

**US-Based Fast Food Restaurants:  
Factors Influencing International Expansion of Franchise Systems**

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### **Abstract**

Studies of international franchising are scant, but growing, and can be divided into two main streams of research: those focused on environmental predictors of internationalization and those focused on strategic, firm level characteristics. Belonging to the latter category, this study empirically examines a set of firm level attributes as predictors of the decision-making on whether or not firms seek international expansion. Using longitudinal data from Bonds' Franchise Guide 2001-2008, we draw upon a sample of U.S. based fast food franchise systems for testing our hypotheses. Specifically, our database is comprised of 1058 observations for 158 chains and we estimate a semi-parametric logistical model for international franchising. The model contributes to the literature by being the first to examine the *nonlinearity* of international franchising determinants using the popular agency theory. The results show that (1) bonding, (2) percent of franchised units, (3) the number of states the system operates in, and (4) provision of area development agreements and sub-franchising significantly contribute to international expansion.

## **US-Based Fast Food Restaurants: Factors Influencing International Expansion of Franchise Systems**

### **Introduction**

The decision of the franchisor to go global is of increasing interest to both practitioners and academics alike since international franchising has taken off in the 1990s (Alon 1999) in part as a perceived saturation of the domestic marketplace. Fast food U.S. franchisors like McDonald's, Subway, Burger King and others have led the way in internationalization and have grown their systems remarkably as a result. For example, almost 65% of the sales revenue of McDonald's is generated from its overseas operations ([www.wikinvest.com/stock/McDonald's\\_\(MCD\)](http://www.wikinvest.com/stock/McDonald's_(MCD))). Dant, Perrigot and Cliquet (2008) report that 68.74% of U.S. franchise chains operate internationally.

Attempting to explain this internationalization trend, academics have focused on two streams of research: one focusing on environmental determinants (country specific factors) and the second focusing on the organizational determinants (firm level factors) that foster the internationalization process. The first stream of research has focused on either country studies (e.g. Welsh and Alon 2002, Alon and Welsh 2001) or variables relating to the country's environment that are conducive to internationalization (e.g., Alon 2006). While these macro-oriented studies have been useful in explaining why some countries receive more franchising investment, or why franchisor select specific countries or modes of entry, they are less useful in determining why specific firms within a given industry are more likely to internationalize than others.

The second stream of research, one focusing on firm-level strategic variables, is helpful in distinguishing among franchising firms that internationalize versus those that remain domestic focused within a given industry. Using agency and resource-based theory, for example, Alon (1999) showed that the extent of internationalization in franchising firms can be largely explained by the size of the systems in a variety of industries (e.g., hotels, retailing, professional business services). Previous studies, however, have been limited by examining only linear trends with fixed coefficients, with concern to only the sign of the coefficient and its statistical significance.

The dynamic reality of international franchising, however, is not necessarily linear or log-linear in nature. For example, firms often have to reach a critical size before

venturing abroad and may become less adventurous internationally when reaching a certain level of experience and scale. Johnson and Alon (2005) were able to show that franchisors divide into different classes with varying degrees of internationalization.

Given the limited nature of previous empirical studies on international franchising, this study singularly contributes to the literature by examining the dynamic nature of international franchising using semi-parametric modeling for the logistic regression. Here, the contribution of a predictor factor or a pair of factors can assume any continuous function. Essentially, we partition the explanatory variables into the parametric group and the nonparametric group, where the contributions from the first group (including dummy variables) are linear, and those from the second group are estimated via penalized splines (Ruppert, Wand and Carroll 2003). Using this analytical strategy, we are better able to show how franchisors reach the decision to internationalize using a variety of predictors previously established in the literature. We employ a longitudinal dataset spanning eight years (2001 to 2008), comprised of 1058 observations, across 158 U.S. based fast-food franchise chains to test our model.

The rest of the paper is organized as follows. We begin by developing a theoretical framework, mainly based on the agency theory, to identify a series of firm-specific strategic factors and subsequently estimate their contributions to the international expansion decision. Agency theory has been frequently used for explaining the emergence of franchising. Some of the explanations of the internationalization of franchising systems using agency theory were originally developed by Shane (1996b). The paper concludes with a series implications for future researchers and franchisors.

### **Agency Theoretic Explanations of International Franchising**

Agency theory has been one of the dominant explanations of franchising in the literature. “An agency relationship is present whenever one party (the principal) depends on another party (the agent) to undertake some action on the principal’s behalf (Bergen, Dutta, and Walker 1992, p. 1). In the case of franchising, the franchisor is the principal and the franchisee is the agent. Agency theorists assume that organizations want to minimize their organizational governance costs, “the costs of aligning the

incentives of principals and agents, including bonding and monitoring” (Norton 1988, p. 202) and propose that franchise contracts achieve these goals. Agency theory presents the counterpoint to the resource constraints theoretic perspective to franchising, and especially the related dark prediction of ownership redirection proposed by Oxenfeldt and Kelly (1969) who prophesied that since franchise relationships were crafted by franchisors to quickly garner scarce resources from franchisees, once systems matured and became resource flush, they would no longer need their franchisee partners (See Baker and Dant (2008) for a detailed historical account of this premise).

Agency theory portrays franchising as an organizational form which minimizes the organizational agency costs, especially the monitoring costs. This is because the manner in which earnings are shared between the franchisors and their franchisees motivates the franchisees to be efficient. Franchisees are “owner-managers that typically bear the residual risks of a local operation because their wealth is largely determined by the difference between the stochastic revenue inflows to the local operation and promised payments to other factors of production” (Norton 1988, p.201). Since the franchisee has a residual claim and ownership in the franchised unit, shirking is minimized. Shane (1996a) proposed that franchising is a mechanism of minimizing agency problems of growth. He found support for the hypotheses that (1) franchising provides faster growth, and (2) franchising increased the firm’s likelihood for survival. Because of implied monitoring costs associated with overseeing company managers, the increase in potential income that may accrue with direct (or company) ownership of franchise outlets may be insufficient to offset the greater efficiency of the franchisee (Bergen, Dutta, and Walker 1992).

Studies of domestic franchising empirically confirmed the presence of agency costs and the importance of monitoring skills in the development of franchising. Norton (1988) hypothesized that as monitoring costs increased so did the incidences of franchising contracts. The two variables Norton (1988) used as proxies for monitoring costs, population dispersion and labor intensity, were found to be positively associated with the percentage of establishments categorized as franchise holders. Norton (1988) found support for the principal-agent explanation of franchise contracts. Brickley and Dark (1987) found support for the hypotheses that the proportion of franchising units

increase with employee monitoring costs and that industries characterized by non-repeat customers are less likely to franchise. The second hypothesis showed the downside of franchising, the inefficient risk bearing and free riding of some franchisees. Brickley and Weisbach (1991) found similar results.

The conclusion of these studies on domestic franchising suggested that the focus of agency theory is to minimize agency costs. Based on these premises, Shane (1996b) developed a model that sought to explain the internationalization of the U.S. franchising systems as a function of bonding and learned monitoring capabilities. Shane (1996b) claimed that franchisee opportunism can be reduced through ex-ante bonding mechanisms, or a pricing structure that requires high initial investment relative to royalties. Shane, thus, extended traditional agency explanations of franchising to the international environment and paved the way for the future development of research in this area. Extensions of Shane (1996b) model have been developed by a number of scholars including Alon (1999), Castrogiovanni et al. (2006), Garg and Rasheed (2003), Garg et al. (2005), and Welsh et al. (2006).

Given this focus of agency theory on agency costs and monitoring skills, a number of salient factors have emerged in the literature as potential explanatory variables for modeling international franchising. Our agency theoretic model of international franchising, thus, consists of a total of seven predictor variables: two variables associated with bonding and capital resources (FRratio and logAveTinv), two variables associated with franchising experience (Fexp and Franper), three variables associated with geographical locations (logUscale, Disper, and Satur) which, in conjunction with franchising experience variables, could be considered as surrogates for monitoring skills. We explain each of these below and propose hypotheses for them. Unlike previous studies and given the dynamic nature of the decision to go global, this study estimates semi-parametric spline coefficients which allow for variation in the predictors.

### **Bonding and Capital Resources**

The franchising firm controls the ratio between the initial payment (fee) and the ongoing payments (royalties). In this fashion it controls the level of bonding. It was hypothesized that the higher the level of bonding, the less the probability that a

franchisee will act opportunistically (Shane 1996b, Alon 1999). This is because (1) the franchisee fee often accounts for more than one-half of the total investment of the franchisee, (2) the franchisee invests a major portion of his/her wealth in the business, (3) the standard franchising agreement allows franchisors to revoke the contract without the return of the franchise fee if the franchisee does not strictly follow the operational guidelines of the franchise, and (4) the cost of termination increases, the higher the initial fee is relative to the ongoing fees. “As the threat of opportunism is greater in international franchising than domestic franchising, one would expect to find higher franchise fees relative to royalty and advertising rates among companies that intend to expand overseas” (Shane 1996b, p. 77). Shane measured the ex-ante bond as a ratio between the initial fee and the ongoing fees and found support for the hypothesis that ex-ante bonding increases the likelihood of internationalization of the franchise system.

International franchising operations require that the franchisor manage business in remote locations. Because remote locations have higher monitoring costs (Combs and Castrogiovanni 1994; Brickley and Dark 1987; Norton 1988), franchisors can price their business system such that the franchisee bears the greater level of risk. This is done by increasing the initial investment relative to the ongoing payments, or decreasing the royalties relative to the franchise fee. In this situation the franchisor is in a position to gain the franchise fee regardless of whether the franchisee business entity succeeds or fails. The advantage of using this price bonding variable is that this ratio is controlled by the franchisor.

Combs and Castrogiovanni (1994, p. 42) defined royalties as the “proportion of the present value of intangible resources that cannot be incorporated into the up-front fee due to the unpredictability of unit sales.” Because international sales of U.S. franchising systems are likely to be more unpredictable overseas than domestically, international franchisors would rather receive more of the money up-front, rather than over time in the form of royalties. A survey by Arthur Andersen (1996) showed that the initial franchise fees of international units tend to be the same or higher than in the domestic units, while the ongoing payments tend to be the same or lower. This finding is consistent with Shane’s (1996) finding on the effect of price bonding.

Similarly, the total franchise investment needed by a franchisee to initiate a venture works as a bonding agent for the franchisor. The total franchise investment is in a sense “capital at risk” which the franchisee has to put up. This franchise investment which includes the start up costs associated with getting the business up and running is in jeopardy if the franchisee does not follow the rules of the franchisor, or fails to achieve the performance criteria. Alon (1999) found start-up costs to be positively associated with professional business franchises internationalization. Combs and Castrogiovanni (1994, p. 41) wrote “high start-up costs suggest that the franchisee is the primary party risking loss of appropriable quasi-rents. These quasi-rents may actually provide an additional incentive for the franchisee to act in accordance with franchisor wishes in order to avoid quasi-rent appropriation.” Since start-up costs increase the effect of bonding between the franchisee and franchisor, the franchisor is more likely to internationalize, the higher the start-up costs. The significance of the start-up costs is consistent with Huszagh, Huszagh and McIntyre’s (1992) prediction that the equity capital requirements of the franchisor will re-emerge as a significant factor distinguishing between domestic and international franchisors.

The above rationale yields our first two hypotheses:

*H1: Higher the levels of franchise fee to royalties bonding ratio, the more likely the franchisor will seek international franchisees.*

*H2: Higher the levels of franchise investment needed, the more likely the franchisor will seek international franchisees.*

## **Franchise Experience**

Those franchisors that already have substantial franchising experience, either through direct operations of a large percentage of franchise outlets or through years in operation, are more likely to possess the type of monitoring skills that are needed for internationalization. Franchising operations require skills in monitoring remote locations with different resource endowment and varying demand characteristics. As franchising experience increases, firms are likely to develop the organizational capabilities, managerial talent, local knowledge, distance management skills, cultural adaptability skills, and host country management skills (Combs and Castrogiovanni 1994, Fladmoe-Lindquist 1996; Norton 1988; Oxenfeldt and Kelly 1969). Huszagh, Huszagh and

McIntyre (1992) proposed that international franchisors have greater cumulative experience, scale economies, product differentiation, capital requirements and benefits of headquarters, which allows them to erect entry barriers against new firms and to compete successfully overseas as compared to their domestic-only counterparts. As franchising firms gather more experience, they develop the routines and capabilities for monitoring franchisees while reducing agency costs. Alon (1999) hypothesized that the more franchised units that a firm has, the more efficient are the monitoring and performance measuring capabilities. This is because the sheer volume of monitoring a large number of franchised units, over time, generates organizational capabilities for more educated routines for identifying shirking (Huszagh, Huszagh and McIntyre 1992). Enhanced monitoring capabilities reduce the incidence of opportunistic behaviors by the franchisees thereby allowing international expansion through franchising (Shane 1996b; Fladmoe-Lindquist 1996).

The more experienced franchisors are likely to have improved know-how about activities like site selection, store layout, procurement and operations which likely yield cost reduction advantages relative to the less experienced franchisors (Huszagh, Huszagh and McIntyre 1992). Therefore, such experience and know-how would allow an older franchising firm to more successfully transfer their operating systems to a foreign market with more ease than a younger franchisor. Past research (Huszagh, Huszagh and McIntyre 1992, Alon, 1999, Alon 2006) supports the premise that older franchisors are more inclined to have international franchisees. When purely domestic franchisors were asked why their firms do not have franchises outside the United States, the number one reason given was that the company was too young (Arthur Andersen 1996). Eroglu (1992) proposed that the older and more experienced a franchisor, the lower the amount of perceived risk associated with internationalization, and the more likely the franchisor will seek international franchisees. Huszagh, Huszagh and McIntyre (1992) showed that the age of the franchising system was positively related to its decision to internationalize. "These findings imply that experience is still a powerful tool for dealing with the physical and cultural distance inherent in franchising overseas. The inability of technology to substitute for experience

appears to be borne out by these results” (Huszagh, Huszagh and McIntyre 1992, p.14).

Based on this literature, our next two hypotheses are:

*H3: Greater the franchising experience of the franchisor, the more likely the franchisor will seek international franchisees.*

*H4: Greater the percentage of franchised outlets in the company’s system, the more likely the franchisor will seek international franchisees.*

## **Geographical Locations**

At least three geographical considerations can be justified under agency theory and previous literature on international franchising: (1) the scale of U.S. operations, (2) the extent of physical dispersion of outlets, and (3) saturation of domestic markets.

As firms grow in size by developing additional franchised outlets, they develop better skills and more experiences in managing franchisees, monitoring them, and developing better routines for working with them. Economies of scale in purchasing, promotion, R&D, monitoring, and quality programs can facilitate cost reductions and increase interdependencies between the franchisor and the franchisees. The experiences with sharing best practices among franchisees and managing across heterogeneous locations is likely to engender a desire on the part of growth-minded franchisors to venture abroad for new franchisees. The sheer volume of business experiences in larger systems has the potential of generating more educated routines for identifying shirking (Huszagh, Huszagh and McIntyre 1992) and developing more efficient systems for effective monitoring capabilities thereby paving the way for growth through international expansion (Shane 1996b; Fladmoe-Lindquist 1996). Monitoring capabilities are likely to be especially critical to the success of the international franchisor (Fladmoe-Lindquist 1996). Shane (1996b) found support for the hypothesis that better monitoring skills increase the propensity of franchisors to internationalize.<sup>1</sup>

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<sup>1</sup> Shane measured monitoring skills as a multiplicative composite index consisting of the number of franchised units, the percentage of franchised outlets, and the age of the franchise system. However, no theoretical reasons were proposed for such a multiplicative measure. Further, since these variables are likely to be correlated, they could potentially obfuscate the regression coefficient results. For this reason, in this study, we utilize the measure of geographical dispersion as a proxy for monitoring capabilities.

Per agency theory, franchisors with dispersed units require greater monitoring capabilities on the part of franchisors (Fladmoe-Lindquist 1996). Franchisors with many franchisees in heterogeneous locations across the United States are better poised to take advantage of economies of scale in promotion and monitoring because such locations incorporate differing levels of return and risk (Huszagh, Huszagh and McIntyre 1992). Therefore, franchisors which are national in scope are more likely to internationalize because they have the enhanced levels monitoring capabilities in their domestic operations as compared to regional systems. For such systems, the foreign subsidiary becomes merely an extension to the domestic operation. This is especially true for franchisors which first seek international expansion in Canada, or other English speaking countries. All other things equal, the more dispersed are the domestic franchising operations, the greater the monitoring capabilities, and the more likely the franchisor will seek international franchisees.

There is also a greater probability that bigger franchising firms have saturated the domestic market and are looking for growth through international expansion (Shane 1996b). The more outlets the franchise system has in its domestic operation, the more likely it is to saturate the market and look for expansion overseas. Fast food companies like McDonald's, Subway, or Burger King may have saturated much of their market in the USA. Early research also indicates that bigger domestic franchisors have a higher preponderance for having units outside the United States (Hackett 1976; Walker and Etzel 1973). Aydin and Kacker (1990) show that smaller franchising systems are less likely to seek international franchisees than bigger ones. Huszagh, Huszagh and McIntyre (1992) also found a significant positive association between the number of units and the decision to internationalize. However, they expected that technology, in particular in telecommunications, would mitigate the influence of scale on the internationalization of franchising systems in the future. A survey by Arthur Andersen (1996) revealed that franchisors with over 86 units were more likely to belong to the International Franchise Association and have franchises operating outside the United States.

The above discussion yields our final three hypotheses associated with geographical location of franchised units:

*H5: Greater the number of US domestic outlets, the more likely the franchisor will seek international franchisees.*

*H6: Greater the dispersion of domestic outlets across the US, the more likely the franchisor will seek international franchisees.*

*H7: Greater the level of saturation of domestic markets, the more likely the franchisor will seek international franchisees.*

## **Methodology**

### **Data**

Data for the empirical analyses were obtained from the 2001-2008 successive annual editions of the Bonds' Franchise Guide, a commonly used data source for franchising research (Dant, Kacker, Coughlan, and Emerson 2007). The original dataset contained a total of 1124 observations from 179 U.S. based fast food restaurant chains. However, not all chains responded to each of the eight years of survey. To improve the quality of the analysis, we made a judgment call to retain only chains with at least 3 observations. Consequently, our analyses are based on 1058 observations drawn from 158 chains.

The dependant variable "Y" is a dummy coded (Yes/No) variable which asked the franchisor respondent on whether or not they seek overseas expansion beyond North America. The predictor variables include two variables associated with bonding and capital resources (FRratio and logAveTinv), two variables associated with franchising experience (Fexp and Franper), three variables associated with geographical locations (logUscale, Disper, and Satur). The latter three, in conjunction with franchising experience variables, could be considered as surrogates for monitoring skills. Since there were huge variations among franchisors in term of the number of U.S. outlets and the average total investment, we log-transformed these measures (i.e., logUscale and logAveTinv) to alleviate the excessive influences certain data points might have. Table 1 presents the full operational definitions of our measures. In addition to the seven predictors, we include three dummy variables (Area, Subf, and Addunit) associated with multi-unit franchising (i.e., the provision of area development agreements, sub-franchising, and adding new units) and age to capture the year in which the information

was collected. Figure 1 shows the plots of individual predictors against Y with lowest smoothing curves superimposed for visual enhancement.

*Insert Table 1 and Figure 1 About Here*

### **Statistical Technique Employed**

In international franchising literature where the response variable is frequently dichotomously measured, logistic regression is the most commonly used analytic technique for assessing the impact of its predictors (e.g., Shane1996; Elango 2007). The logistic model is a powerful tool in applied research with the basic model being  $\log[p/(1-p)] = \beta_0 + \sum_i \beta_i x_i$ , where  $p = \Pr(Y = 1)$  is the probability of seeking overseas expansion,  $x_i$ 's are the predictor variables. The coefficients usually are estimated by maximizing the likelihood function and the goodness-of-the-fit is calculated by investigating the residuals (McCullagh and Nelder1989). Logistic model has been quite successful for many natural and social phenomena and is regarded as an excellent first-step approximation. However, it restricts the contribution of each factor to be a linear term with a fixed coefficient. Consequently, most theoretical hypotheses tested are concerned with the significance of the coefficient (i.e. whether a particular factor is relevant), and/or the coefficient's sign (i.e. whether the factor investigated increases or reduces the probability of the event of interest).

The actual dynamics of decision-making, however, can be much more complex. The contribution of some particular predictors could be nonlinear thus the impact of such predictors varies at its different values. Moreover since the contribution may not be monotone, statements like "the larger the value of the predictor variable is, the higher the probability the franchisor seeks for overseas expansion" become misleading. Sometimes two or more predictor variables interact with each other in determining the response. Traditional approach to modeling such contingencies in parametric regression is the addition two-way or higher-order product terms into the model. However, this strategy still can be too restrictive. To overcome the limitation of ordinary logistic regression, we propose a semi-parametric model for logistic regression:

$$\log[p/(1-p)] = \alpha_0 + \sum \alpha_i x_i + \sum f_j(x_j) + \sum f_{kl}(x_k, x_l), \quad (1)$$

where the contributions of certain  $x_i$ 's are linear including those of dummy variables, and those of other  $x_j$ 's or pairs of  $(x_k, x_l)$ 's are continuous functions estimated by univariate or bivariate nonparametric smoothing. Essentially, we partition the predictor variables into a parametric group and a nonparametric group. Hence, the label “semi-parametric” comes from the fact that a combination of both parametric and nonparametric components is used in the same model.

A natural approach to estimate these unknown  $f_j(\cdot)$ 's is using basis functions like piecewise polynomials and splines (Wahba1990). For example, Bessaoud et al. (2005) incorporated B-splines into logistic regression in medical studies. In this study, we propose using penalized spline smoothing. Here, each  $f_j(\cdot)$  is expressed as cubic thin plate splines

$$f_j(x) = \beta_{j0} + \beta_{j1}x + \sum_{k=1}^K \mu_{jk} |x - \kappa_{jk}|^3, \quad (2)$$

where,  $\kappa_{jk}$ 's are knots for  $x_j$  ((Ruppert, Wand and Carroll 2003, Ch. 3.10). The bivariate function  $f_{kl}(x_k, x_l)$  is estimated using radial basis approximation (see Wand 2005 for detail). Cubic splines is claimed to be the lowest-order spline for which the knot-discontinuity is not visible to the human eyes (Hastie et al. 2001). Usually there is no need to choose an order higher than cubic unless the derivatives are of interest.

Let  $\mu_j = (\mu_{j1}, \dots, \mu_{jK})^T$  and let  $K_j$  be the  $K \times K$  matrix with the  $kk'$ 'th element being  $|\kappa_{jk} - \kappa_{j'k}|^3$ . Subsequently, the model fitting is performed by maximizing penalized log-likelihood

$$\sum [y_m \log(\hat{p}_m) + (1 - y_m) \log(1 - \hat{p}_m)] - \sum \lambda^3 \mu_j^T K_j \mu_j,$$

where the first term is the usual log-likelihood function for a logistic regression, the second term is the penalty for the coefficients of the radial functions as in (2). The smoothing parameter  $\lambda$  is chosen via restricted maximum likelihood. Procedures for selection of knots have been suggested in the literature (Ruppert 2002; Shen and Satoshi 2003). There is material difference between the results with varying knots for this study as long as the number of knots is reasonably large to capture the features in the data. Since the data are longitudinal, the ideal would be fitting a mixed effect model

assigning a random effect to each fast food chain. Unfortunately, numerical problems prevent us from doing that. Therefore, we adopt a cross-sectional approach. The data analyses are done using the default setting of R-package *SemiPar 1.0* (Wand 2005).

## Results

Based on the model (1), the additive impact of a predictor on the response can be quite different from the relationship between individual predictor and the response as shown in Figure 1, which often is one of the sources for conflicting conclusions in the literature. For example, Figure 1 clearly shows that  $\log\text{AveTinv}$ ,  $\text{Satur}$ , and  $\log\text{Uscale}$  are positively related with the response variable. But if we run a simple logistic regression with all variables included, their coefficients are negative with p-values being 0.0016, 0.0132, and 0.1623 respectively. Nonetheless, a diagnostic like Figure 1 is often helpful in providing suggestions as to for which predictors we should use linear terms and for which we should employ nonparametric smoothing.

Few studies are available to definitively guide us in terms of variable and model selection for generalized additive model. In our study, the test for the parametric group can proceed with the usual Z-tests as in traditional models. The test for the nonparametric group can be done by using  $\chi^2$  test based on the difference of deviance and the estimated degrees of freedom. Table 2 summaries our final model with  $\text{Fexp}$  and  $\text{Addunit}$  excluded which are not significant at 5% level. However, we would like to emphasize that this exclusion does not mean that these two variables individually are not important. Rather their additional contributions on top of those from others already in the model are not significant.

For the lay reader and the practitioner, the most effective way to understand these results is perhaps to examine the contribution plot with 95% pointwise confidence band like Figure 2. Figure 2 shows the contribution of  $\log\text{AveTinv}$  and  $\log\text{Uscale}$  respectively, while Figure 3 shows the joint contribution of  $\text{Disper}$  and  $\text{Satur}$  which may help explain the unexpected trends observed in the literatures.

*Insert Table 2, Figure 2 and Figure 3 About Here*

## Conclusions & Discussions

It has been suggested that to mitigate opportunism, franchisor may create stronger financial incentives by collecting higher than usual initial fee which creates higher level of bonding between the franchisor and the franchisee. Opportunistic behavior by the franchisees can also be controlled through effective monitoring. Shane (1996) found support that monitoring, measured as a multiplicative composite index consisting of the number of franchised units, the percentage of franchised outlets and the age of the franchise system, is positively related with the internationalization of franchising. Elango (2007) captures monitoring skills through the percentage of franchised units and the number of years franchised. In general, the greater the geographic dispersion of the franchised units in a system, the greater is the need for established monitoring capability. Hence, franchisors with dispersed units are more likely to seek international franchisees since they are used to operating in distant locations and to take advantage of economies of scale in promotion and monitoring (Huszagh, Huszagh, and McIntyre 1992). Furthermore, domestic saturation provides another powerful incentive for seeking international expansion. Franchise systems with a large number of units at heterogeneous locations are likely to be experiencing such a saturation perception.

In this study, we employ the ratio of the average franchising fee over the average royalty rate as the empirical measurement of bonding together with the logarithm of the average total investment. As suggested by past research, we also use the franchising experience in years, the percentage of franchised outlets, the logarithm of the number of domestic outlets, and the number of states where the chain has outlets in modeling the propensity to internationalize. In addition, we believe that whether the system units are concentrated in a small number of states or scattered across the country could be a relevant indicator for the chain's monitoring skill and the level of domestic saturation.

We propose a variable  $Satur = 1 - m/n$  as a measurement of domestic saturation where  $m$  is the largest number of units in any single state and  $n$  is the number of domestic units. The expansion of franchisors into emerging and developing markets has seen the increased use of multi-unit franchising, which was shown to be positively related to system growth (Kaufmann and Dant 1996). Several permutations of multi-unit

franchising exist, i.e., (1) area development agreements that assign the franchisees a defined territory in which they are expected to develop additional units using a predefined schedule, (2) sub-franchising contracts that allow the franchisee to be both the agent to the franchisor and the principal to other sub-franchisees, and (3) the basic multi-unit franchisee contracts, also termed master franchisee contracts, that simply allow franchisees to establish additional units in a given territory. Three separate dummy variables were created to correspond to whether the franchisor allows the particular multi-unit permutation or not.

Data for all the variables were obtained from Bonds's Franchise Guide 2001-2008. These data are collected using identical annual franchisor questionnaires where survey participation is voluntary. The dependent variable was a dichotomous (yes/no) question which sought to ascertain whether or not the US-based franchisor seeks overseas expansion. Logistic regression has been most commonly used methodology in studies with a dichotomous dependent response variable like this.

However, logistic regression restricts the contribution of each factor to be a linear term with a fixed coefficient. Consequently, most theoretical hypotheses tested are concerned with either the significance of the coefficient and/or its sign. The true dynamics of decision-making can be much more complex. In this paper, we propose semi-parametric modeling for the logistic regression, where the contribution of a factor or a pair of factors can be any continuous function. Essentially, we partition the explanatory variables into the parametric group and the nonparametric group, where the contributions from the first group (including dummy variables) are linear, and those from the second group are estimated via penalized splines (Ruppert, Wand and Carroll 2003).

Based on our model, we found that bonding and the percentage of franchising units contribute positively to the propensity for international expansion. Both the contributions from the logarithms of average total investment and the number of US units manifest themselves in an interesting "U" shape, which may indicate a threshold in terms of capital requirement and the franchisor's monitoring capability. For example, the initial increase of the capital requirements may dampen the franchisor's desire for international expansion since it makes it more difficult to attract new franchisees. But

after passing the threshold, the large amount of capital requirement may signal the franchisor's strong position in the market and the concurrent desire for expansion. The number of states in US with operation presence and the domestic saturation also contributed positively as expected to the propensity for international expansion but in a nonlinear fashion. Consistent with the past research, the permitting of area development agreements and sub-franchising agreements were also associated with higher probability of seeking international expansion.

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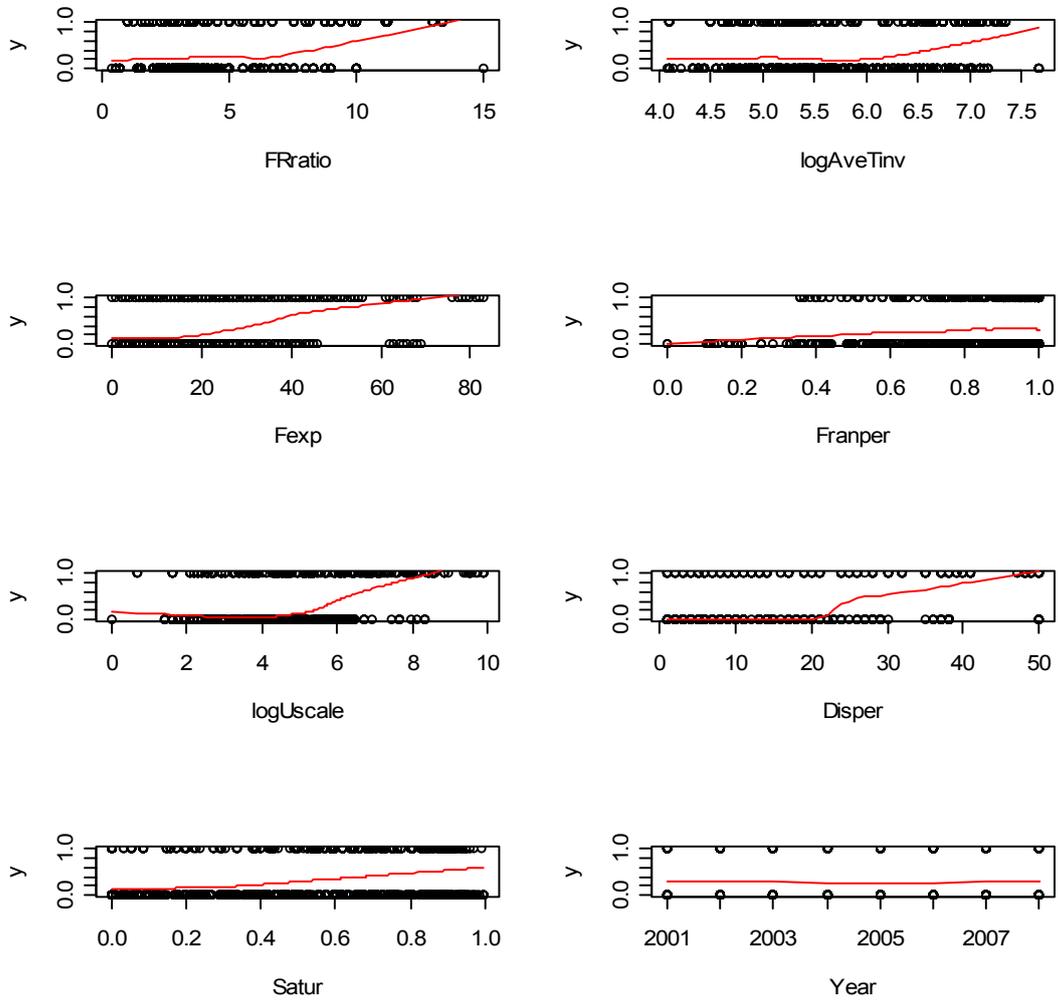
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**Table 1****Operational Definitions of Variables**

FRratio	the ratio of franchising fee over royalty rate (\$k/percentage).
logAveTinv	the logarithm of the average total investment (log(\$K)).
Fexp	the number of years the company has been franchising.
FranPer	the percentage of franchised units among total number of units.
logUscale	the logarithm of the number of US units.
Disper	the number of US states where the company has presence.
Satur	$1-m/n$ , where $m$ is the largest number of units in any single state and $n$ is the number of domestic units.
Area	the indicator whether area development agreements exist.
Subf	the indicator whether subfranchising is allowed.
Addunit	the indicator if the additional outlets within the area can be added.
DEPENDENT "Y"	whether the franchisor seeks overseas expansion or not

**Table 2****Summary of the Model Fit**

	Coeff.	St. dev.	Z-ratio	p-value
Intercept	-3.7440	1.2300	-3.044	0.0024
FRratio	0.2596	0.0495	5.246	0.0000
FranPer	1.4840	0.4703	3.157	0.0016
Area	0.6390	0.2585	2.471	0.0135
Subf	1.3450	0.1908	7.051	0.0000
		df		
	logAveTinv	2.897		
	logUscale	2.450		
	Disper, Satur	2.000		



**Figure 1. Individual predictors vs. the response**

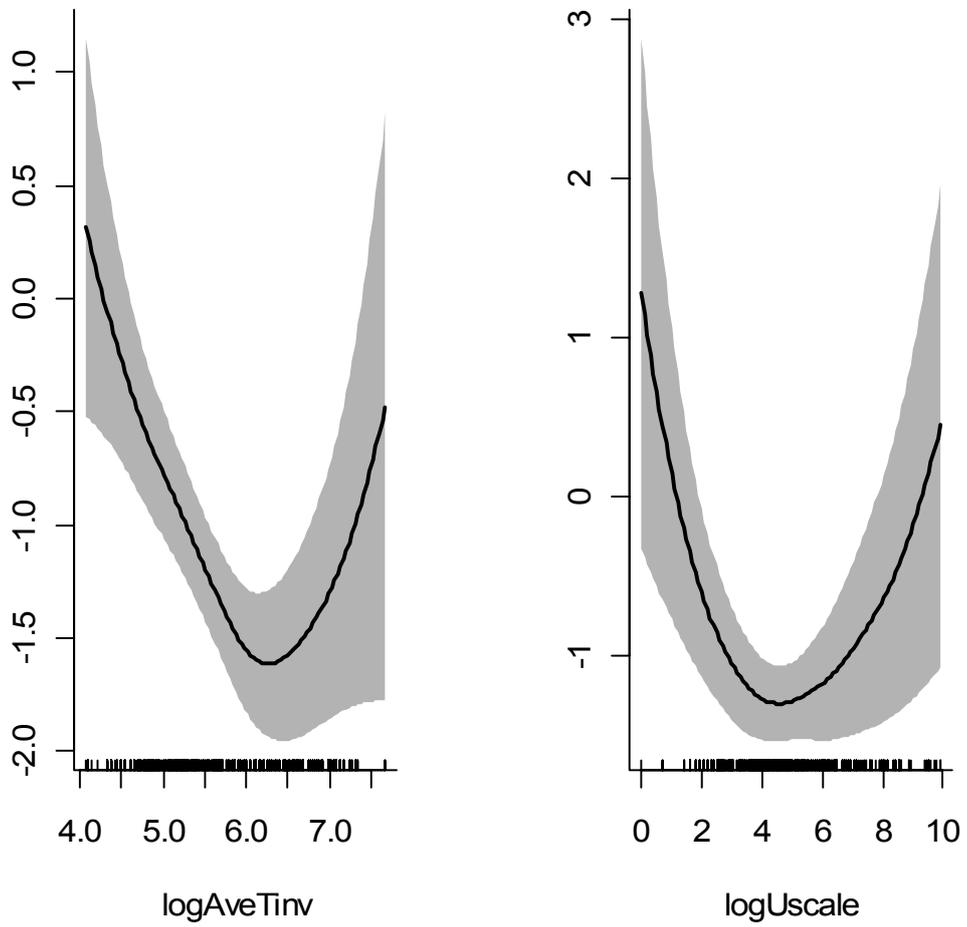
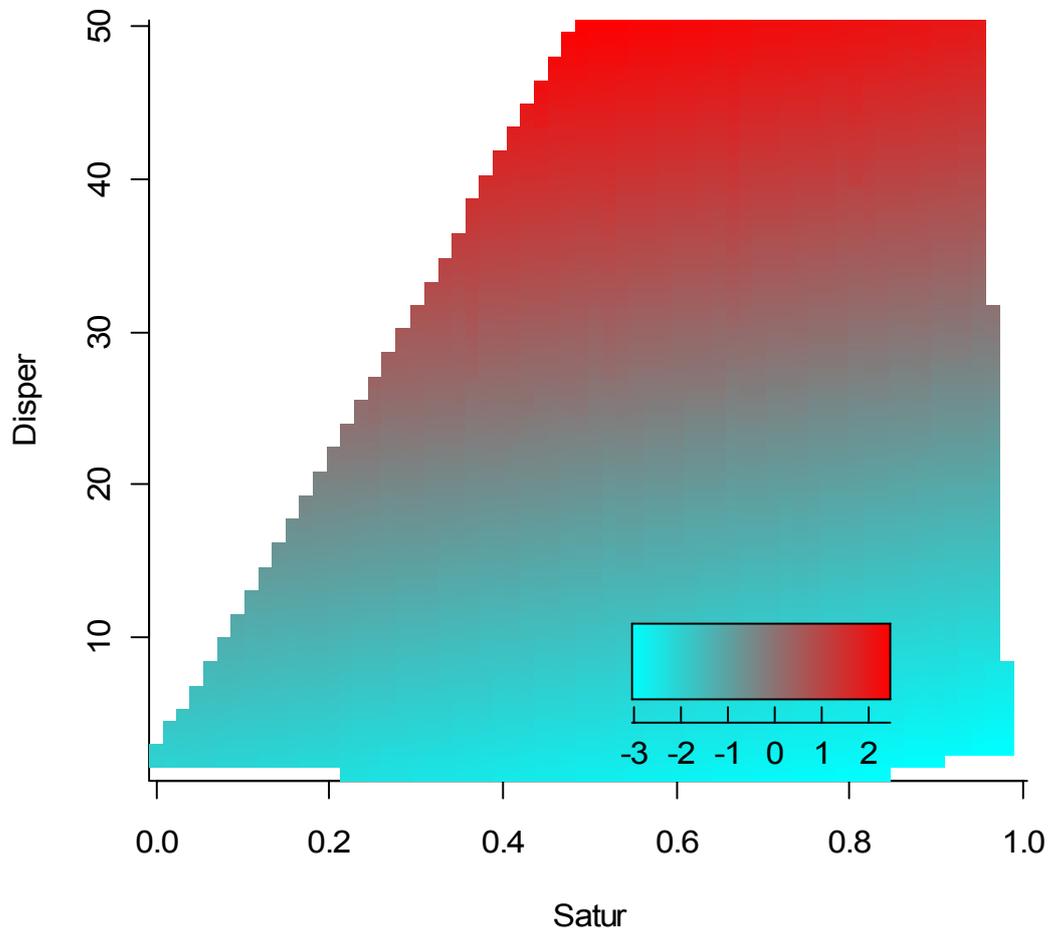


Figure 2. Estimated  $\hat{f}_j$  and its 95% confidence band



**Figure 3. Estimated joint contribution of Disper and Satur**