5 \ln(1+\text{COSH})_{it} + \alpha_6 l\text{CSTIM}_{it} + \alpha_7 \ln \text{FINV}_{it} + \alpha_8 l\text{CSINV}_{it} + \alpha_9 \text{FFIN}_{it} + \alpha_{10} \ln \text{TIME}_{it} + \alpha_{11} \ln \text{REP}_{it} + \alpha_{12}\lambda_{it} + \sum_{j=s}^{E} \gamma_j \text{YR}_{jit} + \sum_{k=1}^{K} \delta_k \text{IND}_{kit} + u_i + \varepsilon_{it}, \quad (2)$$

where i is franchise system; t is year; ln(TOUT) is the log of franchise system size or the total number of outlets in the franchise system; ln(1 + ROY) is log of (1 + royalty rate); ln(FFEE) is log of franchise fee in thousands of dollars; ln(1 + COSH) is log of (1 + proportion of company-owned franchise outlets); ln(FINV) is log of initial investment by the franchisee; FFIN is a dummy variable for financing franchisees (=1 if the franchisor finances the franchisee and 0 otherwise); ln(TIME) is log of the number of years in franchising; l(ROYTIM) is an interaction variable of ln(1 + ROY) and ln(TIME); l(CSTIM) is an interaction variable of ln(1 + COSH) and ln(TIME); l(FFTIM) is an interaction variable of ln(FFEE) and ln(TIME); l(CSINV) is an interaction variable of ln(1 + COSH) and ln(FINV); and ln(REP) is log of media certification of the franchise. YR represents a set of dummy variables, one for each year of the period of the data; s is the year after the base year; E is the ending year; IND is a set of K dummy variables, one for each industry group (except the base industry group—the restaurant industry) in the data; μ is a fixed-effect error term; and ε is a panel error term. We use the transformed terms, (1 + ROY) and (1 + COSH), so the logarithms of royalty rate and company ownership are defined.

5.6. Model Estimation: Endogeneity of Decisions

We first tested for the endogeneity of royalty rate, franchise fee, and company share of ownership of outlets in the model using the Hausman (1978) test. The tests rejected the exogeneity of these variables ($p < 0.05$). Therefore, we account for the endogeneity of royalty rate, franchise fee, and proportion of company-owned outlets by estimating these variables using instrumental variable regressions for these variables. Following prior research (e.g., Lafontaine 1992), we used the lagged terms, franchisor certification, and the geography of regulation as the explanatory exogenous variables for the regression models involving these variables. This modeling approach is consistent with prior studies that have used these as dependent variables (e.g., Lafontaine and Shaw 1999, Shane 1998a).

We estimate the models using two-stage least squares (2SLS) fixed effects through STATA software. In the first stage, we regressed royalty rate, franchise fee, and proportion of company-owned outlets on the exogenous variables outlined earlier. In the second stage, we used the estimated or instrumented values of royalty rate, franchise fee, and proportion of company-owned outlets from the first-stage models to estimate the franchise system size equation. The estimation is consistent with that used to estimate fixed time and group effects (Greene 2003, pp. 291–293).

6. Results and Robustness Checks

6.1. Results

Table 2 presents the descriptive statistics of the data. It shows the skewed nature of some of the variables and underscores the value of transforming the variables, as we do. Table 3 provides a correlation matrix. It also shows that multicolinearity is not likely to be a problem in our study because of the relatively low level of correlations among the (noninteraction term) independent variables.

Table 4 provides the results of the model. Table 5 shows a summary of the results of the tests of the hypotheses. The results show support for all but one of the hypotheses. Hypothesis 1a is the only hypothesis that is not supported. Royalty rate is not significantly related to franchise system size. However, consistent with Hypothesis 1b, the interaction effect of royalty rate and time franchising is negative and significant ($p < 0.05$).

Up-front franchise fees are negatively related to system size ($p < 0.01$), supporting Hypothesis 2a. Consistent with Hypothesis 2b, the interaction between franchise fee and time franchising is positive and significant ($p < 0.001$). Franchisee initial investment is negatively related to system size, as predicted by Hypothesis 3 ($p < 0.001$). Franchisors are larger when

Table 2 Descriptive Statistics of Key Variables in the Data ($n = 3{,}608$)

Variable	Mean	Std. dev.	Minimum	Maximum
Total number of outlets	46.12	122.46	0.00	1,217.00
Number of franchised outlets	35.58	100.21	0.00	995.00
Industry normalized size	0.98	2.30	0.00	29.42
Time franchising (years)	3.19	2.86	1.00	17.00
Royalty rate (%)	5.27	3.26	0.00	61.00
Franchise fee ($000)	17.69	10.81	0.10	93.00
Proportion of company-owned outlets	0.40	0.39	0.00	1.00
Franchisee initial investment ($000)	122.97	482.27	0.00	17,500.00
Franchisee financing (dummy variable)	0.24	0.43	0.00	1.00
Media certification (500−Franchise 500 ranking)	47.38	109.71	1.00	495.00
Selection correction (λ)	0.90	0.61	0.00	3.71

Note. Statistics on industry and time dummy variables are not reported to conserve space.

Table 3 Correlation Matrix ($n = 3{,}608$)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Outlet size	1.00												
2. Franchisee initial investment	0.09*	1.00											
3. Royalty rate	−0.04*	0.08*	1.00										
4. Media certification	−0.02	0.00	0.04*	1.00									
5. Time franchising	0.58*	0.10*	0.04*	−0.04*	1.00								
6. Royalty rate × time franchising	0.33*	0.08*	0.56*	−0.01	0.67*	1.00							
7. Selection correction (lambda)	−0.17*	0.03	−0.06*	−0.06*	−0.21*	−0.18*	1.00						
8. Franchise fee	0.10*	0.34*	0.14*	−0.00	0.12*	0.14*	−0.02	1.00					
9. Proportion of company-owned outlets	−0.39*	0.15*	0.14*	0.07*	−0.34*	−0.04*	0.01	0.04*	1.00				
10. Franchise fee × time franchising	0.57*	0.19*	0.06*	−0.03	0.94*	0.64*	−0.19*	0.57*	−0.26*	1.00			
11. Proportion company-owned × time franchising	0.22*	0.18*	0.11*	0.02	0.57*	0.46*	−0.17*	0.12*	0.77*	0.56*	1.00		
12. Proportion company-owned × franchisee initial investment	0.12*	0.36*	0.10*	−0.03	0.37*	0.32*	−0.09*	0.16*	−0.89*	0.38*	0.83*	1.00	
13. Franchisee financing	0.09*	−0.18*	0.02	−0.01	0.01	0.04*	−0.05*	−0.02	−0.08*	0.01	−0.03	0.08*	1.00

*All correlations above 0.03 are significant at the 0.05 level.

the franchisee investment required to start the business is not high.

Proportion of company-owned outlets is negatively related to franchise system size, consistent with Hypothesis 4a ($p < 0.05$). Consistent with Hypothesis 4b, the interaction between the proportion of company-owned outlets and time franchising is also negative and significant ($p < 0.05$). The interaction of franchisee initial investment and proportion of company-owned outlets is positive and significant ($p < 0.001$), supporting Hypothesis 4c. Franchisors that require a larger initial franchisee investment are larger if they own a greater proportion of their outlets. Finally, financing franchisees is positively associated with the size of the franchise system ($p < 0.001$), supporting Hypothesis 5.

The relative influence of each of the drivers of franchise system size is provided by the standardized coefficients in Table 4. Proportion of company-owned outlets followed by interaction of ownership and time

Table 4 Results of Fixed-Effects Model of Franchise System Size with Selection Correction (2SLS Estimates) ($n = 3{,}608$)

Independent variables	Coefficient (SE)	Standardized coefficient
Royalty rate (estimated)	0.09 (0.09)	0.04
Royalty rate × time franchising (estimated)	−0.05* (0.02)	0.05
Franchise fee (estimated)	−0.04* (0.02)	0.06
Franchise fee × time franchising (estimated)	0.04* (0.02)	0.25
Proportion company-owned (estimated)	−1.43*** (0.34)	0.55
Proportion company-owned × time franchising (estimated)	−0.53*** (0.11)	0.11
Franchisee initial investment	−0.04* (0.02)	0.13
Proportion company-owned × franchisee initial investment (estimated)	0.23** (0.08)	0.49
Franchisee financing	0.21*** (0.04)	0.08
Time franchising	0.88*** (0.10)	0.38
Media certification	−0.00 (0.01)	0.00
Selection correction (lambda)	0.08* (0.04)	0.18
Year dummies	3 out of 17 significant	—
Industry dummies	11 out of 151 significant	—
σ_u	1.20	—
σ_e	0.61	—
ρ	0.80	—
R-square within	0.47	—
R-square between	0.18	—
R-square overall	0.34	—
F-value	12.01***	—
F-test value that all $u_i = 0$	8.53***	—

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Table 5 Summary of Results of Hypotheses Tests

Hypothesis	Hypothesized relationship	Result
1a	Franchise system size and royalty rate are negatively related.	Not supported
1b	Franchise system size is negatively related to royalty rate × time franchising.	Supported
2a	Franchise system size and franchise fee are negatively related.	Supported
2b	Franchise system size is positively related to franchise fee × time franchising.	Supported
3	Franchise system size is negatively related to franchisee initial investment.	Supported
4a	Franchise system size is negatively related to proportion of company-owned outlets.	Supported
4b	Franchise system size is negatively related to proportion of company-owned outlets × time franchising.	Supported
4c	Franchise system size is positively related to proportion of company-owned outlets × franchisee initial investment.	Supported
5	Franchise system size is positively related to franchisee financing.	Supported

franchising, time franchising, interaction of franchise fee and time franchising, selection correction, and franchisee initial investment, in that order, have the largest influence on system size. Thus, among the hypothesized drivers of franchisor system size, ownership of outlets, its variation over time, the variation of franchise fee over time, and franchisee initial investment are the most important determinants. Furthermore, because the model is in the double log form for most focal variables, the coefficients of these variables represent their elasticities with regard to system size. Thus, for example, the elasticities of fixed fees and franchisee initial investment are the same (−0.04). This result makes sense because both these variables represent dollar payments made by the franchisee to the franchisor, so we do not expect their effects on system size to be very different.

To compare the influences of variables with the same measurement units on system size, we used the Wald test (a chi-squared test of maximum likelihoods) of difference between coefficients in the model. Two pairs of variables that are measured in the same units are royalty rate and proportion of company-owned outlets, and franchise fee ($) and franchisee initial investment ($). The Wald test between the two ratios indicates that ownership has a much greater magnitude of influence on system size than royalty rate does ($p < 0.001$). However, the difference between the influences of franchise fee and of franchisee investment on franchise system size is not statistically different ($p < 0.10$).

Both firm fixed effects and the effect of selection correction are significant, underscoring the importance of controlling for fixed effects and selection correction. Among the control variables, the longer a franchisor is in operation (time franchising), the bigger it is. But media certification is not significantly related to franchise system size. Finally, only the effects of a few industries and years are significant.

6.2. Robustness Checks

Table 6 provides some alternative specifications of the fixed-effects regression model to predict franchise system size. Alternative Model 1 substitutes the log of the number of franchised outlets for the log of the number total outlets as the measure of system size. The results for this model are substantively the same as those for the proposed model for all but one of the hypotheses. Only the effect of initial investment on system size is insignificant in this alternative model.

Alternative Model 2 substitutes the industry-normalized number of total outlets for the log of the number of total outlets as the measure of system size. The results of this model are substantively the same as those for the proposed model for all the hypotheses.

Table 6 Results of Alternative Specifications of Franchise System Size Fixed-Effects Model (2SLS Estimates) ($n = 3{,}608$)

Dependent variable in the model	Alternative Model 1 Log of franchised outlets			Alternative Model 2 Industry normalized outlets		
Independent variables	Coefficient	S.E.	*t*-value	Coefficient	S.E.	*t*-value
Royalty rate (estimated)	0.16	0.09	1.65	0.10	0.08	1.20
Royalty rate × time franchising (estimated)	−0.09	0.05	−1.95*	−0.05	0.02	−2.16*
Franchise fee (estimated)	−0.05	0.02	−2.78**	−0.05	0.04	−1.38
Franchise fee × time franchising (estimated)	0.06	0.03	2.23*	0.04	0.01	2.54**
Proportion company-owned (estimated)	−2.91	0.38	−7.58****	−1.29	0.34	−3.73***
Proportion company-owned × time franchising (estimated)	−0.54	0.12	−4.32****	−0.52	0.11	−4.71****
Franchisee initial investment	−0.04	0.02	−1.73	−0.04	0.03	−1.24
Proportion company-owned × franchisee initial investment (estimated)	0.16	0.08	1.93*	0.18	0.08	2.25*
Franchisee financing	0.22	0.04	4.69****	0.21	0.04	5.00****
Time franchising	0.66	0.11	5.94****	0.88	0.10	8.78****
Media certification	−0.00	0.00	0.55	−0.00	0.00	−0.34
Selection correction (lambda)	0.06	0.05	1.31	0.08	0.04	1.91*
Year dummies	Some sig.		Sig.	Some sig.		Sig.
Industry dummies	Some sig.		Sig.	Some sig.		Sig.
σ_u	0.97			1.25		
σ_e	0.67			0.60		
ρ	0.67			0.81		
R-square within	0.51			0.47		
R-square between	0.43			0.19		
R-square overall	0.49			0.33		
F-value	14.17****			12.11****		
F-test value that all $u_i = 0$	4.98****			8.73****		

*$p < 0.05$;** $p < 0.01$;*** $p < 0.001$;**** $p < 0.0001$

The effects of franchise fee and initial investment are not significant, although they have the same signs as those from our focal model.

We checked for plausible curvilinear relationships between the focal variables and system size by estimating models that included quadratic terms. For example, the size of a franchise system might be greater when a franchise system has a lower royalty rate, but beyond a level, a lower royalty rate might not serve as a signal to attract franchisees. In the tests of the curvilinear relationships, the squared terms did not turn out to be significant ($p > 0.10$).

7. Discussion

7.1. Discussion and Implications

While some of our results are consistent with prior research, many of our findings extend previous research and offer some counterintuitive insights. The first major observation about our results is that collectively, they are consistent with signaling theory (e.g., Desai and Srinivasan 1995, Gallini and Lutz 1992). Specifically, our results indicate that franchisors that have low up-front franchise fees when they start and lower royalty rates as their systems age are larger. Our results also show that franchise systems that have low initial franchisee investment and finance franchisees are larger, further supporting signaling theory.

These results are different from those obtained by Lafontaine (1993), who did not find empirical support for the signaling theory. Failure to find empirical support for a theoretical argument can result either from an incorrect theory or from measurement error. We argue that Lafontaine's failure to find support for Gallini and Lutz's argument was the result of measurement error. Her findings were based on a cross-sectional analysis of 125 franchisors, who started franchising during 1980–1984 and for whom data were available. They do not fully take into account temporal variation in pricing policy and strategic control, the failure of some franchisors, and unobserved heterogeneity across industries and firms. By controlling for unobserved heterogeneity at the firm level, selection effects that resulted from system failure, and temporal variation in pricing policy and strategic control, we were able to find support for the theory.

The second major observation about our results is that they show much more variation in strategies associated with franchise system size than previous researchers have documented. For instance, our finding that large franchisors change their pricing structure by increasing their fixed fees but decreasing their royalty rate over time is novel and counter to Lafontaine and Shaw (1999), who found that franchisors do not systematically increase or decrease their royalty rates or franchise fees as they become more established. While Lafontaine and Shaw (1999) attribute any observed differences in royalty rates or franchise fees to differences across firms, we found that even after controlling for firm and industry differences, media certification, and selection correction, differences in franchise system size are explained by changes in their pricing structures with the aging of their systems. One possible reason for the differences between our results and those of Lafontaine and Shaw (1999) is that we focus on franchise systems from their start at franchising, while they examine a sample of franchise systems of varying age. Taken together, these results suggest that young franchise systems may demonstrate more variance in strategy than mature systems do.

Our results are mixed with respect to the resource-constraint and resource-acquisition theories. Our finding on the relationship of ownership of outlets and system size is consistent with the resource-constraint theory (e.g., Combs and Ketchen 1999, Oxenfeldt and Kelly 1969, Norton 1988). However, the result that larger size is associated with lower proportion of company-owned outlets over time is counter to the resource-acquisition theory and the results of Dant and Kaufmann (2003). One explanation for this discrepancy is that the fast food industry, which Dant and Kaufmann (2003) studied, has a strong incentive to maintain system quality, which is often associated with emphasis on company-owned outlets (Scott 1995).

Our findings also have useful implications for research on firm reputation. Many researchers have argued that firms use their reputations as signals of quality to overcome the problems of attracting partners (Fombrun 1996, Fombrun and Shanley 1990). However, new entrants, by definition, lack a reputation for doing what they are entering a market to do. Consequently, they cannot rely on their reputation for past performance as a signal of the value of their business concepts. Instead, they must use strategies to attract partners prior to the point at which they can use their reputations as a tool to attract others.

Moreover, prior research on reputation (Shenkar and Yuchtman-Yaar 1997, Shrum and Wuthnow 1988) does not consider the evolution of strategic actions over the life of organizations. Because organizations generate reputations over time, the importance of using other strategic actions to attract partners decreases with firm age. As a result, firms' use of pricing and ownership arrangements to attract partners should become less common as firms age, because reputation substitutes for these strategic actions. This study provides empirical evidence of this evolution.

This study also provides a useful example of how researchers can use more sophisticated methodologies to more accurately examine the effect of strategies on firm performance. Researchers have sought to identify strategic actions that influence the relative performance of franchised organizations (e.g., Combs and Ketchen 1999). Intuitively, the idea that one organization outperforms another because it has a better strategy is an appealing explanation for relative performance. However, accurate empirical evidence for the effects of strategic actions on firm performance requires the use of statistical methods that control for unobserved heterogeneity in firm attributes and endogeneity of strategic decisions. Failure to control for industry effects or firm factors leaves open the alternative that evidence of a better strategy is a spurious artifact of unobserved variation in firm characteristics. Because the measurement of strategic action is confounded with the measurement of unobserved attributes in cross-sectional regression (as is the case when firms with better capabilities charge a higher price for their products), the evidence for the strategy-performance relationship often is not real. Similarly, the failure to control for endogeneity of strategic variables may result in biased estimates of the effects of these variables on performance. This study demonstrates how researchers can use fixed-effects regression to control for unobserved heterogeneity and account for the endogeneity of strategic actions when looking at the effect of strategies on firm performance and obtain accurate estimates of the relationships between strategic actions and firm performance.

Finally, this study provides a useful addition to a growing body of literature (e.g., Azoulay and Shane 2001, Shane 1998b, Shane and Foo 1999) that argues that the behavior of young franchisors differs from that of mature franchisors. This literature argues that new franchisors need to grow quickly to reach minimum efficient scale and to obtain capital. As a result, they adopt different policies from more mature operators (Carney and Gedajlovic 1991, Lafontaine and Kaufmannn 1994, Martin 1988, Shane 1996). This study provides empirical evidence for the mechanism through which this difference operates—the need to attract franchisees. Consistent with the arguments of Gallini and Lutz (1992), this study shows that the policies of young franchisors are dominated by the need to attract franchisees. However, as franchisors mature, this need is overtaken by other strategic demands. As a result, certain strategic actions that are common in young franchise systems are relatively rare in mature systems.

From a managerial standpoint, this paper has several useful implications. First, managers can use the findings to better understand the pricing structure associated with the size of a franchise system, thereby allowing them to make more informed decisions about the appropriate mix of franchise fees and royalty rates over time. Second, the finding that franchise system size is negatively related to the proportion of company-owned outlets suggests to managers the merits of minimizing ownership to get to a large number of outlets. Finally, franchisors that want to grow larger may be able to use their financial resources to keep their franchisees' initial investment in the outlets low and to finance franchisees.

7.2. Limitations

This study is not without limitations. First, the study examines only a small number of strategic actions that firms use to attract partners. Other strategic actions, such as advertising, for which data could not be collected, may also be important. Because this study contains no information on alternative strategies, the relative importance of the actions examined here cannot be fully ascertained. Future research is needed to determine the relative importance of the strategic actions discussed here.

Second, this study examines the specific setting of business format franchising. Although business format franchising is an important organizational arrangement in many industries, these franchise systems necessarily represent a select sample of organizations. Consequently, the results presented here may not generalize to all types of firms but may be limited to the relatively labor-intensive, retail-oriented industries in which such franchising occurs.

Third, we have not examined firm profitability because of the lack of data. Profitability is an important measure of success. If suitable data were available, analyses of drivers of sales per outlet and profits per outlet would be useful complements to our study (e.g., Srinivasan 2004).

7.3. Conclusion

We conceptually and empirically investigated the relationships between franchisor strategic actions and franchise system size for a sample of 1,292 business format franchisors across 152 industries in the United States between 1979 and 1996. After we controlled for unobserved heterogeneity using firm effects, corrected for selection due to system failure, and accounted for the endogeneity of strategic actions, our results show that business format franchisors that grow larger do several things: lower royalty rates as franchise systems age, have low franchise fees and raise them over time, own a small proportion of outlets and lower that proportion over time, make franchisee's initial investment low, and finance franchisees. We hope that this research will spur future

researchers to explore further the role of pricing policies and strategic control in the size of firms and entrepreneurship in general.

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