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The Dynamic Value of Hierarchy

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This study develops a dual-routines view of the dynamic value of hierarchy, and tests it against the implicit null hypothesis that hierarchy merely provides static advantages over markets. The view holds that hierarchical managers perform two roles that create value for firms in perpetuity—an administrative role of enforcing operational routine, and an entrepreneurial role of executing a metaroutine that continually revises operational routine to keep pace with changes in the environment. The test consists of a natural experiment comparing the behavior and performance of establishments that leave a franchise, “lose their hierarchical managers,” with those that remain.

I find support for the view. In the absence of the franchisor, establishment behavior drifts from the operational routine, and establishments fail to adopt innovation. Both responses lead to significant decay in performance. Thus hierarchical managers are necessary to actively enforce routine, *even after the routine been assimilated*, and to introduce innovation, *even in this unique setting of perfect incentives*.

(Routines; Franchise; Managerial Value)

1. Introduction

Much of modern organization theory holds that managers are merely sources of variation that are dissipated over time. Its subfields differ primarily in the respective forces they believe are responsible for equilibration. In resource dependence (Pfeffer and Salancik 1978), for example, the force is resource dependence; in new institutional theory (Meyer and Rowan 1977), it is need for legitimation; in population ecology (Hannan and Freeman 1977), it is pursuit of scarce resources in a dense environment.

Modern organization theory stands in stark contrast to its neoclassical antecedents (Barnard 1938, Simon 1945, Selznick 1957). There the science of administration had as its goal normative and prescriptive work on the contributions of managers. Thus, the fundamental premise was that managers controlled the fate of firms.

Is modern organization theory correct—are managers superfluous? Or does neoclassical organization theory have it right—do managers matter? It is hard

to imagine a more central question to the field of management, yet remarkably little work tackles the question directly. Rather, the assumptions of managerial value (or lack of value) are so fundamental that they go unchallenged. Two notable exceptions are separate works by Henderson and Cockburn (1994) and Lieberman et al. (1990) that find evidence of managerial value as by-products of studies with other objectives.

Henderson and Cockburn (1994) decompose pharmaceutical firms into collections of competences such as scientific discipline (functional specialization) and therapeutic class (market specialization), and find that these technical resources account for little of the difference in firm performance. Rather, firm effects representing managerial “flexible integration processes” are far more substantial and significant.

Lieberman et al. (1990) studied the productivity growth of six firms in the automobile industry. They found significant differences in productivity growth within the same firm (i.e., same resources) across chief executive regimes. Thus, not only do managers

matter, but different managers matter. Though both studies lend empirical support to the managerial perspective, neither study examines the causal relationship between managerial roles and performance differences in firms.

This study extends the work of Henderson and Cockburn (1994) and Lieberman et al. (1990) in studying managerial value. The theoretical perspective on which it builds is the "dual-routines view." The dual-routines view is a designation for the work of March and Simon (1958), Cyert and March (1963), and Nelson and Winter (1982). Their work holds that the behavior of firms is defined by two sets of routines: an operational routine that dictates day-to-day behavior of firms, and a metaroutine that modifies the operational routine over time to keep pace with changes in the environment.

The dual-routines view provides a nice synthesis of classical organization theory and modern organization theory in addressing the question of managerial value. The dual-routines view is sympathetic to modern organization theory in that it suggests that once the operational routine is in place, firm behavior is more or less automatic. The view is sympathetic to classical organization theory in that the metaroutine represents managerial intervention: recognizing the need for change, identifying an appropriate response, and incorporating the response in a revised operational routine.

This dual-routines view is still rather weak with regard to the need for managers. The view suggests that managers' only role with respect to the operational routines is setting them in motion. Thereafter, execution is presumed to be automatic. Going further in the direction of neoclassical organization theory, I propose that operational routines are not fully automatic. Rather, managerial enforcement is needed even after routines have been assimilated, and even when conformance with the routine is within the individual's own self-interest (Postrel and Rumelt 1992). Thus, managers are important not only in executing the metaroutine, but also in enforcing the operational routine.

The metaphor of an aircraft autopilot is perhaps useful here in distinguishing between the various perspectives. The goal of an aircraft autopilot is to

replace the pilot in the task of flying a plane. The goal of a "managerial autopilot" is to replace the manager in the task of running a firm. *Modern organization theory* in essence assumes that firms are run by autopilot—firm behavior is so circumscribed by the environment that there is no need for human intervention. The *dual-routines view* corresponds to an autopilot supplemented by managerial backup: The autopilot (operational routine) maintains a firm's direction under stable conditions, but a manager is necessary to reset the autopilot under changed conditions (metaroutine). The *strong-form dual-routines view* implies an autopilot with managerial backup; however, it proposes a broader role for the manager. In the strong-form dual-routines view, the manager is necessary not only to compensate for changed conditions (metaroutine), but also to prevent or correct drift of the organization under stable conditions. Drift is defined to be deviation from a desired course caused by *internal* factors. Drift in the case of an aircraft autopilot might be caused by slight errors in the accelerometers that detect the aircraft's motion. In the case of firms, drift might be caused by any number of factors, including among other things employee fatigue, inadequate training of new employees, and miscommunication.

The primary goal of this paper is to test the strong-form dual-routines view of managerial value against the modern organization theory view that managers are superfluous. To do so, I divide managerial value into its two components: an administrative component that enforces operational routine, and an entrepreneurial component that innovates the routine to keep pace with environmental change. I test the extent to which each role is important in explaining firm performance.

I do this through a natural experiment that allows me to examine firms that "lose their hierarchical managers." I compare these firms to a control group of nearly identical firms that retain their hierarchical managers. Firms from both populations have been operating successfully prior to the experimental treatment. Thus, all firms have had an opportunity to assimilate their operational routine. The test examines the extent to which firms retain prior behaviors in the absence of the hierarchy, and the extent to which firms

are able to adapt to their environment in the absence of the hierarchy.

The natural experiment that makes this test possible is the phenomenon of former franchisees. Former franchisees are establishments that were founded as franchise units, but which for various reasons have been allowed to leave the franchise system and continue in operation in the same industry. Thus, these establishments have assimilated the franchisor's operational routine, but no longer have access to the managerial functions of the franchisor.

The experiment compares the behavior and performance of establishments that leave a franchise organization with that of establishments that remain with the organization. I determine the extent to which former franchisees maintain their prior behaviors and performance in the absence of franchisor, using continuing franchisees as a control group.

This paper proceeds with an elaboration of the dual-routines view. I operationalize the basic theory in a dynamic view of franchise. I then conduct an empirical test of franchisor value in an environment that is both competitive and dynamic. The empiricism has two components. The first component is a qualitative analysis of the routines evolution of two franchisors. The second component is a quantitative analysis that tests for the significance of the franchisor in enforcing operational routine and introducing innovation to the routine, and for the subsequent impact of enforcement and innovation on franchisee performance.

2. Dual-Routines View of Managerial Value

The strong-form dual-routines view is in essence a revival of Simon's (1945) view that general managers play a critical role in maintaining the balance between internal efficiency and external responsiveness. Simon held that the two objectives were accomplished by assigning them to separate individuals within the organization. The administrator was charged with monitoring the internal environment—maintaining links between subunits. Decision making at that level was within given reference frames. In contrast,

the legislator was charged with linking the organization to the external environment, developing policy where reference frames for decision making had to be constructed.

The dual-routines view redefines the roles of administrator and legislator in terms of a routines framework (March and Simon 1958, Cyert and March 1963, Nelson and Winter 1982). Hierarchical managers in the broad sense, including a set of individuals together fulfilling the function, perform two distinct roles: an administrative role that enforces operational routines to achieve operational efficiency, and an entrepreneurial/legislative role that executes metaroutines to adapt the operational routines to changing environments.

Operational routines are the organizational equivalent of individuals' skills. These routines play a coordination role in establishments—controlling the stimuli of individual decision making such that a sequence of individual decisions can be integrated into a cohesive whole without conscious effort (Simon 1945, Nelson and Winter 1982). The pattern of these routines gives organizations their unique character, or distinctive competence (Selznick 1957). Routines change slowly, subject to modification only under duress (Cyert and March 1963), and survive turnover in personnel (March and Simon 1958). This longevity of routines gives stability to organizations and direction to their recurring activities (Cyert and March 1963). In essence, then, operational routines are the autopilots of firms.

In addition to operational routines, March and Simon (1958), Cyert and March (1963), and Nelson and Winter (1982) describe higher-order "metaroutines" that modify over time various aspects of the operational routines. The metaroutines are the counterpart to mutation or variation in biological evolutionary theory. "Establishments adapt to their environment by changing their behavior in response to short run feedback according to some fairly well-defined rules, and change rules in response to longer run feedback according to more general 'learning rules'" (Cyert and March 1963, p. 120). Metaroutines are thus managerial interventions that reset the firm's autopilot.

While the proponents of the dual-routines view are agnostic about the role of managers in executing the two classes of routines, their language suggests that operational routines are automatic (obviating the need for managers). Metaroutines are interventionist—requiring managers to sense the need for change, search for solutions, evaluate alternatives, and implement corresponding changes to the operational routine. Thus, the dual-routines view is relatively weak in the need for managers.

In contrast, I propose a strong form of the dual-routines view. The strong form assumes an “impulsive” model of man (Postrel and Rumelt 1992) rather than a rational model of man. Impulsive man is distinct from rational man in that he requires managerial attention even when incentives are aligned with the desired behavior. Additionally, because routines rely on human execution, they cannot completely control for all sources of variation *internal* to the firm. Even an insignificant change in the rate at which one employee performs a task in a tightly coupled system will ultimately lead to drift. Accordingly, I propose that at a minimum, managers are necessary to enforce operational routine. This enforcement is required even if incentives are perfect. This managerial role is therefore distinct from control of opportunistic behavior.

This paper tests the strong form of the dual-routines view. To do so, I examine whether hierarchical managers add value to firms through each of the roles embodied in the dual-routines view. This leads to two hypotheses. *The first hypothesis is the “administrative role” hypothesis, that hierarchical managers create value in perpetuity through enforcement of the operational routine.* This is a critical test against the implicit null hypothesis held by modern organization theory that routines become habitual, rendering managers superfluous. *The second hypothesis is the “entrepreneurial role” hypothesis, that hierarchical managers create value in perpetuity through a metaroutine that introduces innovation into the operational routine.* This is a critical test against the implicit null hypothesis held by modern organization theory, that management has a single inspiration that it harvests over the life of the firm.

3. Operationalizing Dual Routines: Dynamic View of Franchisor Value

I operationalize the dual-routines view using franchising. I use the franchisor as a proxy for a hierarchical manager, and the franchisee as a proxy for a profit center within a firm. The franchisor and franchisee have distinct roles with respect to the operational routine. The franchisor is charged with designing, implementing, maintaining, enforcing, and modifying the operational routine; franchisees are charged with executing the operational routine.

The structure of the franchise contract provides incentives for both the franchisor and the franchisee to carry out their responsibilities with respect to the routine. Royalties, tied to franchisee revenues, provide the franchisor with an incentive to maintain, enforce, and modify the operational routine. Profits provide the franchisee with perfect incentives to execute that routine.

The weak form suggests that, with perfect incentives and assimilation of the franchisor’s routine, franchisees might outgrow the need for franchisor enforcement of the routine. The first operational hypothesis, corresponding to H1, the administrative hypothesis, follows.

HYPOTHESIS H1. *The franchisor creates value in perpetuity by enforcing operational routine (even after the franchisee has assimilated it).*

Whether or not the franchisor is necessary to enforce the routine, repeated execution of the routine leads to narrowed behavior variance. In the case of franchising, the narrowed variance arising from repeated execution is exacerbated by structurally narrow variance introduced by franchisor a priori selection over the pool of entrepreneurs. Because of this narrow variance, franchise firms are vulnerable to overtaking by independent firms in a dynamic environment. This follows from the fundamental theorem of natural selection (Fisher 1929)—if each of two populations in the same environment evolve through exit/death by low performers, ultimately the mean performance of the population with wide variance

will overtake that of the population with narrow variance. Accordingly, franchisors have an incentive to adapt the operational routine through a metaroutine.

In addition to incentives arising from the higher hazard rate of franchises vis-à-vis independents, franchisors have greater incentives to invest in metaroutines than do independents, due to economies of scale in use (Arrow 1962). The franchisor can amortize the costs of the metaroutines over all the franchisees.

These incentive advantages of franchisors with respect to metaroutines are complemented by capacity advantages. First, the franchisor has greater capacity to innovate than independents, because scale provides information advantages. By sampling over a large number of units, franchisors have higher signal to noise regarding the success of implemented innovations. Single establishments must observe their own performance over a longer period of time to achieve the same confidence in their assessment of an innovation.

Moreover, the franchisor has an opportunity to exploit experimentation across the outlets. It can evaluate the results of the experiments to revise operational routine. This experimentation can involve bottom-up innovation by the franchisees or top-down implementation of innovation by the franchisor. Thus experimentation that might be fatal at an individual outlet is absorbed by the larger organization. The second operational hypothesis, corresponding to H2, the entrepreneurial hypothesis, follows.

HYPOTHESIS H2. *The franchisor creates value in perpetuity through a metaroutine that introduces innovation into the operational routine.*

In addition to the practical advantages of the franchisor in enforcing and modifying operational routine, there are some empirical advantages that make franchising a particularly nice setting for examining managerial value. First, the operational routines of the franchisor are well defined. For the franchisor to convey the routine to franchisees, it must articulate it in an operations manual. Thus, it is relatively straightforward to trace the evolution of the routine by reviewing successive versions of the operations manuals.

Second, franchisees are the sole owners of their respective establishments. Accordingly, they have perfect incentives, and therefore incur no agency costs associated with controlling opportunistic behavior. The franchisor effect, if any, is enforcement of self-interested behavior (discipline) rather than control of opportunistic behavior (governance).

Finally, what is particularly nice about franchising is the possibility for establishments to leave the system but remain in operation within the industry. This creates a natural experiment comparing the behavior and performance of establishments that leave the system with those that remain. Because both groups have assimilated the operational routine, it is possible to isolate the dynamic role of the franchisor in enforcing and/or modifying that routine. If franchisors add value in perpetuity, the net effect of the two hypotheses is that former franchisee performance should fall below that of continuing franchisees, even though the former franchisees have assimilated the established operational routine and have perfect incentives to execute it.

4. Method

4.1. Industry

I conduct the test in the quick-printing industry. The quick-printing industry is a segment of graphic arts dealing with small press runs (fewer than 1,000 copies) from camera-ready originals. The industry was chosen because routines appear to be the dominant source of value in quick-printing franchises. Furthermore, the industry is both competitive and dynamic, so both the administrative and entrepreneurial roles of managers are likely to be important.

Quick-Printing Franchises. While a number of theories explain the existence of franchises (brand-name, proprietary product, scale economies), the power of each theory varies with context. In the quick-printing industry, there is no proprietary product, and thus routines appear to be the dominant theory of franchise. Franchisors in the industry provide two to four weeks training, a complete start-up package (including layout, equipment, and supplies),

one to two weeks on-site opening assistance, and on-going managerial assistance (U.S. Department of Commerce 1991). These routines account for 21% of the performance variance between firms in the industry, while *brandname and system scale economies* together explain only 3% of the performance variance (Knott and McKelvey 1999).

Industry Competition and Dynamics. The quick-printing industry experienced double-digit growth in both sales and number of establishments from the mid-1960s through 1990, reaching a peak of approximately 30,000 establishments. A shakeout between 1990 and 1993 significantly reduced the number of establishments. The industry currently stands at approximately 20,000 establishments with \$8.5 billion in sales (Michaud 1993). Thus, the industry is competitive—requiring firms to operate efficiently.

Technological development was the impetus for the industry, and technology has continued to play an important role in its evolution. Examples of major technologies that shaped industry evolution are typesetting, high-speed copiers, and color copiers. Each of these technologies was originally targeted for other industries, and thus was too expensive for quick-printing establishments when first introduced. Later, the price of each technology fell to a level that allowed adoption by innovative establishments. This adoption provided temporary competitive advantage. Ultimately, as the price of each technology fell further, it was adopted by most establishments, and thus became a requisite for establishment entry or survival. Thus the industry is dynamic—requiring firms to adapt to environmental change.

4.2. Sample

This study is an in-depth examination of 2 of 21 franchisors in the quick-printing industry. The two firms were chosen based on criteria of, respectively, highest and lowest performance, subject to a constraint of sufficiently large former franchisee population. Two metrics, which seemed to best capture value to franchisees, were used as the basis of franchisor comparison: return on sales (ROS) and return on capital (ROK) equipment. For both metrics, return was defined as net owner income (the sum of profits plus owner salary). Franchisees for Firm 1 (the

low-performance site) have an average ROS of 0.06 and an average ROK of 0.43. Franchisees for Firm 2 (the high-performance site) have an average ROS of 0.15 and an average ROK of 1.81. In addition to being matched on size of former franchisee population (greater than 100), the two franchisors are approximately the same age: 20 to 30 years. Thus, they have faced similar environmental forces throughout their histories. In particular, their foundings predate the availability of high-speed copiers and desktop publishing.

4.3. Data

I gathered qualitative data for both firms and quantitative data on the high-performance firm.¹ The qualitative data are detailed histories of the evolution of the franchisors' operational routines. The quantitative data are behavior and performance reports from individual establishments gathered by mail survey.

Routines Evolution Histories. The primary goal of the histories is to identify firm-specific practices that might account for differences in behavior and performance between former franchisees and current franchisees. In addition, the histories provide some indication of whether the franchisor is innovating, and therefore likely to be adding value through a metaroutine.

Routines evolution histories were assembled in a two-step process. First, I reviewed archival copies of all available years of the franchisors' operations manuals. Operations manuals are the documents provided to franchisees after they enter the franchise contract. In general, they describe operational processes: administration (planning, control, employee

¹ Note that I originally intended to survey both Firms 1 and 2. I carried analysis for both firms through the operations manual review. At that point, it became clear that there had been no innovation by Firm 1 in the past 5 years. Since I was planning to test behavior and performance over the last 5 years, Firm 1 would necessarily contribute no dynamic effectiveness component. I considered testing the administrative component alone, but then learned that the franchisor had archived addresses for only 36 of the former franchisees. Since my expected response rate (based on industry trade studies) was 10%, this would yield only 4 former franchisee responses. At that point, I chose to abandon further study of Firm 1.

compensation), marketing (location, products, pricing, and advertising), as well as operations (materials and equipment purchasing, productivity).

To form the routines histories, I used the first available year of the operations manual as a baseline. Next I reviewed all subsequent editions and compared them word-by-word with the respective prior edition. Any change from one edition to the next was recorded. In a second step, I categorized each change by effected function. From these detailed change histories, I developed summary characterizations (magnitude and frequency) of revisions to the operational routine over time. The change summaries for both firms are presented in Table 1.

The most important contribution of Table 1 is evidence that both franchisors are executing metaroutines—they are changing their operational routine over time. Less compelling, but also interesting, is a comparison of the two firms' metaroutines. The table indicates that Firm 2, which has the higher performance, changes its routine more frequently and more substantially than Firm 1.² Additionally, Firm 2 appears to be more outwardly focused. In general, its changes are related to changes in the environment. It regularly updates its mission and has significantly revised its marketing to communicate the mission changes. Finally, it implements regular changes in operations and business management. In contrast, Firm 1's changes are generally refinements of existing internal practices. Though Firm 1 has revised its mission, there have been no marketing changes to exploit the mission changes. Almost exclusively, changes are in business management and operations. While the fact that the more successful firm (Firm 2) changes its routine more regularly seems to suggest that the metaroutine is potentially valuable, we examine that explicitly in the quantitative test.

Behavior and Performance Surveys. The instrument for gathering quantitative data is a self-administered (mail) survey distributed to current and

former franchisees of Firm 2. The franchisor provided franchisee (owner-manager) mailing lists from 1990 and 1995. By comparing the two lists I was able to identify 338 continuing franchisees and 161 owner-managers who left the system between 1990 and 1995. Because the franchisor did not track separated establishments, there was no way to determine a priori how many of the former franchisees continued in business as independent printers. I sent surveys to the 1990 owner-managers at their old establishment addresses and relied on their staying in the same location after termination, and on the U.S. postal service forwarding in the cases of changed location. Of the 499 total pieces mailed, 60 were completed and returned, yielding a 12% response rate. Of these, 40 were current franchisees (67%), and 20 were former franchisees (33%), roughly matching the distribution of current and former franchisees in the source mailing list.

The response rate of 12% was slightly above the expected response rate of 10%, corresponding to that for industry studies conducted by the National Association of Quick Printers (NAQP 1992, 1994). Although a 12% response would ordinarily raise concern, the central concern with low response is one of bias. Generally this is because studies are sampling a single population, intending to make inferences about the population based on the sample statistics. This study, however, is a "natural experiment" comparing matched sets from two experimental groups, with a goal of making causal inferences about franchisor value (the treatment that differs between the two groups). Thus, even if there is bias in the sample as a whole, as long as the two groups are sampled identically, the biases cancel in the comparison, and the causal inferences about managerial value are valid (Cook and Campbell 1979 p. 343). Having said that, I did examine representativeness, because it provides some indication of whether the two groups were sampled identically. I tested the representativeness of this sample by comparing its mean sales to the published mean sales for the franchisor (Quick Printing 1994). There was no significant difference in the two means. I further verified that the owner-manager was the respondent by offering to provide a copy of the study report in exchange for a business card,

² If we view changes as a Poisson process with the calendar years as the interval, there are 16 observations for Firm 1 and 9 observations for Firm 2 from the date of the initial volume until 1994. Firm 1 has 1.5 mean (3.4 *SD*) annual changes, whereas Firm 2 has 4.9 mean (7.6 *SD*) annual changes. A test of differences in the means yields a *t* statistic of 1.7, significant at the 10% level.

Table 1 History of Changes to Franchisors' Operations Manuals

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
<i>Firm 1: Low Performance</i>															
1 Mission		3							2						
1 Marketing															
1 Operations	1st	2					3		1						
1 Bus mgmt	edition	4					2		1				1986 edition in use in 1994		
1 Personnel	available														
1 Production		2													
1 Equipment							2		2						
<i>Firm 2: High Performance</i>															
2 Mission										1			1		1
2 Marketing										3			4		5
2 Operations								1st		2			3		4
2 Bus.mgmt.								edition		1			2		3
2 Personnel								avail		4			4		1
2 Production													3		
2 Equipment													2		

Note. Examples of specific changes to the operations manuals are adding standards to the daily production sheet so that personnel could compare their own performance to standards; inventory cards replaced perpetual stock as mechanism for maintaining inventory; added system for bidding on complex jobs; increased required equipment from 1 press and 1 camera to 2 presses and 2 cameras; and added rubber stamps as a standard product.

then ensuring that the card's title reflected owner, manager, president, or vice president.

4.4. Survey Design/Variables

Practices. The main body of the survey asks about establishment behavior regarding 14 practices garnered from the routines evolution exercise. These 14 practices are identified in the summary statistics (Table 2). Seven of the practices (Variables 1 through 7 in the table) address Hypothesis H1, the administrative hypothesis that franchisors create value in perpetuity through enforcement of the operational routine. These administrative practices are ones that have been part of the operations manual since the earliest available edition. For each of these administrative practices, owners were asked how often the practice was executed. The goals in choosing the 7 administrative practices were to find ones that (a) were well bounded, (b) predated the period in which I assessed performance, (c) had ranges of compliance (e.g., frequency with which they are executed), (d) had potential for being abandoned, and (e) were likely to affect top-level (sales or profits) performance. The abandonment criterion may be made clear through example. Equipment generally involves sunk cost, making it

unlikely that former franchisees continuing in business would sell it. Thus, preserving existing equipment was not deemed a suitable survey practice (though it met the remaining four criteria). In contrast, yellow page ads must be renewed annually. At the renewal point, owner-managers are likely to reexamine the costs/benefits of the ad and decide whether to maintain it. Even if they choose to maintain the ad, they may decide that a smaller ad is sufficient.

The remaining 7 practices (Variables 8–14 in the table) address Hypothesis H2, the entrepreneurship hypothesis, that franchisors create value in perpetuity through innovation of the operational routine. These entrepreneurial practices are outputs of the franchisor's metaroutine rather than elements of the metaroutine itself. The metaroutine is the higher-order process that modifies the operational routine in response to changes in the environment. We test the metaroutine inferentially rather than directly by examining innovations (entrepreneurial practices) to the operational routine. The entrepreneurial practices are ones that have been added to the routine in the last two editions of the operations manual, i.e., since 1990, when I begin to evaluate performance. From the set of all such practices, I picked

those likely to have the greatest top-level performance impact. For example, new products, promotions, and equipment were chosen over adding employee health insurance. For each entrepreneurial practice, establishments were asked when, if at all, they adopted the practice.

In addition to the structured responses for each practice, respondents were given an opportunity to comment on why they use or don't use each practice. The intent of the unstructured questions is to gain insight into the adoption and abandonment of practices.

Dependent (Performance) Variables. The primary performance metric is *total returns*. *Total returns* is the sum of *net owner income* and *royalties* (the recurring franchise fee). The reason I use this measure rather than *net owner income* is that the combined figure is the total monies available to the owner upon leaving the franchise system, assuming that the site continues to operate as effectively as it had under the franchise. Thus, this measure is the one most directly affecting owners' personal wealth or utility. While *total returns* is the primary measure, I also examine *sales* output because *sales* may also enter into the owners' utility function to the extent that enterprise size conveys prestige. Similarly, *sales* is the performance metric of greatest interest to the franchisor, because royalties are based on a percentage of sales. The survey gathers six-years' (1989 to 1994) data on *sales*, *net owner income*, and *royalties*.

Classification Variable. The classification variable is *years independent* (years since leaving the franchisor). This variable captures the impact of having left the franchise system.

Control Variables. I control for establishment scale using resale value of *equipment* (\$1,000), and full-time equivalent *labor* (FTE). I control for first-mover advantages using establishment *age*. I control for structural differences between franchisees and former franchisees using owner human capital and establishment past performance. The human capital variables I examine are *education*, prior *industry experience*, and prior *management experience*. They are measured in years prior to becoming the owner of the shop. Finally, past performance ($\ln(1989 \text{ sales})$ or

$\ln(1989 \text{ returns})$) is added to control for former franchisee self-selection—the possibility that either high-performing or low-performing franchisees are more likely to leave the system. High-performing franchisees may leave because they feel they have outgrown the franchise. Low-performing establishments may leave because they view low performance as evidence that the franchise is not adding value.

Compliance Metrics. To link behavior with performance, I need some measure of establishment compliance with franchise practices. The simplest measure is a count of the number of practices that a given establishment follows. The problem with the simple measure is that there is greater variance across practices than within practices. Ideally, I would like a measure of the propensity to adhere to any given practice. To accomplish this, I create a pooled probit regression of all practices. I model use of practice i by establishment j controlling for differences in adoption across practices using practice dummies (Equation (1)). I utilize establishment dummies to find establishment-specific propensities to employ prescribed practices. I form separate models for administrative practices and entrepreneurial practices.

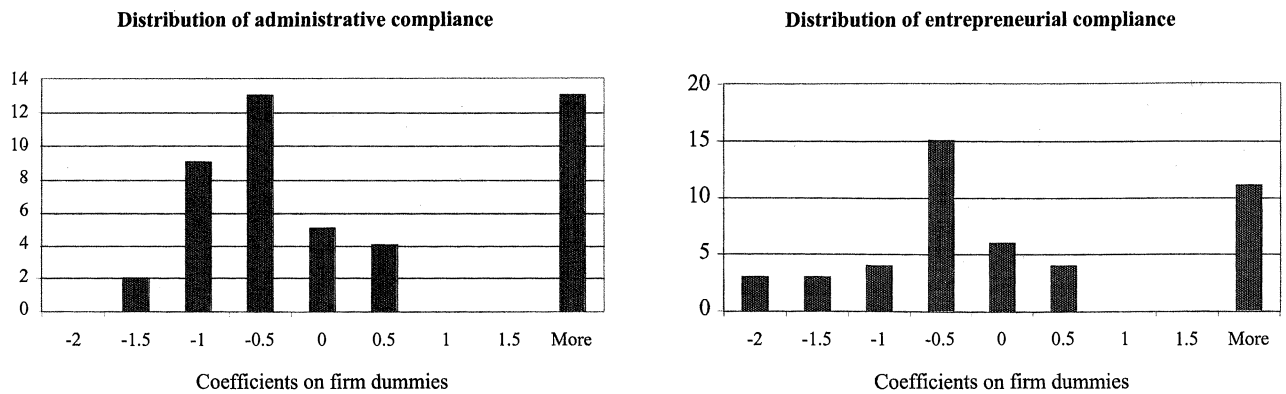
$$\text{Use}_{ij} = \beta_1 + \sum_j [\beta_{2j} (\text{practice } j)] + \sum_i [\beta_{3i} (\text{establishment } i)] + e_{ij}. \quad (1)$$

The coefficients on these establishment dummies (β_{3i}) become the compliance metrics in the system model. Figure 1 shows the distribution of the compliance metrics across the establishments. The establishments in the right tail are ones that are fully compliant in the respective class of practices. Summary statistics for all variables (except compliance metrics) are provided in Table 2.

4.5. Empirical Model

Empirical testing of the hypotheses comprises two components. The first is a top-level test of franchisee versus former franchisee performance using a six-year panel. This panel provides very good control for firm heterogeneity using firm dummies, but does not allow us to link performance to behavior. Given evidence of performance decay of former franchisees

Figure 1 Distribution of Establishment Compliance Metrics



in the panel, I next examine a structural model of behavior and performance using 1994 cross-sectional data. I control for establishment heterogeneity using structural characteristics of the establishments. Comparison of the two tests provides confidence in the representativeness of the single-year cross-section, and the efficacy of the structural variables in capturing heterogeneity.

It may be helpful to illustrate the difference in timing between observations and treatment in the panel versus cross-section data. All establishments are franchisees in 1990, and all establishment performance is observed in 1989 to form a firm-specific pretreatment baseline. (In the case of the panel, this is merely the first year of a multiyear firm effect; in the case of the cross section, the 1989 observation is the only pretreatment observation). Sometime in the years 1991 through 1994, firms may leave the franchise (the experimental treatment). In the panel data, establishments may contribute multiple observations posttreatment. If establishments left in 1991, they will be observed 3 times as a former franchisee; in 1992 with 1 *years independent* experience; in 1993, with 2 *years independent* experience, etc. In the cross-section data, establishments are only observed once posttreatment (1994); however, the *years independent* variable varies across establishments. If they left in 1991, the *years independent* variable is 3; if they left in 1992, it is 2, etc.

Performance Panel. I start by examining a performance panel. I run a pooled regression controlling

for industrywide temporal effects using year dummies and all persistent structural differences between establishments (such as human capital or superior sites) using establishment dummies (Equation (2)). These dummies will control not only for establishment “ability,” but also for structural conditions that might make a particular class of establishments more likely to leave the franchise system. It is important to recognize that this group is already fairly homogeneous because franchisees have gone through the franchise selection process. The selection process involves both franchisor selection on owner ability as well as owner self-selection on “temperament.” I leave to the systems model the question of what makes some owners more likely to leave the franchise system.

$$Y_{ij} = \beta_0 + \beta_1 (\text{indep years}) + \sum_i [\beta_{2i} (\text{establishment } i)] + \sum_j [\beta_{3j} (\text{year } j)] + e_{ij}, \quad (2)$$

where Y is alternatively $\ln(\text{sales})$ or $\ln(\text{total returns})$.

The null hypothesis, that franchisors are superfluous, is tentatively³ rejected if β_1 is negative and significant. Such a finding indicates that absent the franchisor’s discipline and innovation, establishment performance decays.

³ The system model is necessary to determine if the performance decay stems from managerial effects versus other unobserved effects of franchise affiliation.

Table 2 Summary Statistics

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1. Record output	0.75	0.44																											
2. Take inventory	0.75	0.44	0.37																										
3. Send Mailers	0.80	0.41	0.19	0.38																									
4. Telemarketing	0.53	0.50	0.30	0.30	0.19																								
5. Direct sales	0.85	0.36	0.29	0.62	0.37	0.45																							
6. Job stuffers	0.63	0.49	-0.05	0.19	0.39	0.18	0.45																						
7. Yellow page ad	0.76	0.43	0.13	0.04	0.31	0.03	0.10	0.31																					
8. Quality guarantee	0.68	0.47	0.18	0.01	0.10	0.07	0.11	-0.01	0.21																				
9. On-time guarantee	0.31	0.46	0.13	-0.04	0.15	0.26	0.08	0.13	0.02	0.46																			
10. Typesetting	0.68	0.47	0.10	0.01	0.10	0.07	0.01	0.07	0.30	0.61	0.38																		
11. Computer invoicing	0.71	0.46	-0.03	0.06	0.14	0.07	0.04	0.05	0.26	0.52	0.34	0.68																	
12. Hi-speed copier	0.66	0.48	0.08	-0.09	0.08	0.04	-0.01	0.04	0.27	0.58	0.47	0.73	0.65																
13. Color Copier	0.37	0.49	-0.27	-0.11	0.04	-0.04	-0.06	0.09	0.27	0.31	0.33	0.23	0.49	0.33															
14. Fax	0.69	0.46	0.04	-0.05	0.12	-0.04	0.03	-0.05	0.41	0.65	0.28	0.73	0.72	0.77	0.43														
15. Year opened	84.54	11.78	0.19	0.13	0.21	0.10	0.23	0.15	0.18	0.17	0.16	0.17	0.21	0.19	0.14	0.16													
16. Former franchisee	0.32	0.47	0.07	-0.01	-0.28	0.07	-0.01	-0.37	-0.38	0.09	-0.22	0.01	-0.12	-0.12	-0.38	-0.09	0.00												
17. End year	29.56	43.27	0.07	-0.01	-0.28	0.07	-0.01	-0.36	-0.39	0.09	-0.22	0.01	-0.13	-0.12	-0.38	-0.10	-0.01	1.00											
18. Number of locations	1.07	0.37	0.32	0.32	0.33	0.37	0.34	0.14	0.21	0.03	0.18	-0.07	0.12	0.04	0.05	0.02	0.36	-0.13	-0.13										
19. Square footage	2178	1262	0.29	0.33	0.34	0.42	0.42	0.25	0.05	0.12	0.12	0.01	0.04	-0.07	-0.06	0.05	0.21	0.05	0.05	0.56									
20. Equipment	85.55	91.96	0.30	0.14	-0.01	0.18	0.29	-0.17	-0.02	0.19	0.05	-0.07	0.12	0.05	-0.07	0.07	0.07	0.23	0.22	0.11	0.32								
21. Full time labor	4.81	3.40	0.13	0.19	0.25	0.40	0.35	0.09	0.04	0.01	0.08	-0.17	0.05	-0.13	0.05	-0.07	0.11	0.17	0.17	0.63	0.60	0.39							
22. Part time labor	33.46	73.16	-0.02	0.15	0.20	0.16	0.16	-0.09	-0.02	0.12	0.18	0.15	-0.08	0.21	-0.10	0.18	0.04	0.15	0.15	0.06	0.18	0.11	0.13						
23. Industry experience	4.22	9.32	-0.05	-0.13	-0.14	0.00	-0.12	0.08	0.07	-0.06	-0.10	-0.03	-0.05	-0.03	0.08	-0.02	-0.08	0.20	0.20	-0.09	-0.14	-0.06	-0.04	-0.14					
24. Management experience	11.57	8.74	0.17	-0.09	0.04	0.09	0.19	0.10	0.12	0.08	0.09	0.07	-0.07	0.07	-0.17	-0.02	0.11	0.02	0.02	0.24	-0.08	0.02	0.12	-0.20	0.14				
25. Education	15.46	3.73	0.34	0.25	0.37	0.01	0.24	0.16	0.32	0.22	0.14	0.20	0.20	0.24	0.08	0.21	0.51	-0.28	-0.28	0.47	0.10	0.07	0.12	0.05	-0.17	0.16			
26. 1994 Sales	355.8	298.3	0.09	0.19	0.29	0.39	0.34	0.08	0.07	0.04	0.20	-0.07	0.08	0.04	0.06	0.00	0.14	-0.01	-0.01	0.62	0.53	0.17	0.79	0.31	-0.18	0.05	0.13		
27. 1994 Income	35.62	45.5	0.22	0.26	0.27	0.25	0.25	0.23	0.03	0.02	0.15	-0.07	0.07	-0.04	-0.04	-0.09	0.08	-0.08	-0.08	0.51	0.53	0.01	0.67	-0.01	-0.20	0.06	0.13	0.69	
28. 1994 royalties	12.0	13.7	0.10	0.13	0.31	0.30	0.16	0.31	0.20	0.14	0.45	0.18	0.12	0.32	0.18	0.19	0.15	-0.51	-0.51	0.57	0.39	-0.07	0.24	0.22	-0.16	0.04	0.26	0.50	0.36

(*n* = 60)

Single-Year System Model. Given evidence of performance decay in the panel data, I would like to understand it further. Here I open up the heterogeneity captured by the establishment dummies in the prior analysis. I use single-year data on establishment behavior, performance, and structural characteristics to build a system of equations that examines the causal structure of the performance decay (Equations (3)–(6)). Remember that I had perfect control for all structural differences between establishments in Equation (2) from the establishment dummies. Here I will have less control for structural differences but more insight into those differences and the role they play.

The system of equations determines the extent to which structural characteristics of the establishment affect the decision to leave the franchise, the extent to which the decision affects subsequent behavior (compliance), and finally, the extent to which behavior affects performance. The system model therefore allows me to determine if the performance decline associated with leaving the system stems from loss of managerial oversight versus other franchise effects such as brandname and scale economies.

$$Y_i = \beta_1 + \beta_2 (\text{admin compliance}) + \beta_3 (\text{entre compliance}) + e_{1i}. \quad (3)$$

$$\text{Administrative compliance}_i = \chi_1 + \chi_2 (\text{years independent})_i + e_{2i}. \quad (4)$$

$$\text{Entrepreneurial compliance}_i = \delta_1 + \delta_2 (\text{years independent})_i + e_{3i}. \quad (5)$$

$$\text{Years independent}_i = \phi_1 + \phi_{2k} (\text{human capital})_i + \phi_3 (\text{past performance})_i + e_{4i}. \quad (6)$$

Although Equations (3) through (6) could be estimated separately, I believe that there is covariance between residuals that allows me to improve upon separate least squares estimation. The assumption of correlated residuals is based on the fact that I am using the same observations and same explanatory variables in multiple equations. Accordingly, I use seemingly unrelated regression (SUR) (Zellner 1962) to take advantage of the covariance between residuals to refine the estimates for the coefficients. I use a Breusch-Pagan LaGrange Multiplier test to check

whether the assumption is valid and that the system approach is more efficient than single equations.⁴

The system models performance as a function of behavior, behavior as a function of franchise affiliation, and franchise affiliation (decision to leave the franchise) as a function of structural characteristics of the establishment.

HYPOTHESIS 1. *The franchisor creates value through enforcement of operational routine is supported if two conditions are jointly met: χ_2 is negative and significant, and β_2 is positive and significant.*

HYPOTHESIS 2. *The franchisor creates value through innovation of the operational routine (via metaroutine) is supported if two conditions are jointly met: δ_2 is negative and significant, and β_3 is positive and significant.*

Significance of χ_2 indicates that loss of the franchisor decreases compliance with operational routine; significance of β_2 in turn indicates such decreased compliance decreases performance. Significance of δ_2 indicates that loss of managers decreases the likelihood of adopting franchisor innovations; significance of β_3 in turn indicates that failure to adopt franchisor innovations decreases performance.

Prior to testing the system model with cross-section data, I first test Equation (2) using those data. I compare results of Equation (2) from the cross-section data to those for the panel data to verify that the cross-section is representative.

5. Results

5.1. Performance Panel

Results from the pooled regression are presented in Table 3. The most important finding from the analysis is that *returns* decline each year following departure from the franchise system. Thus, I tentatively reject the null hypothesis that the franchisor is superfluous.

⁴In addition to the Breusch-Pagan test, which was significant, I also ran each of the single equations separately. I found that the coefficients were comparable across the two approaches, and that coefficients that were significant in the single-equation approach were also significant in the SUR model. The levels of significance for SUR coefficients were higher due to the model's efficiency.

Table 3 Results from 6-Year Performance Panel

	ln(<i>return</i>)				ln(<i>sales</i>)			
	1	2	3	4	5	6	7	8
Years independent		−0.25** −2.10		−0.15* −1.84		0.05 0.81		−0.09 −1.19
1994	0.85*** 2.86	1.00*** 3.30	0.89*** 6.70	0.98*** 6.97	0.88*** 5.46	0.85*** 5.11	0.91*** 7.45	0.97*** 7.41
1993	0.87*** 2.91	0.10*** 3.17	0.83*** 6.26	0.89*** 6.55	0.79*** 4.83	0.77*** 4.69	0.82*** 6.65	0.85*** 6.75
1992	0.87*** 2.88	0.91*** 3.03	0.75*** 5.60	0.78*** 5.83	0.69*** 4.24	0.68*** 4.17	0.73*** 5.94	0.75*** 6.05
1991	0.53* 1.74	0.54* 1.79	0.50*** 3.76	0.53*** 3.94	0.55*** 3.39	0.55*** 3.37	0.58*** 4.73	0.60*** 4.82
1990	0.28 0.92	0.28 0.93	0.30** 2.20	0.31** 2.31	0.39** 2.37	0.39** 2.37	0.41*** 3.30	0.42*** 3.36
Firm dummies			included	included			included	included
Constant	2.76*** 12.13	2.76*** 12.21	2.13*** 8.55	2.10*** 8.43	5.12*** 41.62	5.12*** 41.59	4.01*** 17.44	3.99*** 17.32
<i>R</i> ²	0.06	0.08	0.85	0.86	0.14	0.14	0.61	0.61
Adjusted <i>R</i> ²	0.04	0.05	0.82	0.82	0.12	0.12	0.51	0.51

Pooled regression using 6-year data $n = 248$.

Note. *t* statistics in italics below coefficients.

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

Leaving the system affects owner *returns* more than *sales*. In fact, the *sales* decline is not significant. This is quite important. If brand name is driving establishment *returns*, I would expect the primary performance effect of leaving the system to be a decline in *sales*. I would then expect a derivative effect of the *sales* decline to be a decline in owner *returns*. In particular, I would expect the *returns* decline to be about 14.6% of the *sales* decline (the mean return on sales (ROS) for the sample). This is not the case. The coefficient on *sales* (though not significant) corresponds to an annual sales decline of \$1,230 (10^9). Thus, if brand name is the prime factor affecting performance decline, I would expect the annual *returns* decline to be \$180 (14.6% of \$1,230). In fact, the *returns* decline of \$1,420 (10^{15}) is eight times what I would expect if the decline is driven by loss of brand name. Additionally, the *returns* decline is unlikely to be associated with structural differences between those who leave and those who remain with the franchisor, because I have accounted for firm heterogeneity using firm dummies. Thus, the performance decay seems likely

to be due to loss of the franchisor. I test that explicitly in the system model.

5.2. Single-Year System SUR Model

The single-year system SUR model is an effort to decompose the performance effect in the panel regression. The SUR model comprises four separate equations that together explore the link between the franchisor, behavior, and performance. I will discuss results for each equation separately, and then combine them.

Before executing the SUR model, however, I test Equation (2) using single-year data to verify comparability between the 6-year panel and the single-year cross-section. Single-year results without structural controls (Models 1 and 6 in Table 4) indicate remarkable agreement with the panel results without firm dummies (Models 2 and 6 in Table 3). The coefficient on *years independent* in the *returns* regression is −0.25 in the panel versus −0.26 in the single-year cross-section. In the *sales* regression the coefficients are 0.05 for the panel versus 0.08 for the cross-section,

although neither of the coefficients in the sales regressions is significant. Thus, the single-year data appear to be representative of the panel data.

Behavior-Performance (Models 2 and 7). Results from a test of Equation (3) indicate that the *returns* decline associated with leaving the franchise seen previously in the panel regression is in fact due to behavior (compliance). The significance of *years independent* disappears in the SUR model (Model 2) when compliance is included.

The behavior that appears to matter to *returns* is adherence to established practices rather than adoption of new practices. While the coefficient (0.21) on *administrative compliance* is positive and significant, the coefficient on *entrepreneurial compliance* is zero. An increase from mean *administrative compliance* to full compliance is associated with \$16,000 higher *returns*.

Results differ somewhat in the model using *sales* as the dependent variable (Model 7). Here the coefficient on *years independent* (0.18) is still positive, and now significant after including compliance. Thus, *sales* actually appear to increase when establishments leave the franchise system, by approximately \$1,500 per year. Possibly offsetting the higher *sales* associated with leaving is the fact that the coefficient on *entrepreneurial compliance* (0.09) is positive and significant. To the extent that leaving reduces *entrepreneurial compliance* and *entrepreneurial compliance* affects performance, the net effect of leaving may be decreased *sales*. The coefficient on *administrative compliance* is not significant in the *sales* regression.

Taken together, these results indicate that *administrative compliance* leads to (and only to) higher *returns*, while *entrepreneurial compliance* leads to (and only to) higher *sales*. Thus, it appears that franchisor innovation is aimed at increasing sales rather than returns. This may be due to the fact that implementation of a new practice leads initially to some inefficiency, e.g., the fixed cost of equipment is not yet fully amortized by the sales volume it engenders. It may also be due to incentive misalignment between the franchisor and the franchisee—the franchisor's royalty payments are based on establishment sales rather than establishment income. Thus, it may introduce

innovation that increases sales at the expense of profits.

Franchisor-Administrative Behavior (Models 3 and 8). Equation (4) examines the link between leaving the franchise and *administrative compliance*. Does establishment compliance with existing practices decay in the absence of franchisor oversight? Models 3 and 8 are identical except for the fact that the control for past performance in the *returns* Model 3 is $\ln(1989 \text{ returns})$, while the control for past performance in the *sales* Model 8 is $\ln(1989 \text{ sales})$. Despite the different measures for past performance, the results are comparable. *Years independent* is negative and significant in explaining *administrative compliance* in both models. Compliance decays each year away from the franchise by about 0.25 standard deviation. This is true while controlling for all structural characteristics of establishments that might also affect behavior, as well as structural characteristics of establishments that might affect the decision to leave (Models 5 and 10). I discuss implications from the coefficients on these structural controls below, but focus here on the franchisor-behavior link.

Qualitative Insights. Insight into why establishments might abandon routines despite perfect incentives and experience with those routines is provided by respondents' comments. It appears that establishments challenge the utility of specific practices. Typical responses to the question of why establishments abandoned the practice *sending mailers to prospective customers* are "attracts wrong customer," "not effective," and "not of value in our market." Typical responses to the practice *make telemarketing calls* are "never found effective," "causes bad will," "too costly," and "more irritating than effective." All who responded to the practice *yellow page ad* said, "not cost effective." Thus, it appears that establishments are forming their own judgments about an appropriate operational routine that challenges elements of the franchisor's prescribed routine. Given that establishments have their own notion of an appropriate routine, it is reasonable to expect they might revert to it once they are free from the operational constraints of the franchisor. Whether through conscious decision or

Table 4 Results from System Model

	System $R^2 = .622$, dependent variable					System $R^2 = .726$, dependent variable				
	<i>ln(returns)</i> 1	<i>ln(returns)</i> 2	Admin Comply 3	Entre Comply 4	Years Indepen 5	<i>ln(sales)</i> 6	<i>ln(sales)</i> 7	Admin Comply 8	Entre Comply 9	Years Indepen 10
Administrative compliance		***0.21 <i>3.18</i>					0.04 <i>1.62</i>			
Entrepreneurial compliance		0.00 <i>0.07</i>					0.09*** <i>3.94</i>			
Years independent	-0.26* <i>1.74</i>	-0.12 <i>-0.84</i>	-0.63** <i>-2.07</i>	-0.47 <i>-1.55</i>		0.08 <i>1.30</i>	0.18*** <i>3.33</i>	-0.63* <i>-1.99</i>	-0.56* <i>-1.87</i>	
Printing experience			-0.11* <i>-1.98</i>	-0.06 <i>1.14</i>	-0.01 <i>-0.47</i>			-0.11* <i>-1.92</i>	0.06 <i>1.17</i>	-0.01 <i>-0.50</i>
Management experience			-0.03 <i>-0.74</i>	0.01 <i>0.21</i>	-0.02 <i>-0.83</i>			-0.02 <i>-0.38</i>	0.03 <i>0.56</i>	-0.02 <i>-0.68</i>
Education			-0.23 <i>-1.34</i>	-0.26 <i>-1.49</i>	-0.15* <i>-1.84</i>			-0.25 <i>-1.34</i>	-0.22 <i>-1.32</i>	-0.14 <i>-1.71</i>
in(Old performance) ^a			0.51** <i>2.67</i>	-0.44** <i>-2.29</i>	0.04 <i>0.44</i>			0.17 <i>1.08</i>	-0.30** <i>-2.13</i>	0.03 <i>0.37</i>
Age of establishment			0.00 <i>-0.93</i>	0.00 <i>0.51</i>	0.00 <i>0.43</i>			0.00 <i>-1.25</i>	0.00 <i>0.48</i>	0.00 <i>0.31</i>
in(Capital)			-0.97 <i>-1.54</i>	-0.15 <i>-0.23</i>	0.33 <i>1.08</i>			-0.92 <i>-1.36</i>	0.05 <i>0.09</i>	0.33 <i>1.07</i>
in(Labor)			0.81 <i>1.30</i>	***1.44 <i>2.30</i>	0.31 <i>1.04</i>			-0.98 <i>1.49</i>	2.03*** <i>3.32</i>	0.57* <i>1.89</i>
Constant	3.77*** <i>17.35</i>	3.45*** <i>15.19</i>	7.99* <i>1.82</i>	4.11 <i>0.93</i>	1.24 <i>0.57</i>	5.96*** <i>70.14</i>	5.49*** <i>66.73</i>	7.88* <i>1.70</i>	1.74 <i>0.41</i>	0.56 <i>0.22</i>
R^2	0.06	0.14	0.27	0.28	0.21	0.04	0.12	0.21	0.25	0.19

Note. ^aOld performance in the regression is matched to the dependent variable, e.g., in the Returns regression, old performance is 1989 returns; in the sales regression, it is 1989 sales.

t statistics in italics below coefficients.

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

rationalized laxity, the conclusion remains that establishments slowly abandon routines in the absence of franchisor oversight.

Franchisor-Entrepreneurial Behavior (Models 4 and 9). Equation (5) examines the link between leaving the franchise and *entrepreneurial compliance*. Are establishments slow to adopt innovations to the operational routine in the absence of franchisor oversight? As with *administrative compliance*, Models 4 and 9 are identical except for the fact that the control for past performance in the *returns* Model 4 is *ln(1989 returns)*, while the control for past performance in the *sales* Model 9 is *ln(1989 sales)*. Despite the different measures for past performance, the results are

comparable. *Years independent* is negative and mildly significant in explaining *entrepreneurial compliance*.⁵ Compliance decays each year away from the franchise by about 0.20 standard deviation. This is true while controlling for all structural characteristics of establishments that might also affect behavior, as well as structural characteristics of establishments that might affect the decision to leave (Models 5 and 10).

⁵ The results for entrepreneurial compliance are not as strong as those for administrative compliance because of the structure of our data. Administrative practices were in place before the sample begins, while entrepreneurial practices, by definition, were added later. Thus there are more observations for administrative practices than entrepreneurial practices.

Interestingly, owners seem to compensate for the loss of franchisor innovation with their own innovation. In fact, the *sales* contributions of owner-manager innovations appear to exceed those for franchisor innovation: The coefficient on *years independent* in Model 7 (0.18) exceeds that for *years independent* in Model 9 (−0.56) times the coefficient for *entrepreneurial compliance* in the Equation (7) (0.09). However, those innovations appear to be inferior to franchisor innovations because the *sales* increase does not correspond to a *returns* increase (coefficient on *years independent* in Model 2).

Qualitative Insight. The qualitative comments tend to indicate that failure to adopt new practices stems from conscious decisions, rather than lack of awareness. This is particularly likely with respect to equipment, where equipment suppliers actively market new products to quick printers. Typical responses to the question of why former franchisees haven't adopted *computerized invoicing* were "hate computers" or "unnecessary." The most common response to *color copiers* was "not cost effective." Thus, it appears that former franchisees have a metaroutine for introducing innovation to the operational routine; however, it may be inferior to the franchisor's metaroutine due to information disadvantages.

Conclusions for Hypothesis Test. Models 2, 3, 7, and 8 taken together provide support for Hypothesis 1, the "administrative role" hypothesis that franchisors create value in perpetuity through enforcement of the operational routine. Once establishments leave the franchise, their compliance with established practices begins to decay (χ_2 is negative and significant). This reduced compliance with established practices decreases establishment *returns* (β_2 is positive and significant). This is true even though these owners have perfect incentives (as sole owners) as well as experience with established practices.

Models 2, 4, 7, and 9 taken together provide mild support for Hypothesis 2, the "entrepreneurial role" hypothesis, that franchisors create value in perpetuity through innovation of the operational routine. Once establishments leave the franchise, they appear to be somewhat slower to adopt new franchisor practices (δ_2 is negative and mildly significant). Such failure

to adopt new practices decreases establishment *sales* (β_2 is positive and significant). This effect is interesting since these owners have perfect incentives and access to other sources of innovation.

Decision to Leave (Models 5 and 10). Equation (6) was included in the system model to control for structural differences between franchisees and former franchisees. Models 5 and 10 are essentially identical, and not particularly powerful in explaining the decision to leave. Of all the structural characteristics that seemed likely to predict departure, only *education* was significant. Greater *education* reduces the likelihood of leaving the franchise. However, since education is not significant in explaining behavior differences, this single structural difference is not capable of explaining the performance decay associated with leaving the franchise.

Qualitative Insights. To add insight to the formal test, respondents were asked to comment on why they have either left the franchise or remained. The most interesting observation is that 50% of current franchisees responded that they would leave if they could exit the contract. There were three seemingly distinct reasons that former franchisees gave for leaving the franchise. Twenty-three percent of respondents felt that the franchisor had nothing valuable to offer. This is a likely response when entrepreneurs enter into the franchise primarily for training. After a few years, owners feel competent and no longer see the need for the franchisor. Forty-six percent of the respondents felt franchising was inherently valuable, but that the franchise was not living up to its potential. A typical comment was that the franchisor was not providing sufficient support. The remaining 31% of respondents saw some value in the franchise, but felt it was overpriced, i.e., they might have stayed if royalties were lower, or benefits were higher. The high level of dissatisfaction ($\frac{1}{3}$ have left, and $\frac{1}{2}$ of those remaining reported that they wished to leave) indicates directly that franchisees question the value of the franchisor, and suggests indirectly that they may also question the value of the franchisor's operational routine.

Structural Controls. In general, structural controls play only a minor role in explaining owners' decisions to leave the franchise, their subsequent behavior, and their ultimate performance. While I am not

specifically interested in the coefficients of the structural controls for purposes of testing the hypotheses, they are interesting in their own right. The most interesting observation related to the structural controls is that there seems to be evidence of a competence trap in owner behavior (Levinthal and March 1993). High *past performance* increases the likelihood of adhering to administrative practices but reduces the likelihood of adopting new practices.

Two other structural variables appear to have an impact on behavior. Prior *industry experience* reduces *administrative compliance*. This may suggest that with prior experience owners feel competent to override the franchisor routine. Because prior industry experience does not confer a performance advantage, while reduced compliance leads to a performance decline, on balance, overriding the routine seems to be hubristic.

Finally, higher *labor* increases the likelihood of adopting new practices. This matches the intuition that with capital/labor substitution, higher labor implies a more flexible operation.

6. Discussion

This study developed a dual-routines view of managerial value and tested it against the implicit null hypothesis that hierarchy merely provides static advantages over markets. The view holds that hierarchical managers perform two roles that create value for firms in perpetuity—an administrative role of enforcing operational routine, and an entrepreneurial role of executing a metaroutine that revises operational routine to keep pace with changes in the environment.

I operationalized the dual-routines view in a dynamic theory of franchisor value. Here the franchisor served as a proxy for the hierarchical manager, while franchisees served as proxies for operational subunits. I conducted a natural experiment that compared the behavior and performance of franchisees and former franchisees to isolate the dynamic role of the franchisor. I tested two hypotheses corresponding to the two roles of the franchisor: an *administrative hypothesis* that franchisors create value in perpetuity by enforcing operational routine

(even after franchisees have assimilated it), and an *entrepreneurial hypothesis* that franchisors create value in perpetuity through innovation to the franchisee's operational routine.

I found that both roles were important in affecting franchisee behavior and subsequent franchisee performance. Former franchisees consciously (and erroneously) choose to abandon elements of the existing operational routine once they leave. This abandonment leads to decreases in establishment returns. Thus, an important role of the franchisor is enforcing the operational routine to control volition, and thereby preserve returns. Similarly, former franchisees are slower to adopt franchisor innovations in the operational routine. Thus, an important role of the franchisor is executing a metaroutine to identify and assess the value of innovations and determine the appropriate points to introduce them to the operational routine.

These results provide support for the strong-form dual-routines view of managerial value. In the absence of hierarchical managers, firm behavior drifts from the operational routine, and firms fail to adopt innovation important to maintaining performance in a changing environment. Thus, hierarchical managers are not superfluous. Rather, they are continually necessary to enforce routine, *even after it has been assimilated*, and to introduce innovation, *even in this unique setting of perfect incentives*. In other settings where subunits are not owner-managed (and thus have imperfect incentives), managerial value may be more pronounced. In those settings, managers are necessary not only to enforce self-interested behavior, as we have seen here, but additionally, they are necessary to control opportunistic behavior.

The issue of generalizing these results to other settings is one of degree. We have shown that managers *can* create value above and beyond the structural advantages of hierarchy in this setting. The question remaining is: How does setting affect the extent to which they *do* create value? The franchise setting was chosen explicitly because it was easy to identify the routines, to isolate the contribution of routines to performance, and to isolate the contribution of hierarchical managers in enforcing or innovating those routines. In short, it presented a rare natural experiment.

However, the franchise form is simple—there are only three hierarchical levels: franchisor, franchisee (owner-manager), and employee. It is difficult even to guess whether added organizational complexity increases or decreases managerial contributions. On the one hand, greater complexity increases the payoff to standardization and coordination. On the other hand, complexity makes the managerial task more difficult, thereby decreasing the likelihood of achieving the payoff. Thus, the link between managerial value and organizational complexity remains an empirical question for future research.

Another interesting extension of this study would be an examination of the metaroutine itself: How do operational routines get updated? One question of particular interest is the extent to which franchisors take advantage of the natural experimentation of their franchisees. Do they track the relative performance of the franchisees and attempt to learn what distinguishes the highest-performing franchisees? Do they then use that information to update their routines? Alternatively, do they gather information from outside the organization, then use franchisees as beta sites in which to test these new ideas/technologies before diffusing the routine throughout the organization? Some very interesting work in this regard has been done by Bradach (1995).

The contributions of this study are twofold: First, the empirical study validates the dual-routines view set forth by March and Simon (1958), Cyert and March (1963), and Nelson and Winter (1982) and establishes the view as superior to modern organization theory. Hierarchical managers create value in perpetuity even after firms have assimilated routines, and even when those firms have perfect incentives.

Second, the study resolves the dual-routines view into its two components and provides evidence that the strong form of the view is more compelling than the weak form. The two managerial roles—enforcement of operational routine, and innovation of operational routine (the metaroutine)—both create value in perpetuity. Enforcement of operational routine is important even after firms have assimilated those routines. Hierarchical managers cannot rely on habituation, perfect incentives, and self-discipline to maintain the behaviors of subunits. While such

enforcement might lead to firms being overtaken as the competitive environment continually increases the performance threshold necessary for survival, I found that hierarchical managers overcome that problem. They do so by executing an entrepreneurial metaroutine that continually revises operational routine to keep pace with changes in the environment.

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