INNOVATION AND GOVERNANCE MECHANISMS OF RESTAURANT FRANCHISE SYSTEMS

BY

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DISSERTATION

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ABSTRACT

Given its economic significance, franchise business has been widely studied by economists and management researchers since 1970s (Combs, Michael & Castrogiovanni, 2004; Lafontaine & Slade, 1997). While past franchising literature focuses on how the design of the franchise contract or the arrangement of the outlet ownerships can resolve the double moral hazard problem and to maintain the standardization of franchise systems, the current dissertation explores how the design of these governance mechanisms enables franchise system to achieve another strategic objective, innovations. After finding that the design of governance mechanisms is critical to franchise systems' pursuit of innovation, the next natural question is how franchise systems can update their governance mechanisms to keep up the pace of innovation.

The current dissertation uses the context of restaurant franchise systems, which account for one third of business format franchising's contribution or about 1% to U.S. GDP, to explore these two research questions empirically. Innovations of restaurant franchise systems are approximated by the systems' trademark registrations, whose data are obtained from U.S. Patent and Trademark Office. By incorporating the trademark data, this dissertation finds that the design of governance mechanisms is related to the number of innovations being developed by a restaurant franchise system. In particular, contract terms such as royalty rate, franchisees' specific investment, and franchisees' input purchase requirement are positively related to the number of innovation. As for organizational arrangement, the empirical finding suggests that the franchisor needs to be careful about the bargaining power of multi-unit franchisees. While having more multi-unit franchisees, instead of single-unit franchisees, may enable the franchise system to develop more innovations, the franchisor may need maintaining sufficient number of company-owned outlets in order to appropriate reasonable economic return from the innovation.

The empirical findings are in line with the mainstream theoretical literature which focus on achieving system standardization as the main strategic objective.

Despite its importance, this dissertation finds it may not be easy to adjust one of the important governance mechanisms, franchise contract, to keep up with the transaction attributes change of the franchise system. Ideally, franchise contracts should be updated in order to better align the franchisor's and franchisees' efforts in their collaboration. However, there are adjustment costs for the franchise systems to make such necessary changes (Argyres & Liebeskind, 1999; Nickerson & Silverman, 2004; Williamson, 1996). For example, the empirical results suggest incremental innovation may not drive the franchise system to adjust the inappropriate contract as effectively as a drastic increase in innovation. Moreover, franchisees' psychological contracts with existing franchisor is also found to be a constraint for contract adjustment. In order to stay away from the high costs of persuading existing franchisees to switch to new contract terms, franchisors typically only apply the new contract terms to new franchisees. Incorporating this common practice, the empirical findings show that new franchisees' social comparison costs (Nickerson & Zenger, 2008), which arise when the new franchisees compare themselves under the new contract terms to the franchisees who joined the system in the recent past under the old contract terms, reduce the likelihood of changing the franchise contract.

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CHAPTER 1. INNOVATIONS IN FRANCHISE RESTAURANT SYSTEMS

1.1. Introduction

According to the International Franchise Association's 2016 annual report, business format franchise businesses account for around 3 percent of U.S. GDP, or around $521 billion. Franchise businesses also provide 8.8 million jobs in the U.S. Quick service and full service restaurant accounted for around 39 percent of all GDP produced in business format franchises, or around 1 percent of U.S. GDP (International Franchise Association, 2016). In 2015, the overall market size of quick service and full service restaurants was $544 billion (U.S. Census Bureau, 2017). Within this market, franchised quick service and full service restaurants together account for 52% of the market, by generating around $285 billion sales. Franchised quick service and full service restaurants also hired around 4.4 million employees. Restaurant franchise systems thus are critical players in the U.S. economy. The sustainability and growth of restaurant franchise systems has its importance for the U.S. economy too. Given its economic significance, many academic studies have been devoted to exploring factors that affect franchising businesses' growth (Combs & Ketchen, 2003; Kosová, & Lafontaine, 2010; Lafontaine & Shaw, 1998; Sen, 1998; Shane, 1998, 2001). Building on previous research studies, this dissertation explores an element that is critical to the development of franchise systems: innovation. Through investigating restaurant franchise system's innovation, this dissertation seeks to explain how a franchise system's governance arrangements, such as contract design and outlet ownership assignment, affect its innovation outcomes. Chapter 2 of the dissertation finds that the design of franchise contract and the assignment of outlet ownerships to the franchisor or franchisees will affect a restaurant franchise system's product or service innovation frequency. Following the findings in chapter 2 that sheds lights on the importance of governance within a franchise system,

chapter 3 considers the drivers and constraints of making necessary changes to one of the governance mechanisms, the franchise contract. Based on transaction cost economics, chapter 3 identifies the sources of adjustment costs that lead to the *irremediableness* (Williamson, 1996) of franchise contracts. The adjustment costs make it more difficult for franchise systems to adapt to a better governance design to provide effective incentives for the franchisor and franchisees to generate more innovation.

In a franchise restaurant system, the chain's brand name is a key driver to the system's competitive advantage (Porter, 1985), as the brand name can provide a positive signal to consumers of consistent quality and a reputation for service (Caves & Murphy, 1976). Oftentimes, consumers visit a restaurant system's outlet because they know the products and services offered by the chain and trust the quality promised by the chain brand (Michael, 2000a; Norton, 1988b). In the competitive restaurant market, restaurant chains also need to introduce consistently new products or services to attract continually consumers to visit or revisit their restaurant outlets. Therefore, promoting the chain brand, increasing the brand's recognition, developing popular products, updating product offerings along with customers' dietary preference, and maintaining the chain's quality consistency become critical activities for a franchise system seeking to create and sustain superior economic performance.

The first chapter of this dissertation details how a franchisor and their franchisees collaborate with each other to develop the system's brand through introducing new products and services. Despite the fact that the franchisor usually stands at the center of innovative product or service development process, innovation development and implementation cannot be completed without the franchisees' participation. In order to introduce new products to the market, the franchisor needs to devote effort to the development of the product and the franchisees need to

devote efforts to the implementation of the product in their outlets. When either the franchisor or franchisees fail to put sufficient effort into the collaboration, introducing product or service innovations becomes difficult for the franchise system. However, the franchisor and franchisees may not always devote sufficient effort into introducing innovations within the system. The second chapter maintains that the design of the franchise contract and the allocation of outlet ownerships may have significant effects on providing franchisor and franchisees incentives and capabilities to the development of new product or service innovations in the franchise system. Based on the findings in the second chapter, the third chapter explores the irremediableness of the franchise contract, which will make it less adaptive to transaction attribute changes, and consequently cannot effectively guide the franchisor's and franchisees' innovation incentives (Coase, 1937; Nickerson & Silverman, 2003; Williamson, 1996). Prior to exploring how the design of incentives and the development of capabilities affect a franchise system's innovation development and introduction in chapter 2, chapter 1 considers how product and service innovation development in a franchise system relates to the value of the chain brand. Then I introduce the innovation development process, highlighting the franchisor's and franchisees' roles, and show how their separate efforts are both required for successful innovation.

In order to appropriate the economic returns from the innovation outputs, the franchise system will register trademarks for the new products or services. Trademark law in the United States builds upon the use of the trademark rather than the registration of the trademark. Under the spirit of use, the actual use of a trademark is essential to obtain the right of foreclosing others from using the trademark. Indeed, registration is not necessary to secure the right of usage or ownership for the developing franchise system. The third section of Chapter 1, therefore, will address why restaurant franchise systems tend to register trademarks for product and service

innovations with USPTO even though registration is not necessary to secure the trademark right. Further, I explain how the spirit of use characteristics of U.S. trademark law enables this dissertation to use trademark registration to approximate the actual product or service innovation development properly, and to show the limitations of using a trademark as a proxy of innovation in restaurant systems.

To provide a foundation for chapters 2 and 3 of this dissertation, the first chapter provides an overview of the innovation development process in franchise restaurant systems. Chapter 1 is structured in the following way. The next section describes how innovation development relates to the value of the chain brand. Then I introduce the innovation development process, highlighting the franchisor's and franchisees' roles, and provide details on how each of their efforts is required for successful innovation development and introduction. The last section explores how the franchisor uses trademark registration to protect the rights of appropriating economic rent from the innovation, and why trademark registration can be used as a proxy of the restaurant chain's product and service innovation.

1.2. Chain Brand Development and Product and Service Innovation

1.2.1. Development of a franchise system's brand name

A franchise chain's brand name is at the center of legal and economic perspectives of franchise relationships. According to the US Department of Commerce, "franchising is a method of doing business by which a franchisee is granted the right to engage in offering, selling, or distributing goods or services under a marketing format which is designed by the franchisor. The franchisor permits the franchisee to use the franchisor's trademark, name, and advertising" (Kostecka, 1987, p.2). That is, the chain's brand name is at the center of the legal definition of franchise relationships. The chain's brand name is also at the center of the franchisor's and the

franchisees' economic rents. In a franchise relationship, the franchisor receives economic rents from offering the franchisees the rights of using the chain's brand name in their local outlets. To consumers, the chain's brand name transmits certain product quality information, which enables consumers to make purchase decisions more easily (Caves & Murphy, 1976). Oftentimes, consumers visit a restaurant system's outlet because they recognize the chain's brand name, and trust the product and service quality associated with the chain brand. As the consumers choose to purchase from a local outlet because of their recognition of the product quality associated with the chain's brand name, the franchisees benefit from using the chain's brand name in their outlets. That is, the economic rents that local franchisees can receive from their own outlets are highly associated with the chain's brand name. Consequently, the franchisees are willing to pay fees to the franchisor in exchange for using the chain's brand name in their outlets.

Given its economic significance, the maintenance and development of the chain's brand name is at the center of franchise relationships. Maintaining and developing a chain's brand name, however, is not easy in franchise systems. It requires the cooperative efforts from both the franchisor and franchisees not only to sustain the consistency of the chain brand across outlets but also for updating the brand image to keep up with changing consumer preferences and emerging diet trends.

The cooperative efforts needed from the franchisor and franchisees in the system are detailed in Figure 1-1. The franchisor is usually responsible for developing a set of products and services accompanied with a standard quality level, so that the product set and quality level can be used to develop consumers' positive association with the chain brand name. Franchisees need to implement the standard product set and quality level in their local outlets to create consistent store visit experiences for customers. Franchisees' outlets then are inspected by the franchisor. If

some outlet's quality is below the standard quality level established by the franchisor, the franchisor will need to enforce the standard and have the franchisees or outlet managers improve the quality to meet the standard. Facing evolving consumer preferences and diet trend changes, the franchisor and franchisees both need to update the chain brand name's image so that the value of the chain brand name can be sustained or enhanced. Updating the chain brand name is usually realized by offering new products or services that cater to changing preferences, while the product or service innovations remain consistent with the existing chain brand name.

Nevertheless, either the franchisor or the franchisees may have incentives to shirk on devoting cooperative efforts into maintaining the consistency of the chain brand name, a phenomenon referred to as the double moral hazard problem in agency theory (Bhattacharyya & Lafontaine, 1995). Franchisees owning the local outlets may shirk on devoting efforts into maintaining their outlet's quality or consistency: they may be able to take advantage of the chain brand and make more profits by putting less effort into maintaining the outlet's product or service quality level. Alternatively, the franchisees may want to offer some products that are particularly popular in the local market but are not on the chain's standard menu, which may confuse consumers when they visit different outlets under the same chain brand (Bradach, 1998). As consumers who get inconsistent product or service find it difficult to associate the chain's brand name with a consistent quality image, the value of the chain brand is decreased. Hence, in order to ensure that the consumers obtain consistent experiences when visiting different outlets, the franchisor is usually responsible for conducting regular outlet inspections and requesting the franchisee to make necessary changes concerning the inconsistency. However, the franchisor may not be devoting sufficient efforts into maintaining the standard after collecting the franchise fees from the franchisees, which is a moral hazard problem found by Rubin (1978).

In order to sustain a franchise restaurant system's competitive advantage in dynamic markets and changing consumer tastes, a franchise system may find it necessary to update continually the chain's brand image through introducing new products or services (Kaufmann & Dant, 1999). The franchise system can use the new products in commercials to communicate with customers and invite their visit or revisit. As consumption trends change, restaurant chains develop new products that appeal to the consumers so that they will keep visiting the local outlets. For example, under the current healthy food trend, many fast food chains have added salad items onto the menu, and they use these salads in commercials to shift consumers' perception of unhealthy fast food to healthy greens. For example, in March 2013, Wendy's announced that it would roll out two new entree salads and would add extra veggies to its side salads (Horvitz, 2013b). Later that year, McDonald's also announced it would offer healthy options as part of its popular value meals, letting customers choose a side salad, fruit or vegetables, which are regarded as healthy options, instead of French fries, which is regarded as unhealthy under then current healthy diet trends (Strom, 2013). Furthermore, the marketing activities associated with the product and service innovations often play an important role to adjust consumers' perceptions of the chain brand. For example, given the growing awareness of consumers' interests in healthier foods, McDonald's replaced the sides of the Happy Meal with salads, fruits, and vegetables. In a commercial concerning the new Happy Meal, consumers saw a natural farmland, fresh fruits and vegetables, and cows with McDonald's brand (McDonald's, 2012). By associating the new Happy Meal with a natural farmland, McDonald's intended to build its healthy image, attempting to change the old, unhealthy image that is less appealing to these health-conscious consumers. Under the healthy trend, another leading fast food chain, KFC

also choose to move from spelling out its name “Kentucky Fried Chicken” to using its initials KFC so that consumers may not easily associate the brand with unhealthy fried food.

Introducing product and service innovations in a franchise system requires cooperation between the franchisor and franchisees. The process of product or service innovation development in a franchise system and the efforts required from the franchisor and franchisees are presented in Figure 1-2 (Ottenbacher & Harrington, 2009). Like any other innovations, a new product in a restaurant franchise system also starts from ideas, and then goes through a series of prototypes development, market tests, prototypes improvements, and evaluations to assess the potential economic returns (Michael & Robert, 2009). The process, like any other innovation, requires multiple iterations from prototype development, market test, prototype improvement, then another market test, then another prototype improvement, and then another market test. Finally, an innovative prototype will be rolled out to the market if results of market tests show promising economic returns; and if not, the prototype will be dropped. In addition, like any other innovations, the process requires intensive collaboration not only among the franchisor’s internal R&D, marketing, and operation departments but also between the franchisor’s internal departments and the franchisees (Andrus, 2016). The following sections present a typical division of labor between the franchisor and franchisees for innovation development in franchise systems.

1.2.2. Franchisor’s development efforts on innovation

Similar to maintaining the chain brand name, the franchisor of a franchise restaurant system typically stands at the center of innovation development, whether the new ideas come from a franchisee or from the franchisor. If the new idea originated from the franchisor, it will then be developed into prototypes for further assessment. The prototypes of a new product in a

restaurant system need to be tested multiple times and in various geographic markets. According to the feedback from market test results, the prototypes will be improved so that the new product can be offered in outlets facing various local preferences. Next, the franchisor also needs to come up with an operational plan for the franchisees to offer the new product or service in their outlets. Such a plan usually includes finding material suppliers that can supply to the whole system and designing a preparation procedure that is feasible for most outlets' kitchens. Sometimes the operational plan will include the installation of new equipment. For example, in Taco Bell's innovation lab, the test kitchen is a reproduction of a typical Taco Bell restaurant kitchen, and the innovation development team uses the kitchen to experiment whether a typical kitchen can produce the new product in a consistent manner (Andrus, 2016). Further, if the latest market tests are promising and the test kitchen in the lab seems work fine, the development team will run on-site operational tests in several restaurant outlets, and then improve the operational procedures or the product according to the test results. The operational tests will then iterate for a few times to make sure the product can be prepared consistently in every restaurant outlet. For example, Liz Matthews, chief food and beverage innovation officer at Taco Bell said, "We have 7,200 stores. What we don't want to do is throw something out there and cause chaos, because that's a lot of chaos" (Andrus, 2016). Finally, if the market tests results are positive and the operational tests show no chaos, the franchisor will determine the rollout scale. For example, the franchisor may decide the innovation will only be offered in some regional markets, or will be offered in the whole U.S. market.

Although developing new food items or service seems relatively easy compared to traditional technology innovation, there are plenty of challenges in the development process. The amount of investment in the development process and the risks can be quite high to the franchise

system. For example, Yum! Brand invested $30 million in research and development every year from 2013 to 2015 (Yum! Brands, 2015). Many restaurant chains say it is very rare for a product to make it past the testing stage (Passy, 2015). While most of restaurant chains are looking for innovations like the Egg McMuffin, which has been popular to consumers since its introduction in 1972, most of times restaurant chains get innovative products like short-lived Pastrami Burger, a burger introduced by Back Yard Burgers chain and survived only eight weeks after its launch (Passy, 2015). The story of McCafe in the United States sheds some more light on the challenges of developing new offerings. McCafe is an innovation originally developed by a successful franchisee in Australia. The McCafe innovation was brought back to the United States in 1993, a few years after its proven success in Australia. The original McCafe concept consisted of an independent trendy coffee shop offered by a quality fast food chain. However, the idea of independent McDonald's coffee shops did not work in the United States. The first independent McCafe shop was closed one year after its opening in 2001 (Horovitz, 2001). After the first trial, McDonald's kept trying different concepts and product mixes until they found an effective way of offering McCafe in the United States. After years of experiments, McDonald's finally found that the U.S. market welcomes McCafe as a line of espresso-based coffee drinks integrated in the McDonald's store rather than as independent trendy coffee shops. Sixteen years after the McCafe concept was brought back from Australia, McCafe was formally rolled out to the outlets in the United States in 2009 (Cooper, 2009).

Moreover, the innovation development process also requires intensive coordination among the franchisor's R&D, marketing, and operational departments, "involving everyone from food scientists and chefs to microbiologists and managers, as well as conversations with consumers and employees" (Andrus, 2016). In particular, a successful food innovation does not

rely on its novelty but instead on its familiarity to consumers' diet preference. For example, Melissa Friebe, vice president of Taco Bell's innovation lab, believed that Doritos Locos Tacos could be so popular because the elements of Doritos Locos Tacos reflect the flavors consumers have craved and have gotten used to, rather than being novel flavors to the consumers. Friebe told the journalist, "(y)ou can think that Doritos Locos Tacos is a novelty item, but based on how many we have sold and how much our consumers love them, they're not novelty" (Andrus, 2016). In order to understand what and how consumers like to eat, for example, Taco Bell's marketing team must use software to "monitor" the consumers' discussions on social media and feed the information to the innovation development team. Then the innovation development team can listen to consumers constantly and develop new products according to consumers' latest wants. That is, although innovating a new food item seems not as challenging as generating a technology breakthrough, developing an innovative food item may need the same amount of coordination, if not more, than developing an innovative technology. For example, a simple Doritos Locos Taco "took 30 iterations, six production lines, and a lot of negative feedback from consumer test groups to perfect" (Andrus, 2016). Although most of the coordination efforts are needed within the franchisor's internal department, some of the necessary coordination efforts occur between the franchisor and franchisees. For example, if the franchisor does not own and run many outlets, the franchisor may need to ask some of the franchisees to run operational tests in the innovation development process. The challenges of franchisor-franchisees coordination consequently will make an impact on how long it takes the franchisor to complete the development process of an innovation. Chapter 2 will incorporate these franchisor-franchisees coordination challenges into discussing the factors that facilitate the innovation development and introduction in a franchise system.

1.2.3. Franchisees' implementation efforts on innovation

Although franchisees' roles in the development process seem lighter, when compared to the franchisor's roles, the importance of franchisees' efforts is no less than the franchisor's. As presented in Figure 1-2, it is common that franchisees participate in four activities of the innovation development process: idea generation, market tests, operational tests, and final rollout. Among the four activities, franchisees may choose whether to participate in three of them, idea generation, market tests and operational tests or not. However, all franchisees are expected to participate in the final rollout as which is critical for the franchise system to appropriate the economic return from the innovations.

Franchisees often are good sources of good innovative ideas. Many popular new product ideas have originated with franchisees. For example, Lou Groen, who was a McDonald's franchise owner in Cincinnati Ohio (Clark, 2007), invented McDonald's Filet-O-Fish in 1962. When the initial idea comes from a franchisee, the franchisor will step into the development process and start to develop prototypes for a market test. The franchisees may be invited to participate in the market tests or operational tests to enable specific market coverage or trials within specific store configurations. In these activities, franchisees' participation can be optional: the franchisor can generate ideas internally, and use company-owned outlets to conduct market tests and operational tests. However, once a new product or service is ready to roll out, franchisees' participation becomes necessary at the last stage of the innovation development.

When the innovation is ready to roll out, the franchisees' implementation of the new product or service into their outlets is essential for the franchise system. Without franchisees implementing the innovation in their outlets, the new product or service cannot extensively reach the consumers, or bring economic returns to the franchise systems. That is, the franchisor cannot

appropriate the economic return from the investment in the innovation. Furthermore, when consumers visit an outlet and do not find out the latest products or services offered, it may leave them an impression that the chain falls short of its commitment on uniform standard. In the long run, the uniformity image of the chain brand may be blemished, reducing the brand value. Therefore, franchisees' implementation efforts are necessary for the completion of the innovation.

Given the importance of franchisees' implementation, almost every franchise contract requires the franchisees to adopt standard products and services that are offered in the franchise system. Some franchise contracts specifically indicate that franchisor has the right to adjust the product portfolio and that the standard product offering requirement includes the new products. For example, Jimmy John's requires its franchisees to "offer and sell all Menu Items and perform all services we periodically require for Jimmy John's® Restaurants…We periodically may change required and/or authorized Menu Items, Trade Secret Food Products, Branded Products, and Permitted Brands. There are no limits on our right to do so" (Jimmy John's, 2012: 51). Similarly, Big Boy requires the franchisees to "sell the products and services Big Boy requires. Big Boy can change the products and services that you must offer without limitation" (Big Boy, 2012: 44). A few franchisors in the current sample even specify the financial punishments for franchisees that fail to offer the standard product-offering, although majority of the franchisors do not specify the exact penalty imposed for violation.

However, not all franchisors include new products in the standard product offering term. For example, All American® does not include new products in Item 12 of their Franchise Disclosure Document. There are also a limited number of franchisors laying out the specific monetary punishments for violating the standard product clause. Franchisors that do not include specific consequence terms can use their right of unilateral termination to guide the franchisees'

adoptions of standard products. That is, if a franchisee does not implement the new product or service in the store, the franchisor can treat it as a violation of franchise contract's standard product offering and terminate the franchisee's outlet accordingly.

Despite this ostensibly binding contract, in the actual franchise relationships, franchisees usually have some leeway concerning the degree to which they follow the franchisor's new proposals. Particularly, there are often stages of rollout and the franchisees can choose when they adopt the new proposals in their outlets. For example, the recent updates of McCafe were first implemented in some chosen franchisees' outlets located in downtown Chicago. Franchisors are typically aware of the franchisees' concern on how popular exactly can a new product or service be. One of the best ways to lessen such a concern is to demonstrate how the innovative product or service successfully increases the sales of other fellow franchisees' outlets (Bradach, 1998). However, the practice may make it difficult for the franchisor to appropriate the economic return from the innovation. If only few franchisees play as early adopters of the innovation, it may take a while to spread out the successful experience to other franchisees and influence their implementation decisions. Consequently, it may take longer for the franchisor to receive the economic return and then re-invest into subsequent innovation development. Therefore, in the long run, a franchise system whose franchisees are typically more reluctant to implement innovative products or services will generate fewer innovations than a franchise system with more voluntary franchisee implementation.

Franchisees expecting low or negative economic returns from offering the new product or service in their outlets may not be willing to invest in implementing the innovation in their outlets. There are some typical sources for franchisees' resistance to implementing the product or service innovation in their outlets voluntarily. Some franchisees that put personal wealth into the

franchised opportunity may be more risk averse, and more reluctant to adopt an innovative product whose economic return is uncertain (Agrawal & Seshadri, 2000; Gan, Sethi, & Yan, 2005). When the franchisor decides to roll out a new product, the franchisor believes the product can bring in positive economic returns for the whole system or the chosen geographic area. However, it is not uncommon that some geographical market does not favor the innovative product. For example, "when McDonald's rolled out Mighty Wings (its version of Buffalo wings) starting in 2013, it found some markets responded favorably, but other just didn't bite" (Passy, 2015). As consumers' preferences may vary, each franchisee's expected sales increase from offering the new product is likely to vary too. The risk-averse franchisees then may under-supply their implementing effort to the franchise system (Agrawal & Seshadri, 2000).

Franchisees need to estimate not only how popular the innovative product can be in their local markets but also how much it is going to cost to provide the product in the outlet. Franchisees may have doubts on how economically attractive an innovative product or service can be to their local market. Furthermore, implementation of innovations often brings in costs. Some innovation requires the franchisees to incur additional investments in equipment or employee training. For example, McDonald's franchises needed to expend around eighty to one hundred thousand dollars to purchase the McCafe machines for each of their outlets to implement the McCafe innovation (Cooper, 2009). Other innovation may change the operation routine in the kitchen, making it very difficult to estimate the actual costs. For example, when Subway introduced a crispy chicken sandwich that required heating the meat in a different way, franchisees found it too troublesome to deal with (Passy, 2015). Because franchisees are independent owners of their outlets, the franchisor cannot make it mandatory for the franchisees to "follow the order" as in the case in which the managers are hired by the franchisor to oversee

company-owned stores. Instead, the franchisor needs to "sell" the innovation to the franchisees, or to convince the franchisees to implement the innovation in their outlets (Bradach, 1998; Yin & Zajac, 2004).

In order to obtain more franchisees' immediate voluntary adoptions of the new product, the franchisor may need to send out franchise managers to introduce the new product, explain the economic potential and spending, and then convince the franchisees to offer the new product in their outlets. The sooner the franchisees can adopt the innovative products or services in their outlets, the more quickly the franchisor can move on to develop next innovation. The more extensive the innovative products or service can spread to the market, the more economic return the franchisor can collect and use for next innovation development. Therefore, the franchisor often devotes resources to obtain the franchisees' prompt voluntary implementation.

1.3. Trademark Registration and Innovations

1.3.1. Trademark registration for the franchise restaurant system's innovations

In a service business like the restaurant business, trademarks are a feasible option to protect the franchisor's investment in innovations (Mendonça, Pereira, & Godinho, 2004). Given the nature of food products and services, restaurant systems may find it more difficult to protect their intellectual property through patents or copyrights[1] (Hipp & Grupp, 2005). According to my interview with industry experts, it is common for restaurant systems to use trademarks to protect their investment in product and service innovations. Further, in order to communicate with consumers, franchise restaurant systems usually give their product or service innovation a

[1] If the innovative new products require unique and technically-advanced equipment to prepare, the franchise restaurant system may be able to protect their intellectual property of the innovation by patent. However, such kind of innovation may be much less frequent than the innovation being protected by trademarks, underestimating the occurrence of innovation in restaurant industry.

name or trademark to reduce such communication costs (Landes & Posner, 1987). Moreover, franchise chains may want to use new product or service information to send out signals to their competitors. To secure the franchisor's right of applying the name and trademarks on the innovative products or services, franchisors of restaurant systems will register the trademarks or names associated with the innovation with the USPTO. For example, McDonald's registered its McCafe trademark with the USPTO and used this trademark on their innovative McCafe products. Jimmy Johns, a sandwich restaurant franchised system, registered the trademark "freaky fast delivery" with the USPTO for their new delivery service, and put "freaky fast delivery" on promotional flyers and delivery automobiles.

Even though formal registration is not necessary to secure the right of using the trademark under U.S. trademark law, trademark registration is particularly critical to secure the franchisors' economic returns in two ways. First, registration dramatically reduces potential litigation costs. Without registration, the franchisor must collect evidence to prove that the franchisor had been using the trademark prior to an imitator's use of any similar marks. In contrast, with the franchisor's registration, the imitator must provide evidence to show that the imitator started using the trademark prior to the franchisor's registration date and is still using the trademark when filing the lawsuit (Terry & Forrest, 2007).

Second, trademark registrations secure the franchisor's rights to use the trademark nationwide so that the franchisor does not need to acquire the nationwide usage right from the legal owner of the trademark. Because a restaurant system usually experiments with innovation prototypes in a few geographical markets, such limited geographical experiments leave many economic rents to individuals who have some knowledge about trademark laws. According to U.S. trademark law, the first registered trademark owner obtains the right of using the trademark

in the national markets. In contrast, the first trademark user who has not registered the trademark, i.e., the franchisor, can only continue to use the trademark associated with a product or service in the geographic markets where the trademark has been used on the product (Terry & Forrest, 2007). That is, if the franchisor does not register the trademark, instead, any individual or company can file a registration for a similar trademark and use the trademark on a similar product or service nationwide. This way, the first trademark registrant can block the franchisor from using the original similar trademark outside of the geographic markets where the innovation prototypes were tested. If the franchisor wants to continue using the similar trademark, the franchisor must acquire the trademark registration from the registrant. Alternatively, the franchisor must spend extra resources finding another name or trademark for the innovation when the new product or service is ready to roll out to the national market. Either way, the franchisor needs to pay extra costs in order to roll out the innovation if the franchisor fails to register the trademark prior to a competitor. The two economic benefits provide franchisors incentives to register the trademarks for the innovation.

Compared to the benefits of trademark registration, registration expenses are minimal: registration fees range from $275 to $375 per class of goods or services, plus additional attorney fees between $300 and $1,000. Aside from the low costs, all franchise systems also acquire the knowledge of how to register a trademark because they are required to register a trademark before they can offer franchise opportunities to potential franchisees. Legally, the franchise relationship builds on the franchisor's agreement that gives the franchisee the right to use the franchisor's trademark in the outlets owned by the franchisee. Therefore, franchise restaurant systems have both economic incentives and capabilities to register trademarks for their product and service innovations.

1.3.2. Use trademark registration to approximate innovations

In chapters 2 and 3, I use trademark registration records to approximate the product and service innovation development in a restaurant franchise chain. The franchisor has economic incentives and capabilities to file trademark registrations for product or service innovation with the USPTO. Given that few research studies use trademarks to approximate innovations, some may be concerned whether trademark registration can approximate actual innovation behaviors properly. In this section, I address some prevalent concerns and explain why, in the context of franchise restaurant system in the US, trademark registration can properly, though not perfectly, approximate the occurrence of innovations.

Some may be concerned that franchisors register trademarks in the spirit of "patent wars" (Somaya, 2003). That is, a franchisor will register trademarks to prohibit competitors' use of similar trademarks even when the franchisor does not develop corresponding products or services along with the trademark. If trademark registrations in the spirit of "patent wars" are not unusual, then trademark registration data will overestimate the actual number of product or service innovations in restaurant franchise systems. Nevertheless, such "patent war" trademark registrations are limited under the U.S. trademark law, whose spirit values the actual use of trademarks. Prior to 1989, the USPTO only allowed trademark applications to be filed based on the basis of actual use in commerce. That is, an applicant could not obtain the registration without providing evidence of the actual use of the trademark in business. After the enactment of The Trademark Law Revision Act of 1988 on November 1989, the USPTO accepts trademark applications on two bases: use-in-commerce or intent-to-use (Carter, 1990).

Thus, after the change in the law, a competitor can easily file registration of a trademark based on intent-to-use rather than the actual use of the mark on a product or service. However,

when the intent-to-use application was added, the USPTO's verification process continued to follow the spirit of actual use and sets significant requirements to verify the intention of the applicant. For example, the Trademark Trial and Appeal Board (TTAB), the judicial arm of the UPSTO, can request the applicant provide written business plans and other supplementary documents e.g., evidence of research and development, results of market tests or spending, to show that the trademark is scheduled to be used in commerce rather than just on paper (Matheson, 2009). After the USPTO grants approvals to the intent-to-use application, the applicant must submit the evidence of actual use within twenty-four months of the approval. To show a trademark's use in commerce, the applicant must submit written documents to the USPTO with the use of its trademark on every product or service covered by the application, along with specimens such as actual product labels and product packaging materials for each covered class. If the applicant fails to submit the evidence of actual use within the timeline, the trademark registration will be abandoned.

Finally, after the 1989 trademark law change, the examination of actual use became stricter than it was before. A trademark registrant must file with the USPTO after the fifth year of the registration an affidavit that the trademark is in use in U.S. commerce, or the registration will be cancelled automatically. Evidence of use must also be filed every ten years for the renewal of the registration. A trademark that fails to be used on a product or service by the registrant after registration may be considered to be "abandoned," which results in complete forfeiture of the owner's rights in the trademark (Barritt, 2009). Therefore, as the USTPO follows the spirit of use to examine the application and maintenance of trademark registration, records of trademark registration can credibly approximate the actual produce or service.

While trademarks may be a reliable measure for franchise restaurant system's innovations, the number of registered trademarks does include innovations that are not successfully rolled out to the market. In order to obtain the legal protection of trademark's nationwide usage, franchisors tend to register trademarks at the market test stage. Therefore, some trademarks may represent innovations that do not go through the whole development process, and are not rolled out to market. In the current research, the fact that trademark registration may overestimate the number of innovations being rolled out to market may make it more difficult to examine empirically how the franchisees' implementation effort affects the collaborative innovation. Future research may use data regarding how long the trademarks are maintained in U.S. PTO to reduce the overestimation. For example, if a trademark is not renewed, it probably signaled that the innovation has not been successfully rolled out to the market.

Trademark registrations may possibly suffer from an under-representation problem, particularly for smaller franchise systems. The smaller restaurant chains may find that the costs of creating a unique trademark and putting the trademark into promotional materials are prohibitively high. Unlike the conventional economic premise that the set of available trademarks is virtually infinite and costless, hiring a professional agency to create a unique name or trademark consumers can quickly associate with the chain brand name usually requires specialized marketing knowledge, and a unique trademark is costly to obtain (Carter, 1990). For restaurant chains that remain regional, the costs of creating a name or trademark and registration may not be justifiable as the chain owner does not intend to expand to a national market, and hence does not value the national protection of the registration. Smaller restaurant chains may find it adequate to use generic names or trademarks for their new products and supplement with pictures or descriptions to communicate with the consumers. That is, smaller franchise systems

may tend not to file trademark registration for their innovations even when they develop a new product or service. Although the concern is reasonable, the underestimation problem is not as severe. Multiple empirical studies (e.g., Combs & Ketchen, 1999; Shane, 1996) have provided evidence that franchising enables the franchisor to expand the system to national markets at lower financial and managerial costs. Then it is reasonable to assume that for the restaurant systems that choose to adopt franchising rather than remain a wholly owned chain structure, the franchisor, or the original restaurant chain owner has the intention to expand the restaurant chain to a greater geographical market. Hence, it is reasonable to assume that the small franchise systems in the current sample are not like other small wholly owned restaurant chains on how much they value trademark registration. The small franchise systems, despite having only a limited number of restaurant outlets, may actively promote their products through various advertising materials in several markets in anticipation of using the same trademark through broad market expansion. The small franchise restaurant system in the current sample then values the national protection granted by trademark registration as much as the larger systems. Therefore, trademark registration can properly approximate the product and service innovations in the restaurant franchise system under the U.S. trademark law.

1.4. Conclusion

As product and service innovations are critical for the development of the chain brand in market dynamics, innovations require the franchisor's efforts of prototype development, market tests, and operational tests, as well as the franchisees' efforts of implementation. However, a franchisee and the franchisor may each have incentives not to put sufficient efforts into introducing new product or service, resulting in the low frequency of innovation in the franchise restaurant system. The next chapter explores the governance mechanisms and organizational

arrangements that provide the franchisor and franchisees with incentives to devote effort into introducing innovations in the franchise system. In this dissertation, a franchise restaurant system's product and service innovation is proxied by the systems' trademark registration at the USTPO. The U.S. trademark law, whose spirit values the actual use of the trademark on products or services, makes registration records reliable estimates for franchise restaurant systems' innovation. The empirics enable this dissertation to test some critical theoretical hypotheses that are seldom examined empirically.

Furthermore, as the development and introduction of innovations usually require intensive coordination efforts, the governance mechanisms that can facilitate such coordination intensity are critical to franchise systems' long-term growth. However, maintaining such adaptive governance mechanisms may be very difficult for franchise systems. Chapter 3 explores frictions that make changing franchise contract, one of the governance tools that are key to facilitating the franchisor's and franchisees' collaboration, more difficult. When the market or transaction attribute varies, the governance tools are expected to change in order to re-align better the franchisor and franchisees' incentives. However, the irremediableness of the franchise contract will make it very difficult to re-align the franchisor's and franchisees' incentives. Exploring the frictions that can lead to the irremediableness of franchise contract then may help the franchisor and franchisees to be prepared for the irremediableness of contract and consider some alternative governance tools that can effectively re-align the franchisor's and franchisees' incentives in collaboration.

At the end of chapter 1, I would like to highlight briefly some of the contributions of the two empirical studies in this dissertation, chapters 2 and 3. For the scholarly contribution, chapter 2 provides evidence to a classical transaction cost economics statement that the design of

governance mechanisms will affect the outputs where coordination among transaction parties is necessary. Despite that this statement has been empirically tested in other contractual settings, as far as I know, this statement has not been tested in franchising business because the coordination outputs such as franchise system's quality consistency or brand equity have been regarded as difficult to observe. By using trademarks to approximate one of the other key coordination outputs, product and service innovations, this dissertation finds evidence to support the conventional transaction cost statement that the design of contract terms and the arrangement of outlet ownership affect a franchise systems' innovation outputs.

Chapter 3, however, explores the challenges of modifying the franchise contracts and contributes to the scholarly literature by proposing two frictions that make contract adaptation difficult for franchise systems. Particularly, two costs -- the franchisor's persuasion costs and the franchisees' social comparison costs (Nickerson & Zenger, 2008) -- oftentimes substitute for each other. When the franchisor wants to avoid persuading the franchisees to shift to the new contract terms voluntarily by applying the new contract terms to only the franchisees who seek contract renewal or the new franchisees, there will be at least two different versions of contract terms. Franchisees who are under different terms may perceive such differences as an unfair treatment from the franchisor. Consequently, the franchisees that perceived unfairness may have higher tendency to take advantage of the franchisor's or the other franchisees' efforts on maintaining the system's quality consistency. Therefore, the franchisors may find out that no matter what have they done, the overall costs of modifying contract terms are always high. Facing the high costs of modification, the franchise system can only change its sub-optimal contract when the benefits of making such changes are even higher, or when the social comparison costs can be virtually removed by replacing a new franchisor to the franchise system.

The managerial implication the two empirical chapters bring to the franchise business practitioners is that the design of governance mechanisms has a great impact on effectively facilitating the franchisor's and franchisees' collaboration. Therefore, when designing the franchise contract or considering whether an outlet should be franchised to a franchisee or be kept as a company-owned outlets managed by the franchisor, the franchisor must consider the contracting problem carefully. If the franchisor has limited experience to set up proper contract terms or make the ownership arrangement decisions, the franchisor should proactively search professional assistance from franchising consultants or franchising attorneys. Particularly in light of the finding in chapter 3 that it is very difficult to change an improper contract as the franchise system is more developed, the initial design of the franchise contract becomes more critical to franchise systems.

1.5. Figures

Figure 1-1: Franchisor's and Franchisees' Efforts on Maintaining the Chain Brand

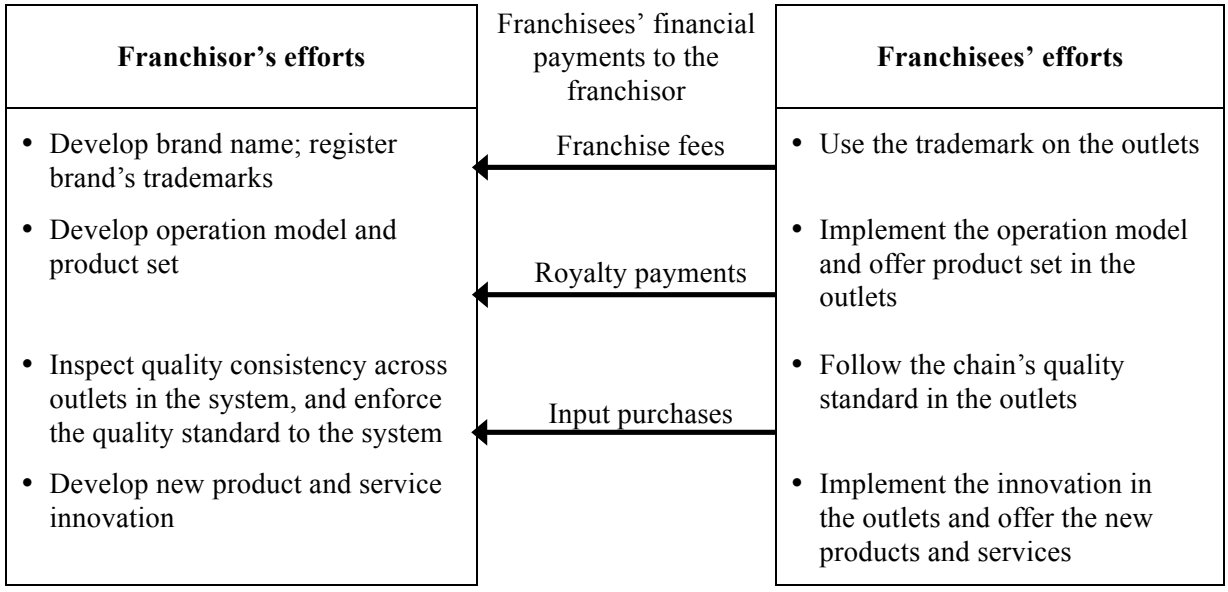
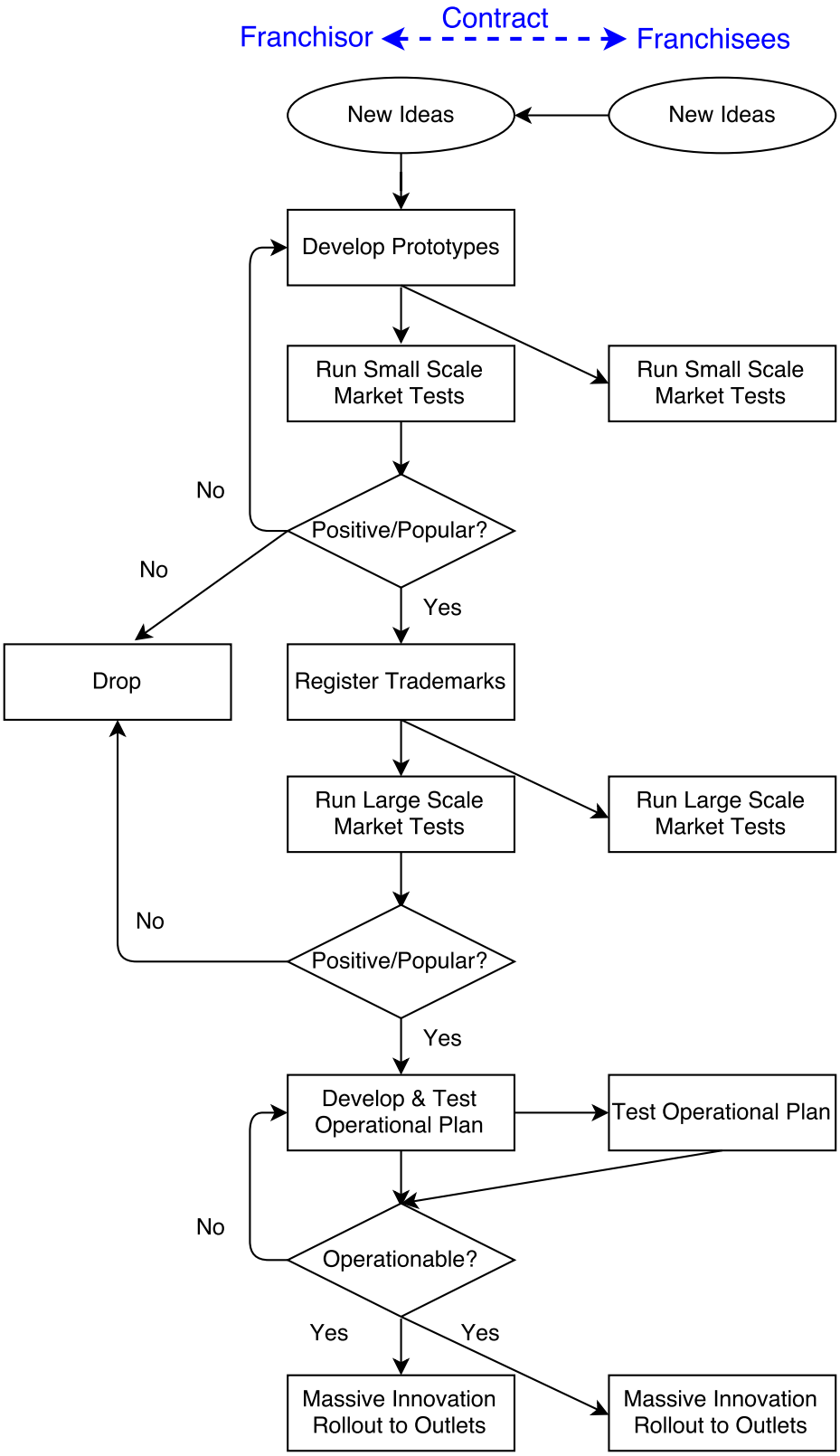


Figure 1-2: Innovative Product or Service Development Process in a Franchise System



CHAPTER 2. HOW DO CONTRACT DESIGNS AND ORGANIZATIONAL ARRANGEMENTS FACILITATE INNOVATIONS IN FRANCHISE RESTAURANT SYSTEMS?

2.1. Introduction

Product and service innovations are critical to create economic value for franchise restaurant systems. A popular new product can renew the chain's brand image, drive business growth, and bring in substantial economic rents. For example, Taco Bell launched Doritos Locos Tacos in 2012. The new taco proved to be overwhelmingly popular, with 350 million taco sales in a year, and enhanced same-outlet sales of eight percent (Horovitz, 2013a). Although innovations are critical for value creation, product and service innovations are not always easily attainable in a franchise restaurant system. In a recent interview, a restaurant marketing specialist revealed that a new product or service usually takes about five years to develop and only five percent of prototypes are implemented through a final rollout.[2]

Bradach's (1998) field study identified innovation as one of the three major growth goals of franchise chains, with the other two being geographical expansion and standardization. While the majority of the extant franchising literature extensively examines how franchise chains structure their contract terms and organizational arrangements to expand into more geographical markets and to maintain consistency in quality across the system (Caves & Murphy, 1976; Lafontaine & Slade, 2007; Rubin, 1978), few research studies delve into how these franchise chain's terms and arrangements influence their frequency of innovation. With a large research literature on how a franchise chains' governance mechanisms can facilitate cooperation among

[2] The interview was conducted on January 10, 2013. The interviewee held a professional position as an account director in a marketing and advertising agency. In the position, she worked with a leading franchise chain for their new product developments for five years.

the franchisor and franchisees (Williamson, 1975, 1985), the current study contributes to the scholarly conversation in the following ways. First, it extends the theoretical predictions on governance mechanisms and outlet ownership arrangement beyond their impact on market growth and quality consistency to consider the impact of these mechanisms on the chain's frequency of innovation. Second, the current study leverages a novel measure, trademark registration, to test empirically several hypotheses that have been raised in the extant literature. The restaurant marketing specialist I interviewed corroborates the advantages of using trademarks to measure a chain's innovations. Under the current United States trademark laws, a trademark cannot be registered without proof that it is, or will be, used on an existing or soon-to-exist product or service. Hence, trademarks can credibly approximate the new products or services being developed by restaurant franchise systems.

The first part of this study explores how the franchisor embeds governance mechanisms within the franchise contract to facilitate innovation. The three contract terms that are examined include royalty rates, franchisees' required specific investment, and franchisees' input purchase requirement. Royalty rates, the specified percentage of outlet sales the franchisees agree to pay to the franchisor, provides the franchisor with incentives to devote effort in innovation development as product and service innovations may increase the chain's brand equity (Bhattacharyya and Lafontaine, 1995). Therefore, higher royalty rates are expected to provide the franchisor with higher incentives to develop innovations (Bhattacharyya and Lafontaine, 1995; Rubin, 1978). Franchisees' required specific investment in the beginning of the franchise relationship and the franchisees' required input purchase from franchisor's designated suppliers bond the franchisees' incentives in deviating from the chain's standard, and may increase the franchisee's incentives for implementing innovations (Klein & Saft, 1985). The empirical results support these

hypotheses in that higher royalty rates, franchisees' specific investment, and required input purchases are found to have positive effects on the franchise system's frequency of innovation.

The second part of this study explores how the arrangement of outlet ownership affects the franchisor's capabilities to innovate and the franchisee's willingness to implement the innovation. I propose that utilization of franchisor company-owned outlets increases the franchise system's frequency of innovation, because the franchisor's product development team can use, and benefit from, internal coordination routines when conducting numerous market tests and required product modifications at company-owned outlets (Williamson, 1996). Furthermore, assigning outlet ownership of new units to existing franchisees, which in turn become multi-unit franchisees, may have a positive or negative effect on the system's innovation. On the one hand, the increased outlets owned by the same franchisee facilitate learning among the outlets (Darr, Argote & Epple, 1995), and thus may increase the franchisee's incentives for implementing the innovation. On the other hand, the increased number of outlets under the control of a single franchisee may increase the multi-unit franchisees' bargaining power relative to the franchisor and negatively affect the franchisor's incentives of developing innovation.

The next section of this study introduces the innovation of franchise restaurant chains and the use of trademarks to protect the economic values obtained from innovation. I then develop theoretical hypotheses on how the franchise chain's contract structure affects the chain's innovation development. The following section develops theoretical hypotheses concerning the outlet's ownership arrangements and the chain's innovation development. The third section presents the data source and empirical models. The fourth section details the results of several empirical tests. The last section considers the theoretical and managerial implications, and limitations.

2.2. Innovations in Restaurant Franchise Systems

At the core of all franchise systems is the trademark, which affects the economic appropriation between the franchisor and franchisees. There are three legal requirements that identify a franchise system: (1) the franchisor grants the right of using the chain's trademark to the franchisee; (2) the franchisor sets standards and offers operational assistance; and (3) there is a financial relationship between the franchisor and its franchisees. All three legal requirements of a franchise system are related to a chain's trademark: (1) the shared use of a chain brand's trademark, like McDonald's or Taco Bell, is critical to the outlets' value to consumers (Caves & Murphy, 1976); (2) the franchisor needs to build the operational procedures for all products and services, whose trademarks are also shared with the franchisees, because the consistent quality of the products or services affects customers' perception of the quality of the chain brand name; and (3) the value of the chain's brand name in the market is a determinant of franchisor's bargaining power in appropriating the economic returns with the franchisees. Thus, for the franchisor registering their trademark with the USPTO to protect their rights to use the trademark in the U.S. market is clearly important.

Developing a new product or service usually takes years of experiments and modifications, and the success rates tend to be low. An expert in the industry I interviewed mentioned that only a few prototypes are selected for system-wide or even regional rollout. The development of McCafe illustrates some of the key challenges of developing and implementing innovation in the restaurant business. McDonald's introduced the first McCafe shop in the United States in 2001. Although McCafe as an independent coffee shop has been well developed in Asian markets in the 1990s, the concept did not initially work well in the U.S. The first U.S. McCafe shop was closed one year after its opening. McDonald's continued to experiment and

finally rolled out the McCafe concept in 2009 in the U.S. In order to offer the McCafe line of products, each McDonald's outlet would require its owner to spend around $1 million on the new equipment (Cooper, 2009).

A restaurant system generally gives new products developed a name so that the consumers, when visiting the outlet, can easily order the product that they saw in company advertisements. To protect their usage of the product name from being appropriated, the restaurant system will file for trademark registration early in the innovation process. For example, McDonald's filed for the first McCafe trademark registration in the United States in June 1998 on the intent-to-use basis, three years before the first McCafe outlet opened in the United States. Although registering a trademark in the USPTO does not protect the new product from being copied by competitors, it does protect the chain's right of using the trademark associated with the new product. When the restaurant system gives its new products or services unique names and extensively promotes the trademarked product name in advertisement, consumers will build consumers' awareness of the differentiated product (Simon and Sullivan, 1993; Yoo, Donthu, and Lee, 2000). Even when competitors imitate the innovation by offering a similar food item, consumers may perceive the imitator product different from, or less valuable than, the original innovation (Aaker, 1996; Keller, 1993). Furthermore, by creating more differentiated products and associating these products with the chain brand name, the chain brand name accumulates more brand equity and becomes more valuable to potential franchisees. Thus, by giving the product or service innovation unique names and registering corresponding trademarks, the franchise system is better able to capture the economic values from the innovation.

Nevertheless, the low cost of trademark registration may raise concerns that a chain registers a trademark for a product that does not exist and is doing so simply in the spirit of

"patent wars" i.e., to enable them to use strategic litigation towards potential competitors (Somaya, 2003). Two factors mitigate this concern. First, trademark law makes clear that a trademark without a corresponding product or service is invalid. That is, the real costs of registering a trademark and maintaining it include the costs of developing and offering a product physically in at least one outlet. Offering a 'unique' product in few outlets rather than all outlets, however, damages the standard brand image of the franchise system. Hence, the costs of registering a trademark without offering a new product or service extensively are high to the franchise systems. Second, a franchisor may prefer not to use (and register) a trademark that will be used by its competitors. For example, Wendy's may prefer avoiding "Mc" on their products' names, so that consumers will not be confused with the system's brand with McDonald's. Thus, the number of trademark registrations may not far exceed the number of actual innovations. However, the number of trademark registrations might underestimate actual innovations because a franchise chain that does not rely much on product differentiation and national advertising campaigns may have lower incentives to give the new product or service a name and to register the trademark. It should be noted, however, that this potential measurement problem would bias us against finding significant empirical results.

2.3. The Structure of Franchise Contract

A franchise contract establishes the franchisor and franchisee relationship. Franchise contracts are standardized: the franchisor generally uses one contract with all franchisees in the same period of time (Lafontaine, 1992). Further, a franchisor seldom changes the standardized contract over time, particularly the key payment terms such as franchise fees and royalty rates (Lafontaine & Shaw, 1999). Hence, a franchise contract may represent an average situation, with average franchisees, locations, and franchisor behaviors. Finally, a system's franchise contract is

available to almost any individual interested in the franchise business[3] in the US. A prospective franchisee who is interested in some franchise opportunities can go through several Franchise Disclosure Documents (FDD) and gather information regarding the franchisor's business operation, franchisor's management teams, franchise rules, franchisor's and franchisees' expected responsibilities, and outlet openings and closings in the recent years. As the FDD requires franchisors to organize information systematically into different category, or "items," the prospective franchisee can easily compare the information from chain to chain. Through the comparing process, the prospective franchisee can assess whether a franchise opportunity is pricier given the overall quality of the franchise chain declared in the FDD. For example, if a franchise chain is young and small but asks a higher royalty rate than the bigger, more established franchise chains, the chain's franchise opportunities become more expensive than the other bigger chains. As most prospective franchisees are unwilling to participate in the younger franchise chain, the franchisor will gradually learn the inappropriateness of the royalty rate and may reduce the rate to an efficient level that can attract prospective franchisees to join the chain. The U.S. government's efforts of reducing the information disparity between the prospective franchisee and franchisor makes the franchise contracts economically efficient in governing the franchisor-franchisees relationship (Brickley, Mishra, & Van Horn, 2006).

Given the economic significance of franchise systems, franchise contracts have been widely investigated empirically, particularly based on agency theory, transaction cost economics,

[3] Under the Franchise Rule, which is enforced by the Federal Trade Commission (FTC), a prospective franchisee must receive the franchisor's franchise disclosure document (FDD) at least 14 days before they are asked to sign any contract or pay any money to the franchisor or an affiliate of the franchisor. The prospective franchisee has the right to ask for and get a copy of the sample franchise disclosure document once the franchisor has received the prospective franchisee's application and agreed to consider it. There are thirteen states require the franchise chain's FDD filed by a state agency for public record. The document discloses extensive information about the franchisor and the franchise chain through 23 categories called "Items."

and the resource based approach. Agency theory, which emphasizes the double moral hazard problem, and transaction cost economics, which emphasizes economic bonding via the franchisees' relationship-specific investments, provide several predictions on how contract terms can be designed to increase both contractual parties' input into maintaining the franchise system's quality consistency. However, there are few empirical studies testing these propositions, partly because the chain brand's quality is difficult to measure. An exception is Shane (1998), which investigates how contract design can enhance the franchise system's survival, as quality consistency is regarded as most critical to the survival of chain systems. By extending agency theory and transaction cost economics, this section develops hypotheses on how the governance mechanisms embedded in the contractual terms such as royalty rates, franchisees' specific investments, and input purchase requirements align the incentives of the franchisor (principal) and franchisees (agents) to cooperatively increase transactional value through innovation (Zajac & Olsen, 1993).

2.3.1. Royalty rates and the system's innovations

Franchisors often play a critical role in sustaining the chain brand's value, which will directly and/or indirectly, affect demand at the outlet level. A franchisor can devote efforts into increasing the chain brand name recognition in several ways. For example, a franchisor can develop TV commercials or other advertisements to increase the brand's national recognition (Bradach, 1998). A franchisor also can develop new products or services that cater to the latest dining trends and attract more customer outlet visits. While these efforts are valuable to the chain brand and benefit the franchisees' outlets, the franchisor may shirk on providing these ongoing efforts if the franchise contract does not provide proper incentives for the franchisor. For example, a franchisor can discontinue the operational supports to the franchised outlets after

collecting the franchisees' initial payment. The franchisor can stop maintaining the quality consistency of the chain's outlets or developing innovations to compete with other restaurants. The franchisor's moral hazard on the *ex post* efforts has always been a concern to prospective franchisees. To reduce such a concern, the Federal Trade Commission (FTC) has requested that the franchisor disclose a large amount of historical information about the franchise system so that any prospective franchisee can assess their financial investment *ex ante* with better information.

The economic value of the chain's brand name usually constitutes a significant source of the franchisor's revenue. The franchisor sells the franchise business to prospective franchisees willing to purchase the right of using the franchisor's brand in their outlets because they believe using the chain brand is more profitable than starting with a new (and largely unrecognized) brand (Zachary, McKenny, Short, Davis, & Wu, 2011). Hence, the sales of franchise opportunities provide some incentives for the franchisor to devote efforts to increasing the chain brand's value. However, at some point, the franchisor may realize that the benefits of selling one more franchise opportunity may exceed the costs of devoting additional effort into enhancing the chain's brand-value. With this knowledge, there can be a collective action problem (Olson, 1965; Ostrom, 1990) because the franchisor may have an incentive to under-supply efforts to develop the chain's brand name. The franchisees then find themselves with a chain brand whose long-term economic value is much lower than the price they paid in exchange for the right of using it. The extant literature has recognized the symmetric nature of the collective action problem in which the franchisor's hazards of shirking on efforts related to the chain brand along with the franchisee's hazards of shirking on efforts related to outlet operation result in the double moral hazard problem (Lafontaine, 1992; Lal, 1990).

In order to mitigate the franchisor's under-supply of ongoing efforts, the franchisees may accept/offer higher royalty rates on outlet sales as a means to provide economic incentives to the franchisor (Rubin, 1978). Via the specified royalty rate in the franchise contract, the franchisor shares a part of franchisees' sales. When the franchisor dedicates sufficient efforts into the chain's brand, the outlet sales may directly and/or indirectly increase (Agrawal & Lal, 1995). With the franchisees' royalty payment, the franchisor's ongoing efforts devoted to the chain will be rewarded with increased financial returns given increased outlet sales. Indeed, if the franchisor shirks on maintaining the chain's brand name during the contract period, the outlet sales may decline and consequently reduce the franchisor's royalty income. For example, if the franchisor does not devote effort to hire food scientists, form a research and development department, study consumers' preference change, develop innovations, and update the chain's product offering consumers may choose, overtime, to go to other restaurant outlets whose menu has items that can meet the latest diet preference, causing sales decline in the system's outlets. Consequently, the franchisees may find the royalty payment can hardly justify the profit decline, so some of the franchisees may express the concern to the franchisor and request the franchisor to reduce the royalty rate. Therefore, the franchisor may receive lower total royalty payment from the franchisees. If the franchisor refuses the franchisees' request, and the chain's brand value declines so much, the franchisees may find closing the outlet better cuts their economic loss and thus decide to terminate the contract prematurely. When the franchisee's outlet shuts down, the franchisor loses the royalty income and physical outlet presence in a geographical market, if the franchisor does not exercise the right of buying back the outlet. As the physical outlets often build customers' knowledge of the chain brand, its closure may further drive down the chain brand's value. Therefore, in order to avoid the franchisor's undersupply on innovation

development, which will ultimately reduce the chain's brand value, the franchisees will agree to pay the franchisor a higher royalty rate in exchange for the franchisor's investment in research and development.

In the double moral hazard model, Bhattacharyya and Lafontaine (1995) propose that royalty rates increase with the relative importance of the franchisor's efforts vis-à-vis the franchisees' efforts. As the franchise system's product or service innovations mainly rely on the franchisor's devotion to repeated market tests and persuading the franchisees to implement the innovation, it is problematic if the franchisor does not commit sufficient effort to developing innovations and maintaining the brand. Through sharing the franchised outlet sales via a royalty payment, a part of the franchisor's economic incentives are connected with the franchised outlet sales. When consumers are attracted to a competitor's new products and choose to visit a competitor's outlets, the franchisor's revenue declines with the fall of franchised outlets' sales. As the average franchisee outlet sales decline, the franchisor counting on receiving royalty revenue will have incentives to explore possible causes and solutions to bring back the sales volume. The greater the franchisor's royalty share, the greater the motivation to take corrective action. Furthermore, as the franchisor may have multiple sources of revenue, the higher the portion of franchisor's revenue based on royalty revenues, the higher incentives the franchisor has to resolve the cause of sales declines. A higher royalty rate will give the franchisor more economic incentives to devote efforts into developing innovations that can be put in commercials/advertising and attract consumer visits. Thus, an increase in the royalty rate is expected to increase the chain's frequency of innovation and subsequent trademark registration.

Hypothesis 1: The higher the royalty rate, the higher the number of a franchise chain's trademark registrations.

2.3.2. Franchisees' specific investment and the system's innovations

An innovation cannot be implemented across the entire chain without cooperation from the franchisees. Given the importance of franchisees' implementation for system innovation, the franchise contract must provide incentives or consequences for franchisees to implement new products or services in their outlets. Most franchise contracts require franchisees to offer standard products in their outlets. Thus, franchisees are expected to adopt and support the new product or service innovations the franchisor decides to roll out. When franchisees deviate from the standard product-offering clause, the franchisor has the right to terminate unilaterally the franchisees. While some franchise contracts may specify the consequences of not offering new product or services in the outlets, most franchise contract may treat such noncompliance as deviation from standard product offering. The level of deviation and its relevant consequence is usually unspecified in franchise contracts because it may be prohibitively costly for the franchisor to define various kinds of deviation from standard product offerings and specifically draft all the scenarios in the franchise contract *ex ante*. Alternatively, the franchisor may not want to foreclose completely franchisee experimentation with new ideas, which may turn into successful innovations for the chain later. That is, the franchisor may intentionally keep the standard product-offering clause incomplete to allow franchisees to conduct small innovation experiments. When the standard product-offering clause is incomplete, other contract terms are needed to create self-enforcement mechanisms and to provide the franchisees with incentives to voluntarily to implement innovations by complying the chain's standard product offering clause (Williamson, 1985).

In-line with Williamson's (1983) economic 'hostage model,' self-enforcing contracts have been extensively examined in various kinds of contexts, including labor (Akerlof & Yellen,

1986; Shapiro & Stiglitz, 1984), strategic alliances (Reuer & Arino, 2007), and vertically related firms (Kim & Mahoney, 2006). Transaction cost economics proposes that when economic performance is difficult or costly to specify, monitor, and enforce, contractual parties can use self-enforcing terms to motivate the achievement of desired economic performance. Three key elements of self-enforcing contractual terms include: (1) the ongoing economic rents associated with the relationship, (2) the threat of losing the specific investment upon the termination of the relationship, and (3) the observability of the expected economic performance. The contracting parties have incentives to put forth efforts upon knowing that they will lose the specific investment they have made and that their ongoing economic rents associated with the relationship will be discontinued if they are caught deviating from the expected economic performance (Klein, 1980; Telser, 1980; Williamson, 1983).

Franchisees must weigh the costs and benefits properly before deciding whether to offer voluntary compliance on offering innovative products or service in their outlet. The costs of delayed compliance or non-compliance are mainly associated with the likelihood of being terminated by the franchisor. First, when franchisees are terminated for their unwillingness to offer an innovative product or service in their outlets, the franchisees will lose the initial franchise fees, the investment on the store decorations, signs, uniforms, and licenses as these physical assets have low salvage value. Furthermore, franchisees will lose the economic quasi rents once their relationships are terminated by the franchisor. The benefits of delayed compliance or non-compliance are associated with the brand equity. Franchisees that do not offer the innovative product or service in the outlet may benefit by demand spillover in the short term. The consumers who decide to get the new product they have seen in the advertising/commercials may pay a visit to the outlet but then choose to buy other products due to the unavailability of the

new product. With the sunk system-specific investment and the loss of quasi rent, the franchisee may find the loss of being terminated is greater than the short-term sales gains from the new product's demand spillover, and hence find it economically unattractive to free ride on other franchisees' implementation of the new products (Klein & Leffler, 1981). Thus, transaction cost economics suggests that the presence of system-specific investments may curb the franchisee's free-riding motives. Facing greater potential loss from free-riding behaviors, franchisees are less likely to take advantage of an innovation's demand spillover and thus more likely to implement the chain's innovations. With the franchisees' increased willingness to implement the innovations, the franchise system can roll out the innovation at a lower cost. In a system where franchisees are more compliant with implementing innovations to avoid termination and loss of franchisee investment, franchisors are able to introduce innovations more frequently than a system where franchisees are not as compliant and thus consequently have a higher frequency of innovation compared to other franchise chains.

Hypothesis 2: The higher the chain-specific asset investment, the higher the number of a franchise chain's trademark registrations.

2.3.3. Franchisees' input purchase requirement and the system's innovations

In a pioneering study of contractual self-enforcement mechanisms, Klein (1995) proposes that transaction specific investment alone may be insufficient for the self-enforcement mechanism to function as desired. Instead, Klein maintains that: "it is the future return earned on these specific productive assets that assures franchisee performance, not the fact that the franchisees have made the specific investments. For example, if the franchisor had made the specific investments in the outlet, but the franchisee was earning the return from those investments, the incentive on the franchisee to perform would be the same, i.e., the fear of loss of

the future return from these specific assets upon termination" (1995: 26). That is, it is the change of the quasi-rents derived from the specific investment that drives the franchisees to behave as the franchisor desires, when the contract does not specify the exact desired economic performance. Contract clauses that influence franchisees' quasi-rents then influences franchisees' incentives to supply their efforts to offer the new product in their outlets consistent with other contract provisions.

Lafontaine and Raynaud (2002) propose that an input purchase requirement is such a clause that influences the franchisees' quasi-rents, which are only available if the franchise relationship continues. Through the input purchase requirement, franchisees agree to purchase certain raw materials from the franchisor itself or from the franchisor designated suppliers. Input purchase requirements can influence the franchisees' quasi rent because it enables the franchisor to monitor effectively the franchisees' source of materials. With the sales information from the ingredient suppliers, the franchisor can assess whether a franchisee does offer a contractual standard product in the outlet or simply make empty promises to the franchisor. If a franchisee agrees to offer a new product in the outlet but makes no purchase of the necessary ingredients, the franchisor knows the franchisee did not act per agreement. Observing the franchisee's deviation from standard product offerings, the franchisor then can exercise managerial controls to reduce the franchisee's free-riding, request franchisee efforts to implement the new product or service, or terminate the franchisee's operation. Once a franchisee is terminated, the franchisee loses all future economic rents associated with the chain specific investment. That is, input purchase requirements enable the franchisor to collect information on the franchisee's product offering, effectively monitor their behaviors, and then influence the availability of the franchisee's quasi-rent.

As input purchase requirement specifies the suppliers of particular materials, a higher input purchase requirement usually obligates the franchisees to purchase more kinds of raw materials from the designated suppliers. By observing more items' procurement information from the franchisor itself and from franchisor-selected suppliers, the franchisor can more effectively observe the franchisee's deviation from standard product offering and exercise more control on the franchisees' potential free-riding behaviors. A higher input purchase requirement increases the observability of the franchisees' opportunistic behaviors, making it more difficult for the franchisees to make empty promise on implementing new products or services. Therefore, franchisees in a chain with a higher percentage of input purchase requirements are more likely to make voluntarily sufficient efforts to offer new products in their outlets than franchisees in a chain with lower input purchase requirement. Consequently, the system with a higher input purchase requirement should be able to develop more innovations because the higher requirement results in franchisor's better monitoring such that the franchisees' free-riding behaviors would be discovered and the franchisees would lose their quasi-rents.

Furthermore, the input purchase requirement also may be a source of franchisor revenue, and affect the franchisor's incentives of devoting efforts into the innovation development, just like royalty rates. More requirements should mean greater purchases and thus greater revenue for the franchisor. Current U.S. legislation may impede the extent to which a franchisor can profit from an input purchase requirement. The court decision in *Siegel v. Chicken Delight* case, 1971, requires that the franchisor not sell products to franchisees above fair market value or make the franchisor the sole supplier of the required materials (Goldberg, 1979). Nor can input materials, which are irrelevant to the chain's quality control, be listed in the input purchase requirement (Klein & Saft, 1985). Nevertheless, this decision does not prohibit the franchisor from making

economic rents from the input-purchase requirement clause. Almost every franchise contract allows franchisees to purchase most of the input materials from alternative suppliers as long as the franchisees agree to pay for all expenses the franchisor needs to spend on verifying the product quality of the alternative suppliers. Franchisees whose purchase volume is small may find such expenses too high to justify using alternative lower cost suppliers, and therefore they follow the requirement to purchase from designated suppliers or the franchisor. Hence, the franchisor can still obtain economic rents from the input purchase requirement.

There is another venue by which the input purchase requirement can influence the franchisor's economic rents and incentives to develop innovations. The innovative product or service can provide the franchisor with the opportunity to create items with required inputs material. For a new product, the franchisor generally has more knowledge of the required input materials than franchisees. It may take franchisees a while to find alternative suppliers that can pass the franchisor's verification. Hence, the franchisor can at least appropriate short-term economic return from innovation through the input purchase requirement. Furthermore, the franchisor can develop innovative products that utilize more "secret ingredients" only supplied by the franchisor. Thus, as the franchisor can appropriate some portion of the economic return from innovation through the input purchase requirement, a franchisor has incentives to develop innovations. In sum, an increase in the input purchase requirement may increase both the franchisee's incentives of implementing the innovation and the franchisor's incentives of developing innovation. With the two positive effects, an increase in the input purchase requirement will lead to the higher frequency of the chain's innovation.

Hypothesis 3: The higher the input purchase requirement, the higher the number of a franchise chain's trademark registrations.

2.4. The Organizational Arrangement of Franchise Systems

2.4.1. Franchisor's company-owned outlets

An innovation may originate from a franchisor, or from a franchisee whose knowledge of the local market often inspires them to try new products that cater to local demand. In both cases, the franchisor controls the final release of the new product or service in order to maintain the consistency of the chain brand (Bradach, 1998). Before rolling out a new product or service to the entire market, the franchisor usually conducts a series of market tests to improve the original ideas. The objective of the repeating experiments is to develop a market-proven new product or service with refined outlet-level preparation procedures so that the innovation can be "sold" to the franchisees. The franchisees need to be convinced that the innovation is a profitable investment so that they will voluntarily implement the innovation in their outlets.

Franchisors have a choice to develop innovations in franchisor-owned stores or in franchisee outlets. As I will develop, franchisor-owned stores have less cost and therefore are more likely to support innovation. In order to develop an innovation that will be popular in most franchisees' local markets, the franchisor should find it easier to have the development process conducted in company-owned outlets rather than in franchised outlets. First, company-owned outlets enable the franchisor to reduce the coordination costs in the experiment process by using internal hierarchy to request and transfer information (Barnard, 1938; Williamson, 1975). In order to build an innovation that has market potential, the franchisor needs to find the product mix that caters to consumer tastes, which often requires several market tests. Furthermore, in order to build a preparation procedure that can fit in the standard outlet setups, the franchisor needs to try various configurations of the preparation activities. These various trials require intensive coordination between the innovation development team from the franchisor

headquarter and the outlets (Lewin-Solomons, 2000). The development team needs to receive the test results, interpret them, identify the causes and then formulate a new solution until the prototype is ready to be offered to the average customer and to be prepared in the standard outlets.

With the ownership of an outlet, the franchisor can control the company-owned outlet's operation, including directing the company-owned outlet managers to conduct market tests and to send back test results (Campbell, Datar, & Sandino, 2009; Lutz, 1995; Williamson, 1996). In the case of innovation development, the managers of company-owned outlets have fewer incentives to manipulate the sales or operational information about the new product or service because the sales information usually is independent of their compensation (Brown, 1998; Krueger, 1991). If, instead, the franchisor outsources all the market tests to a few franchisees and does not use franchisor-owned outlets to conduct the market tests, the franchisor may be concerned about the franchisee's incentives to manipulate the market test results. As opposed to franchisor-owned outlets where data regarding the innovation's sales and costs are readily available, the franchisor's development team may find it difficult to verify data provided by the franchisees (Holmstrom, 1979). In addition to receiving information, the franchisor's development team also needs to make changes based on the market test results and request new tests after the prototypes are changed. The franchisor's direct control of outlets enables the development team to request the company-owned outlet managers to execute these changes in a timely manner, while the franchisor would need to persuade the franchisees to adopt certain changes (Combs & Ketchen, 1999; Williamson, 1996).

Another factor that leads the franchisor to conduct market tests in company-owned outlets is the self-selection problem of the market process. Due to the unpredictability of

consumer preferences, the costs of conducting an experiment in different outlets may vary greatly. For example, the costs of conducting the experiment may be higher in outlets whose local consumers are not pre-disposed to like the innovation. If the franchisor offers a standard price for the experimental project, it is most likely that only the franchisees who predict the innovation will be popular in their local markets will agree to serve as a market test, or experimental site. Hence, the result of the experiment may be applicable only to a small part of the end-consumer distribution rather than the average consumers who frequent the chain outlets. The biased experiment results further increase the franchisor's difficulty in convincing other franchisees that the innovation has substantial market potential. In contrast, if the franchisor can conduct the innovation experiments in the company-owned outlets spread out geographically, the franchisor will be able to see the geographic market variation and be prepared on the scale of rollout. By limiting the potential for market selection bias, a "recipe" that will serve the average market is more likely to be developed via company-owned outlets than via franchisee-owned outlets.

An experiment agreement with more sophisticated pricing terms may solve the market selection problem, but may not be feasible in the franchise context for several reasons. In franchisor and franchisee relationships, fairness is usually regarded as an important process factor (Lafontaine & Shaw, 1999). If the franchisor gives a higher price for the same experiment project to different franchisees in order to minimize the market selection problem mentioned above, the franchisor may need to justify the price difference to the other franchisees that are offered at a lower payment. Moreover, estimating the experiment costs may be costly to both the franchisor and franchisees. The franchisor may not have the knowledge to estimate the costs of doing the experiment in each local market. The franchisees may also have insufficient

knowledge to estimate how much the experiment will cost because the franchisor usually suppresses franchisees' innovative activities to maintain the consistency of the chain image (Bradach, 1998).

With company-owned outlets, the franchisor can utilize internal coordination routines to facilitate the intensive information transfer and demand modification for the development of innovative offerings (Bradach & Eccles, 1989; Shane, 1996). Without the market selection bias, such internal coordination enables the franchisor to develop an innovation that is more likely to be considered economically viable to most franchisees in the chain. Furthermore, the franchisor can leverage past knowledge on the outlet's onsite operation and knowledge of various geographical markets to develop a new product in which consumers can perceive the logical fit, linkage, or relatedness between the product and the chain brand (Tauber, 1981). The internal coordination routines also facilitate the information sharing between the franchisor's development team and company-owned outlet managers, enabling root cause identification and solution building in the innovation development process (Nelson & Winter, 1982; Teece, 1982). These benefits may rise with an increasing number of company-owned outlets, which provide the experimental results from various geographical markets (Sorenson & Sorensen, 2001). The richness of information enables the franchisor to develop an innovation that caters to diversified markets, reducing the franchisor's efforts necessary to convince franchisees to implement the innovation. Fewer frictions in innovation development and implementation shorten the new product development cycle. Thus, in the same time span, the franchisor with more company-owned outlets is expected to register more trademarks for the corresponding innovations than the franchisor with fewer company-owned outlets. However, the marginal benefits of increasing more number of company-owned outlet decreases. When the franchisor owns ten outlets, the one

additional outlet may provide the 11th different piece of market information. However, when the franchisor owns fifty outlets, the additional market information may just repeat the others. Therefore, the positive relationship between the number of company-owned outlets and trademark registrations is expected to be curvilinear.

Hypothesis 4: The more company-owned outlets a chain has, the higher the number of trademark registrations.

2.4.2. Multi-unit franchisees vis-à-vis single-unit franchisees

Multi-unit franchisees, franchisees that own multiple outlets in the franchise chain, are prevalent in franchise chains (Bradach, 1995). Kaufmann and Dant find that 88% of the 152 franchised fast food chains they surveyed included multi-unit franchisees, noting that "multi-unit franchising is the modal form of franchising" (1996: 35). Similarly, Kalnins and Lafontaine (2004) find that 49% of the franchisees of seven large national chains owned multiple units, or 84% of all the franchised units in the 7 chains. FRANdata, the major franchise research firm estimates that of the roughly 60,000 franchisees in restaurant business, 36% of them are multi-unit owners who own and operate more than 75% of all the franchised restaurant outlets (Loten, 2012).

The existence of multi-unit franchisees may reduce the franchisor's total persuasion efforts needed in the innovation development and implementation process. The franchisor typically needs to convince at least some of the franchisees about the market potential of the innovation. In order to roll out the new product as extensively as possible, the franchisor will need to convince as many franchisees as possible. Convincing these franchisees may take a great deal of franchisor effort. The presence of multi-unit franchisees reduces the total persuasion effort required of the franchisor, because there are fewer people to communicate with overall.

For example, one franchise chain's vice president said, "We would never get anything done if we had to deal with a zillion small franchisees" (Bradach, 1998: 54).

Furthermore, once a multi-unit franchisee agrees to adopt an innovation, the innovation will be implemented in several outlets. Given the same number of total franchised outlets, the franchisor of a franchise system with multi-unit franchisees needs to convince fewer franchisees compared to a chain with only single-unit franchisees. If the costs of convincing a multi-unit franchisee are comparable to the costs of convincing a single unit franchisee, the franchisor may be able to implement more innovations when multi-unit franchisees are present than when only single-unit franchisees are present in a franchise system (Bradach, 1998). Given the same number of franchised outlets, the higher the number of multi-unit franchisees relative to the number of single-unit franchisees in a franchise system, the lower the total persuasion costs the franchisor may face. The reduction of total persuasion efforts on implementing the innovation will decrease the overall development costs and thus encourage an increase in the frequency of innovation. For example, the fewer franchisees the franchisor needs to persuade, the earlier the franchisor can implement the innovations to the whole chain, appropriate the economic rents from the innovations and then move on to the next innovation.

Hypothesis 5: The higher the ratio of multi-unit franchisees to single-unit franchisees, the higher the number of trademark registrations.

2.4.3. Multi-unit franchisees vis-à-vis franchisor's company-owned outlets

Though the previous hypothesis assumes that the franchisor's costs of persuading a multi-unit franchisee may be similar to the costs of persuading a single unit franchisee, the assumption may not be valid. A franchisor may find it more costly to persuade the large multi-unit franchisees because they may have relatively higher bargaining power. Further, if the multi-unit

franchisees exercise their bargaining power, the franchisor may receive lower economic returns from the innovations (Porter, 1980; Thomadsen, 2005). For example, a large multi-unit franchisee may request a higher discount on the implementation price or a higher subsidy from the franchisor, so that the franchisor's profits from the innovation decreases accordingly.

Michael (2000a) proposes that franchisor's company-owned outlets can be used to increase the franchisor's bargaining power. If the franchisor does not have any outlets in the system, the franchisor will need to rely on franchisees' implementation of innovation. Under the circumstances, if there are some multi-unit franchisees who control a great number of outlets, the franchisor will face a higher pressure to obtain these few franchisees' cooperation in implementing the innovation. Knowing this, the multi-unit franchisees can hold out for a part of the franchisor's economic rents from the innovation for their cooperation in implementation. For example, the large multi-unit franchisees can demand large discounts or rebates on purchasing necessary equipment or materials. With the very large franchisees sharing in the economic returns, the franchisor cannot fully appropriate the return from the innovation. Hence, the franchisor with a few very large franchisees may have lower incentives to develop innovations, and consequently develop fewer new products than franchises with smaller, similar-sized franchisees. That is, the ratio of the franchisor's company-owned outlet to the multi-unit franchisees' average number of outlets can approximate the relative bargaining power of the franchisor to the multi-unit franchisees. When the ratio is low, the franchisor is more likely to lose the economic rents of innovations and thus has lower incentives to develop more innovations.

On the contrary, if the franchisor can directly control some company-owned outlets, the franchisor does not need to rely completely on the multi-unit franchisees, reducing multi-unit

franchisees' bargaining power on implementing innovations. The more outlets the franchisor owns and controls relative to the multi-unit franchisees' outlets, the lower the multi-unit franchisees' relative bargaining power. Consequently, the more likely the franchisor can appropriate higher economic returns from the innovations, the more likely it will motivate the franchisor to develop more innovations (Porter, 1980; Thomadsen, 2005). Thus, Hypothesis 6a proposes that a chain with more company-owned outlets in relative to the average number of outlets owned by its multi-unit franchisees will develop more innovations than a chain with few company-owned outlets in relative to multi-unit franchised outlets. The rationale for this prediction is because the large multi-unit franchisees' bargaining power enables them to appropriate more innovation rents from the franchisor, which reduces the franchisor's economic incentives for innovation.

Hypothesis 6a: The higher the ratio of franchisor's company-owned outlets to multi-unit franchisees' sub-chain average outlets, the higher the number of trademark registrations.

Despite the higher bargaining power, the franchisor may find it less costly to persuade a multi-unit franchisee to implement an innovation than to persuade a single-unit franchisee for several reasons. First, multi-unit franchisees may have higher interest in embracing product or service innovation than single-unit franchisees because multi-unit franchisees' interests may be closer to the franchisor's interests than to single-unit franchisees' interests (Kaufmann & Dant, 1999). Bradach reports being told by a chain manager that: "big franchisees look just like us" (1998: 53). The multi-unit franchisees may prefer an innovation that caters to several geographical markets rather than a single one because the multi-unit franchisees may have outlets across several markets (Dant & Nasr, 1998).

Second, the multi-unit franchisees usually have lower average, outlet operation costs and are more capable of implementing an innovation in their outlets. Darr, Argote, and Epple (1995) find that one outlet's learning can be easily transferred to the other outlets owned by the same franchisees but not to any other outlets owned by different franchisees. The multi-unit franchisees' control of multiple outlets enables them to develop knowledge on outlet operations, and to take advantage of the economy of scale of such knowledge. With learning, the multi-unit franchisee's average costs of implementing an innovation in an outlet may be lower than the single unit franchisee's costs. The lowered implementation costs increase the expected economic return of offering the innovation. Consequently, large multi-unit franchisees are more likely to invest in the offering than small multi-unit franchisees or single unit franchisees. Furthermore, as multi-unit franchisees increase their holdings of outlets, they usually also build coordination routines so that the multi-unit franchisees' sub-chains can systematically receive and interpret the information from these outlets and appropriate the economy of knowledge sharing (Bradach, 1998). As the knowledge economies of scale increase with the outlet number, the larger multi-unit franchisees are more likely to implement the innovation voluntarily than smaller franchisees. Thus, the large multi-unit franchisees may require fewer franchisor persuasion efforts to implement an innovation.

Furthermore, multi-unit franchisees may provide constructive feedback to the franchisor, which can then use the feedback to improve the innovation, making it easier for other franchisees to see the value of implementing in their outlets (Dant & Nasr, 1998). Bradach (1998) notes that it is common that large multi-unit franchisees mimic the regional management structures of franchisors' corporate operations. That is, in general large multi-unit franchisees typically have better management than single unit franchisees or small multi-unit franchisees. With a better

management system, the large multi-unit franchisees may have better capabilities to systematically process information, build solutions, and offer the solutions to the franchisor. Considering the large multi-unit franchisees' better assessment, the franchisor may value their feedback more than other feedback from single-unit franchisees or company-owned store managers. Although the company-owned managers obey the instructions to conduct various experiments, they may have lower incentives to raise their concerns to the development team given the compensation structure is typically irrelevant to store performance (Minkler, 1992). In contrast, "the franchisee (…) does not work for you and has no hesitation to call you directly and let you know what he thinks. The franchisees make us better" (Bradach, 1998: 44). With the multi-unit franchisees' constructive suggestions, the franchisor is able to improve the feasibility of the innovation, making it easier for others to implement, and thus further driving down the overall implementation costs.

For the above reasons, persuading multi-unit franchisees may be easier and have greater benefits than persuading single-unit franchisee to implement innovation. The economy of knowledge sharing within the multi-unit franchisees' sub-chain and the knowledge sharing between the franchisor and the multi-unit franchisees are positively associated with the number of outlets owned by the multi-unit franchisees. The ratio of company-owned outlets to multi-unit franchisees' average size therefore is proposed to be negatively associated with the franchise chain's subsequent innovations for the benefits the multi-unit franchisees can gain through the outlet ownerships.

Hypothesis 6b: The higher the ratio of franchisor's company-owned outlets to multi-unit franchised sub-chain average size, the lower the number of trademark registrations.

2.5. Data and Methods

2.5.1. Data sources

The dependent variable used to measure the franchise chain's innovation is the number of trademark registrations from 2003 to 2013. USPTO's trademark application text hosted by *Google* is used to obtain the trademark registration information. To reflect the date of innovation, trademarks are recorded by their application dates. Trademarks that did not pass through USPTO's examination are not included in the data for the following reason: if an innovation is economically critical enough, the chain should have submitted another application for the same innovation and made sure the trademark passed through the examination to complete the registration. Counting the applications that did not pass through USPTO's examination then overestimates the number of actual innovations. In contrast, cancelled or abandoned trademarks are included in the sample, because both represent the occurrence of innovations. A trademark owner can renew the trademark after the first five years. Failing to renew means the owner will lose the right to use the same trademark. Without the registered owner's renewal, the trademark is regarded as "cancelled" or "abandoned," and can be used and registered by others. Hence, cancelled or abandoned trademarks may signal failures of some innovations, but they still represent the occurrence of these innovations.

Information about franchise chain organizational structure is obtained from the Franchise Disclosure Document (FDD), which was modified and renamed from the Uniform Franchise Offering Circular (UFOC) in 2007[4]. Since 1979, the U.S. Federal Trade Commission (FTC) has required all franchisors to declare twenty-three items of information in the UFOC. I obtain the

[4] The new changes on the required information do not influence the franchisor's incentives of reporting the information relevant to our dependent variables. Although my data set includes observations from 2003 to 2013, the external shock does not bias the data.

FDDs from two state government offices: California Commerce Department and the Illinois Attorney General Office, as California and Illinois are two states that have the most franchise businesses in the U.S. The California Commerce Department has digitalized their FDDs and has offered them for public download though the California Electronic Access to Securities Information and Franchise Information (Cal-EASI) website since 2003. To complement the California data, I included data collected from the Illinois Attorney General Office to increase the sample size.

I used *Bond's Franchise Guide* 2005 and 2006 to build the list of franchise chains operating in the food industry groups, including quick service/take-out, restaurants/family style, donuts/ cookies/bagels, ice cream/yogurt, coffee and specialty foods, and then used this list as a sampling frame to obtain FDDs from California and Illinois. *Bond's Franchise Guide* provides an annual directory of franchising opportunities in the U.S. and Canada, and has been widely used in former franchise research (e.g., Lafontaine, 1992). However, not all franchises listed in the *Bond's Franchise Guide* offered franchise opportunities in California or Illinois. Chains that did not offer franchises in either state did not need to submit their FDD to these two states and hence will not be in the sample. For example, the Wall Street Deli System was listed in *Bond's Franchise Guide*, but was not listed in Illinois or California data.

My sample includes 66 restaurant franchise chains with 354 system-year observations from the 2003 to the 2012 period. The data collection approach I used may result in a sample with proportionally more small franchise chains for two reasons. First, smaller chains that would like to promote their business have higher incentives to respond to the survey by Bond's Franchise Guide. Second, when franchise chains reach a certain size or experience level, they are exempted from submitting FDD by both California and Illinois. For example, in California,

franchisors with $5 million minimum net worth or with more than twenty-five franchisees may seek exemptions from submitting their FDDs. Nevertheless, the sample bias works against my hypotheses because small chains may relatively have fewer resources to develop innovations than large chains.

The independent variables include the following: the royalty rate, the initial specific investment, the input purchase requirement, the number of company-owned outlets, the number of franchisees, the ratio of multi-unit franchisees to single-unit franchisees, and the ratio of company-owned outlets to the average size of multi-unit franchisees' sub-chains. The royalty rate is recorded from item 6 of the FDD. Where the royalty is recorded as a fixed amount of periodical payment, I follow the literature such as Lafontaine (1992), and use the chain's average, outlet sales information to obtain the estimated ratio for the royalty rate variable. The chain specific investment is collected from item 7 of the FDD, Franchisee's Required Initial Investment. Although only estimated values, rather than real spending numbers, are supplied in the item 7, franchisors usually provide estimates that are close to the real numbers. Sufficiently accurate estimates can increase the likelihood that new franchisees will be able to survive the initial phase of the franchise business. Hence, the concern that franchisors may provide lower estimates for initial investment is not severe. For the chain specific investment, I follow Bercovitz (1999) and include only the estimated expenditures on assets that have low redeployable value if a franchise outlet stops operating. Specifically, I include expenditures in the following categories: initial franchise fee, leasehold improvements, equipment and fixtures, signage, uniforms, grand opening advertising, training, professional fees, and licenses. If high-low ranges are provided, the mean values are used for the calculation of expenditures. The input purchase requirement is obtained from item 8 of FDD, Restrictions on Sources of Products and

Services. Franchisors need to disclose whether a franchisee is required to purchase raw materials from the franchisor or the designated suppliers. A percentage of required input purchase from the designated suppliers to the average outlet's operational sales is generally provided for the prospective franchisees. If the FDD provides a range of the required input purchase, the mean value of the range is used to measure the degree of input purchase requirement.

The number of company-owned outlets, the number of single-unit and multi-unit franchisees, and the average number of multi-unit franchisees' outlets are taken from Item 20 of the FDD and its corresponding supplemental exhibits that provide more details about franchised outlets. Company-owned outlets include both the outlets directly owned by the franchisor and the outlets owned by the affiliate companies of which the franchisor is a major shareholder according to Item 1 of the FDD. The number of company-owned outlet is log transformed to capture the curvilinear relationship with the dependent variable. The number of single-unit and multi-unit franchisees is generated from the outlet list that comes with Item 20 and provides supplemental franchisee information that includes the outlet owner's names, addresses and phone numbers. Based on the data, the two ratios, the ratio of single-unit franchisees to multi-unit franchisees and the ratio of company-owned outlets to average multi-unit franchisees' outlets are generated accordingly. For franchise systems where there are no multi-unit franchisees, which accounts for 29 observations in the sample, the ratio of company-owned outlets to the average number of multi-unit franchisees' outlets is manually assigned as 15 because the maximal value of the ratio is 12.125 in the current sample. Additional regressions are run to make sure changing the assigned value from 15 to 13 or 20 does not affect the estimate results.

Five additional control variables are included to ensure valid results: size, age, total assets, sales and growth rate. A franchise system's size is the total unit number, which includes

both the franchisor's company-owned outlets and all franchised outlets. A chain's age is the years the chain has been franchising, which is recorded in Item 1 of FDD. The total assets and sales of a franchise chain, recorded from the financial statement exhibits along with the FDD, work as controls for the chain's financial motivation to develop innovation. Finally, a franchise chain's growth rate is calculated based on the changes in the total number of outlets from the last to the current year, including the company-owned and franchised outlets. The growth rate, measured by the total outlet number change, is used to control for the potential Penrose effect that a franchise chain may encounter. When a franchise system expands massively in geographic markets, the franchisor may need to spend more resources on developing new franchisees, and consequently have relatively fewer resources available for innovation development (Penrose, 1959; Tan & Mahoney, 2005; Thompson, 1994).

2.5.2. Estimation methods

The estimation of the relationships between the franchise chain's governance mechanism and its innovation, measured by the number of trademark registration, requires the use of a count model. In the current sample, as shown in Figure 2-1, roughly 61.5% of the system-year observations are zeros, suggesting that most franchise chains do not register trademark every year. The variance (3.21) of annual trademark registration is also greater than the mean (0.96), suggesting over-dispersion. Furthermore, the current trademark registration data also exhibit excess zeros. When applying the standard Poisson model to the current data, the Pearson's chi-squared statistics suggests that the Poisson model is inappropriate (Hilbe, 2014). Given the data characteristics, a zero-inflated Poisson model (ZIP) is applied. The post-estimation Vuong (1989) test also indicates that the zero-inflated Poisson model fits better than the standard Poisson model with the specified predictors.

In the zero-inflated Poisson model, the chain's company-ownership policy, a dummy variable that equals 1 if the franchise chain's company-owned outlet equals zero for every time period in the current data set, is used as the zero-inflation parameter. Bradach's (1998) field study shows that (1) the company-owned outlets, compared to the franchised outlets, have several advantages on facilitating the innovation development, and (2) some franchise chains maintain the policy of holding zero company-owned outlets while others may adjust the number of company-owned outlets over the years. Based on the above findings, the current study posits that the franchise chains that constantly hold zero company-owned outlets may find it much more difficult to develop innovations. In the zero-inflated Poisson model, a franchise chain's company-owned policy, i.e., whether to have company-owned outlets, is used to control the likelihood of the chain's lack of innovation development.

For the convenience of interpretation, I take the natural log of the independent variables in the zero-inflated Poisson model, except for the ratios. Variables containing zeros, like royalty rates and company-owned outlets, are transformed by adding 1 to each observation before taking the natural log.

2.6. Results

2.6.1. Descriptive statistics

Table 2-1 provides descriptive statistics of the sample, which includes 335 chain-year observations of 66 chains from 2003 to 2012. An average chain registered about one, 0.96, new trademarks each year. In this sample, the average chain requires an 8.88% royalty rate, $216,000 of specific initial investment, and a 51.77% input purchase requirement. The average chain has 19 company-owned outlets, 72 franchisees, and 209 total outlets, including both company-owned and franchised outlets. An average chain in this sample has been in offering franchises for 25

years. Compared to the average restaurant chain in the sample of Lafontaine and Shaw (2005), the average chain in my sample is similar in size but has a lower number of company-owned outlets. However, the average chain in my sample has more total outlets and a few more years of business experience than the sample used Shane (1998). Among the 354 observations, 222 of them are growing, i.e., their size at year t is greater than their size at year t-1, while 115 of them faced declining unit numbers and the remaining 17 observations kept size constant across a two-year period. Among the 66 chains, 18 grow consistently across all years in the sample periods, and 6 either expand or remain the same. The other chains have experienced all three types of status changes in the sampling period.

Overall, there are 216 changes in the number of company-owned outlets over the sample period, while the remaining 138 observations do not change the holdings of company-owned outlets. Among the 216 chain-year observations that change the number of company-owned outlets, 148 of them increase the number of company-owned outlets while the other 68 decrease the holdings. Among the 138 observations that do not change across years, 19 of these observations come from five chains that do not have any company-owned outlets throughout the sample period. Ten other chains that hold some company-owned outlets did not change the number of their holdings in the sampling period. That is, within the total 66 chains in my sample, 51 of them change their holdings of company-owned outlets from time to time, a pattern consistent with Lafontaine and Shaw's (2005) finding. Furthermore, in the current sample, chains that change their holding of company-owned outlets are slightly older than the chains that do not change their holdings, while Lafontaine and Shaw (2005) find older chains tend to keep the "targeted" company-owned (to the franchised) proportion more stable than younger chains.

Only five out of the 66 chains do not have any multi-unit franchisees throughout the sampling period. These five chains, with only 36 units in average, are much smaller than the average chains. With an average age of 18 years, these five chains are also less experienced than the other chains in the sample, as the sampling average age is 25 years. Six chains started adopting multi-unit franchisees between 2003 and 2012. The chains that adopt multi-unit franchisees account for 316 observations. An average chain in the sample has 22 multi-unit franchisees. The ratio of multi-unit to single-unit franchisees in average is 1.63, meaning that, on average, franchisors use more multi-unit franchisees than single-unit franchisees. The prevalence of multi-unit franchisees in the current sample corroborates Kaufmann and Dant's (1996) claim that multi-unit franchising is prevalent in franchise systems. Nevertheless, the ratio of multi-unit to single-unit franchisees is right-skewed with a long tail. For the median franchise system in the sample, the ratio of multi-unit to single-unit franchisees is 0.33, while the maximal ratios are 30.5. Therefore, the majority of franchise systems in the current sample still use more single-unit franchisees than multi-unit franchisees, although the mean of the ratio is greater than 1. Finally, in an average chain, the ratio of company-owned outlets to multi-units is 1.69. That is, on average, the number of franchisor's company-owned outlets is 1.69 times the average number of outlets in a multi-unit franchisee's sub-chain. The ratio is also right-skewed, with the median 0.125 and the maximal 15. Therefore, the majority of the franchise systems also keep fewer company-owned outlet than the number of outlets their multi-unit franchisees owned.

2.6.2. Regression Analysis

Table 2-2 provides the results estimated by the zero-inflated Poisson model. As there is no theoretical justification on how long the governance and organizational change will affect innovation development, this research uses the accumulated sum of the next two years'

trademark registration, i.e., trademark registration at both t+1 and t+2, as the dependent variable. Column (1) reports the estimation result. As the dependent variable represents accumulated output over two years, i.e., ($y_{t+1} + y_{t+2}$), using the annual independent variables may cause the concern of repeating the information provided by the independent variables at time t+1 and t+2. Hence, in column (2) and (3), I only use the sample that contains observation with one-year intervals, i.e., odd years versus even years, to minimize the hazards of repeating observations. The results in columns (1), (2) and (3) are similar, suggesting that the models are consistent.

Hypothesis 1 predicts that the royalty rate positively influences the franchise chain's innovations. The empirical results in column (1) show that the royalty rates and the frequency of innovation in the next two years are significantly positively associated, corroborating Hypothesis 1. It is estimated that a franchise system that sets royalty rate 1% higher than its competitors' in average registers 0.5 more trademarks in the next two years. The estimates are also significant in the 2-year interval model.

Hypothesis 2 proposes that the franchisees' chain-specific initial investment can be used as an economic bond for the franchisee to implement voluntarily innovations in their outlets. If the franchisor decides to terminate the franchisees for their non-compliance of standard product offering clauses, the franchisees will lose not only the specific investment but also the quasi rents that exist because of the specific investment. The bigger the franchisees' specific investment, the bigger the franchisees' loss, and the greater the franchisees' incentives to implement voluntarily the innovations in their outlets. The predicted positive effect is statistically supported as $p<0.05$. In the current sample, for a franchise system that requests $1,000 more for specific investment from the franchisees, the system is expected to register 0.27 more trademarks than its

competitors do in the next 2 years. The predicted positive effect is also significant in one of the 2-year interval sample, but turns insignificant in the other 2-year interval sample.

Hypothesis 3 maintains a positive relationship between the percentage of required input purchase and the chain's innovation. It is because the franchisor can use the purchase information provided by the material suppliers to observe whether a franchisee offers the new product in their outlets and determines whether a franchisee should be terminated for the violation of standard product offering. When a franchisee is terminated, all quasi rents that the franchisee is looking for within the franchise relationship goes away. Thus, higher input purchase requirement increases the likelihood that the franchisee will be terminated and lose the quasi rent, motivating the franchisees to implement the innovations in the outlets voluntarily. The hypothesis is supported by the full sample and the two-year interval samples. The marginal effect of the input purchase requirement is 0.24. That is, a franchise system that sets 1% input purchase requirement higher, the system will register 0.24 more trademarks in the next two years than its competitors.

Hypothesis 4 predicts a positive relationship between the number of company-owned outlets and the number of trademark registrations due to the lower internal coordination costs between the company-owned outlets and the chain's innovation development team. The results in Table 2-2 do not support the hypothesis. Instead, the estimate suggests that when a franchise system increases one unit of company-owned restaurant outlet, it is expected to register 0.13 fewer trademarks in the next two years than its competitors. However, such an effect is not statistically significant in the 2-year interval samples. The frequency distribution as shown in Figure 2-2 provides some insights to the finding. In my sample, few franchise systems are fully franchised, or maintain the policy of no company-owned outlets. The maximal number of

trademarks registered by the fully franchised chains in two years is 7, which is smaller than the maximal number of trademarks registered by franchise chains with company-owned outlets. However, franchise chains with company-owned outlets also contribute more, proportionally, zero trademark registrations to the sample. A t-test comparing the means between these two groups, fully franchised vs. company-owned, suggests that on average, the fully franchised chains do not register fewer trademarks than the franchise chain with company-owned outlets.

The ratio of multi-unit franchisees to single-unit franchisees is expected to be positively correlated with the number of trademark registration according to Hypothesis 5. As multi-unit franchisees can implement an innovative product or service to multiple outlets, the franchisor may convince fewer franchisees and then can implement the innovation to sufficient number of outlets in the franchise chain. Therefore, franchisor's total persuasion costs may be lower given the same size of franchise chains when the chain has more multi-unit franchisees than single-unit franchisees. The current sample provides support for Hypothesis 5. The more multi-unit franchisees in relative to the single-unit franchisees present in the chain, the more innovations the chain can develop in the next two years. The positive effect is also significant in one of the 2-year interval sample.

Hypotheses 6a address the multi-unit franchisees' bargaining power vis-à-vis the franchisor's bargaining power, where the bargaining power of each is approximated by the outlet number each owns. More specifically, I use the average number of units owned by multi-unit franchisees to measure the multi-unit franchisees' average bargaining power. As the multi-unit franchisees may have higher bargaining power, the franchisor's company-owned outlets can be used to suppress the multi-unit franchisees' bargaining power. The more bargaining power the franchisor has, relative to the multi-unit franchisees, the greater the economic return the

franchisor can appropriate from the innovation. Hypothesis 6a is supported in the current sample although such an effect is not statistically significant in the 2-year interval samples. On the contrary, Hypothesis 6b that emphasizes the learning effect within the outlets owned by the same multi-unit franchisees is not supported by the current data.

2.6.3. Tests with sub-samples by chain sizes

Franchise chains in our sample vary greatly in terms of their sizes, from the smallest with 7 total outlets to the largest with 1,590 total outlets. An extensive literature considers that the size of a franchise chain represents the chain's capabilities, including the capabilities to develop innovations. To explore how the chain's size affects the chain's innovation development, I divided the sample into three equal parts according to their sizes, and chose the first and third parts for this particular comparison. The first 33% of the data includes chains with fewer than 85 outlets in total, named as small chains. The third 33% of the data includes chains with more than 140 outlets, named as large chains. Figure 2-3 shows the trademark registration frequency of the two groups. As expected, the large chains in general develop more innovations than smaller chains. Table 2-3 reports the t-tests results for the two groups, and shows how the small and large chains differ. The mean comparison suggests that small chains also tend to request lower royalty rates and require lower input purchases than large chains, while the amount of franchisees' specific investments are similar. In addition, the small chains not surprisingly tend to have fewer company-owned outlets and have a lower ratio of multi-unit to single-unit franchisees. However, the ratio of company-owned outlets to multi-unit franchisees' average outlet numbers are similar in small and large chains. The small chains also tend to have less franchise experience, lower assets, and lower sales than large chains.

Table 2-4 reports the multivariate regression results of the subsamples. In the subsample tests, using every other year's observation cut too many observations to estimate, so only the full model is used. The subsample regressions present findings suggesting different pattern of the variables of interest. First, for a small chain that sets its royalty rate 1% higher than its competitors do, the chain can register 2 more trademarks than its competitors do in the next two years. The marginal effect of royalty rate is insignificant in the large chains. The estimates present a strong marginal effect of royalty rate in the small franchise chains. Similarly, the positive marginal effect of required input purchase is also larger in the small chains. On average, a small franchise chain that specifies a 1% higher required input purchase registers 0.55 more trademarks in the next two years. In contrast, the marginal effect of a required input purchase is 0.22 in the large chains. Thus, the current sample suggests that royalty rates and required input purchase give small franchisors stronger incentives to develop innovations and to inspect whether the franchisees implement the innovations in their outlets.

However, the franchisees' specific investment is insignificant in both small and large franchise chain, suggesting that franchisees' specific investment may not influence the franchise chain's trademark registration frequency. This finding is different from the full sample regression where franchisees' specific investment is found to affect positively the franchise chain's trademark registration. However, the finding may not be so surprising given that the means of franchisee specific investments are similar in the small chains and large chains.

The organizational variables also present different patterns in small and large franchise chains. Franchisor's company-owned outlets are found to make no impact on the chain's innovations in small franchise chains and a negative impact in the large chains. The finding for the large franchise chain is opposite to Hypothesis 4, which predicts a positive relationship

between the number of company-owned outlet and the trademark registration. To see what may cause the difference, the kernel density plots of three subsamples, as shown in Figure 2-4, are plotted by whether the franchise chain has company-owned outlets. Figure 2-4 shows that in small and large chains, the chains that do not have any company-owned outlets contribute to the extreme value of trademark registration. Particularly, in large franchise chains, some no company-owned chains registered a much larger number of trademarks. Thus, in the large chains, the estimated coefficient of number of company-owned outlets is negative. However, in medium franchise chains, those with no company-owned chains typically register fewer trademarks than those with company-owned chains. It is not clear whether the pattern among the three size groups is caused by the nature of the current sample or a general pattern. Future research may explore the same phenomenon with a different empirical sample.

The ratio of multi-unit to single-unit franchisees is not significant in either small or large chains. That is, these two subsamples cannot provide evidence to support Hypothesis 5, which posits that the use of multi-unit franchisees can reduce the franchisor's total persuasion cost. Figure 2-5 shows the scatter plots of the three size groups' trademark registration behavior by the ratio of multi-unit to single-unit franchisees. Figure 2-5 shows that a proportionally higher percentage of small chains do not use multi-unit franchisees, so the ratio equals zero. However, these franchise chains have various extents of innovations. Furthermore, Figure 2-5 also shows that some large franchise chains have extremely high ratios of multi-unit to single-unit franchisees, but these franchise chains do not register more trademarks than their competitors do. These two reasons might explain why in the two subsamples, the same evidence is not found. For Hypothesis 6a, the separate estimates in small and large chains are similar to the full sample although only the estimate in large chains is statistically significant. That is, for large chains, the

more outlets the franchisor directly controls, the higher the franchisor's bargaining power vis-à-vis the multi-unit franchisees'. Subsequently, the franchisor in large chains has higher economic incentives to develop innovations in the franchise system. The same effect is not significant in small chains. A possible reason is that for chains that do not adopt multi-unit franchisees, the number of multi-unit franchisees' average outlets is set as 1 so that the ratio of company-owned to multi-unit franchisees' outlets can be calculated. Such setting leads to proportionally more extremely large ratios in the sample of small chains. Therefore, a greater variance may lead to the result that the estimate insignificant.

2.7. Discussion and Conclusion

2.7.1. Discussion

Developing innovations is critical for a restaurant system to compete in dynamic markets. Through innovative products or services, a restaurant chain can update its chain brand's image in consumers' minds. Nevertheless, a chain's innovations require efforts from both franchisor and franchisees. This study examines how a franchise system can achieve the strategic intent of developing innovation through the design of the system's franchise contracts and organizational arrangement. Franchise contracts are critical in aligning the franchisor and franchisee's incentives to put their own efforts into chain-wide activities related to the chain brand (Klein, 1980; Rubin, 1978; Williamson, 1983). Further, Bradach (1997) maintains that organizational arrangements such as company-owned outlets and the presence of multi-unit franchisees affect franchise chains' innovation. The current study provides empirical evidence to show that franchise contracts and organizational arrangements can be structured to provide incentives to the franchisor so that they will devote developmental efforts and to the franchisees so that they will devote implementation efforts into the innovation process. Table 2-5 summarizes the

theoretical hypotheses, and whether there is an empirical finding to support them. As franchisors typically are in charge of the design of franchise contracts and organizational arrangement, the current findings also suggest that franchisors who intend to develop more innovations than their competitors may perceive the necessity of designing their contract terms and outlet ownership assignment in a different way.

This chapter considers three contract terms that previous literature regarded as core in the franchise contract and examines how the contract terms affect the franchisor's and franchisees' devotion to innovation development and implementation. The first contract term is the royalty rate, the proportion of the outlet sales that the franchisee agrees to pay to the franchisor during the contracting period. This chapter finds that a higher royalty rate is associated with an increase in the franchise chain's frequency of innovation, which is similar to earlier empirical studies that found a positive relationship between the franchisor's efforts and the royalty rates (Lafontaine, 1992; Lafontaine & Shaw, 1999; Sen, 1993). That is, the royalty rate can provide the franchisor with economic incentives to put effort into activities, such as innovation, which are related to development of the chain's brand (Bhattacharyya & Lafontaine, 1995; Lal, 1990). The other two contract terms considered include the franchisees' specific investment and the input purchase requirement. As self-enforcing mechanisms (Klein, 1995; Lafontaine & Raynaud, 2002; Williamson, 1985), these two terms are proposed to make an impact on the franchisees' incentives of cooperating with the franchisor on implementing the chain's innovation in their outlets. Specific investment and input purchase requirements can bond the franchisees' incentives on maintaining the franchise relationships so that the franchisees can keep obtaining the quasi rents derived from their relationships with the franchisor (Klein, 1995). Weighing the loss of quasi rents when a franchisor finds out that the franchisees do not

obey the standard product-offering clause, the franchisees have incentives to implement voluntarily the innovation in their outlets, fulfilling their compliance on the chain's standard offering. In the current sample, the empirical evidence supports the hypothesis that franchisees' specific investment and the input purchase requirement can serve as self-enforcing mechanisms and guide the franchisees' efforts on implementing innovations. However, the effect of franchisees' specific investment is not stable when subsamples are used. For example, in one of the 2-year interval subsamples and in the small chains and large chains subsamples, franchisees' specific investment is found to be insignificant. In contrast, the effect of required input purchase is stable across samples. The difference may reflect the theoretical argument that the loss of quasi rents seems more critical than the loss of sunk specific investment and that quasi rents can more effectively guide the franchisees' incentives to comply with the franchisor (Klein, 1995). Another possibility is that franchisor may ask for lower specific investment for other reasons (Klein, 1995; Kaufmann & Lafontaine, 1994).

Through exploring the contract terms, the current study makes the following contribution to transaction cost economics and agency theory. First, I apply these theories to build the mechanisms through which the design of contract terms can affect the cooperative efforts between the franchisor and franchisee and lead to value creation activities like innovation. Earlier literature extensively applied transaction cost economics and agency theory to explore the determinants of franchise contract terms. Few research studies, however, are devoted to the consequence of the design of franchise contracts. To the best of my knowledge, this is the first empirical study that investigates the important question of how the franchise chain's contract design affects the franchisor's frequency of innovations. Particularly, this dissertation provides empirical evidence that royalty rates can positively affect the franchisor's and franchisees'

collaborative innovation outputs. The empirical finding supports the hypothesis that a shared percentage of outputs can provide economic incentives for each collaborative party to devote sufficient efforts, which is an idea that originated from share cropping theory, and developed through the double moral hazard model (Bhattacharyya & Lafontaine, 1995; Reid, 1977).

Second, the empirical finding that the franchisees' specific investment may not establish sufficient bonding to incentivize the franchisee to put efforts into the cooperative activities enriches scholars' understanding on the limitation of specific investment. While relationship specific investment has been found to be critical to the performance of many other contractual relationships (Joskow, 1987; Kotabe, Martin, & Domoto, 2003), franchisees' specific investments may not provide such strong economic bonding for the franchisees due to the involvement of the external legal system. As the public may not be aware of the economic necessity of the franchisor's right of unilateral termination, the court may require the franchisor to refund part of the initial investment to the franchisees if the franchisee files a lawsuit against the franchisor's termination (Klein, 1995). Under the court's involvement, the franchisor needs to keep the initial investment as low as possible, so that the franchisor can terminate some franchisees at a lower cost, i.e., without going through a lawsuit. Further, a lower initial specific investment also leaves higher economic rents for the franchisees to obtain in the continuous relationship; a greater quasi-rent makes short-term deviation less economically attractive and motivates the franchisee's compliance of the chain's policies (Kaufmann & Lafontaine, 1994). The two factors together may cause specific investment to be set at a lower (than optimal) safeguarding level and thus the franchisee's incentives of cooperation on implementing innovations may not be sensitive to the specific investment.

The study also explores how the franchisor can utilize organizational arrangements to affect the chain's frequency of innovation. Franchise chains' outlet ownership arrangements – assigning an outlet to the franchisor, to a new franchisee or to existing franchisees – have been extensively discussed in the franchising literature (Kalnins & Lafontaine, 2004). While some previous studies, such as Michael (2000b), found that the number of a franchisor's company-owned outlets is positively associated with the chain's quality, the current study does not find empirical evidence in support of the hypothesis that franchisor's direct control of company-owned outlets enables the franchisor to develop innovation at a lower cost (Bradach, 1998; Lewin-Solomons, 2000). Instead, some of the current findings suggest that franchisors that retain more company-owned outlets may tend to develop fewer innovations, particularly when the franchise system is large. However, the empirical evidence suggests another venue in which company-owned outlets can facilitate innovation development and implementation in a franchise chain: to increase the franchisor's bargaining power vis-a-vis the multi-unit franchisees.

Although the presence of multi-unit franchisees can reduce the franchisor's overall persuasion costs, which may increase the frequency of innovation, multi-unit franchisees typically have higher bargaining power than single-unit franchisees. Therefore, when the franchisor wants to take advantage of multi-unit franchisees' capabilities to implement the innovation to multiple outlets, the franchisor also needs to maneuver carefully its own bargaining power vis-à-vis multi-unit franchisees.' If the franchisor has low bargaining power, the franchisor's incentives to develop innovation will be reduced in the long run because there are lower economic rents that the franchisor can appropriate. To increase the franchisor's own bargaining power, the franchisor's ownership of company-owned outlets becomes critical. The more company-owned outlets the franchisor can directly control, the more bargaining power the

franchisor may have and then the higher economic incentives the franchisor has in order to develop innovation. Therefore, although using multi-unit franchisees reduces franchisor's total persuasion costs, the franchisor may need to retain the company-owned outlets to maintain its bargaining power and mitigate economic rent appropriation.

Furthermore, the current study finds that contracts and organizational arrangements may each make different impacts to small and large chains. In particular, the contractual terms can effectively increase the small chain's innovation, while small chains may find it more difficult to adopt multi-unit franchisees and are unable to take advantage of the presence of multi-unit franchisees in the chains. When small chains face limitations on using organizational arrangements to facilitate the innovation development and implement process, small chains may rely more on contract terms to structure the franchisor and franchisees' incentives. For example, the marginal effect of a royalty rate in the small chains becomes much greater than it is in the full sample. In contrast, franchisors in large chains may find it easier to organize the innovative activities through the organizational arrangement than through the contract terms. For example, the franchisor in large franchise chains may have more experience and knowledge on interacting with multi-unit franchisees. In large franchise chains, there may be several multi-unit franchisees competing with each other, so each of them may have limited bargaining power or may not want to exercise its bargaining power alone (Kaufman & Dant, 1996). In addition to the nurtured experience on interacting with multi-unit franchisees, franchisors in the large chains may also find higher costs of adjusting franchise contracts, as found in Lafontaine and Shaw (1999). The higher costs of contract adjustment may impede the large chains from updating the contract to the extent that the contract terms can be an effective means of governing the interactions of the franchisor and franchisees. That is, the finding that large chain's franchise contract may not be as

effective in governing the franchisor and franchisees' cooperation in innovation as it is in the small chains merits further exploration.

2.7.2. Limitations and future research

There are several limitations of this dissertation. First, using trademark registration to approximate a franchise restaurant system's innovation is not a perfect measure. Trademark registration records only track a franchise system's product and service innovation, and cannot track innovations on process or business models. That is, trademark registration records cannot represent all of a franchise system's innovations. The relationships between governance design and a franchise system's trademark registration frequency should not be interpreted as the relationships between governance design and a franchise system's overall innovation. For example, it is not clear whether a franchise system's governance design affects the process innovation in the system.

There are other aspects of trademark registration that may lead to sampling bias in the current data. For example, franchise systems may not have the same tendency to register trademarks for new products or services. Small franchise restaurant systems may find the benefits of registering a trademark limited, and therefore tend not to register. The economic return from using a trademark in a national market is greater for a large franchise system than for a small regional franchise system that only operates in a few geographic markets. Large franchise restaurant systems also tend to use more TV commercials than small restaurant systems. Hence, assigning a name to the new product or service for consumers to remember and use when visiting the outlets becomes more important for the large franchise system to capture the economic return from promoting the new product. Large franchise systems also may have more financial resources to hire advertising agencies and to create a unique name, trademark, or

symbol to represent the new product. Thus, large franchise restaurant systems may be more likely to register trademarks for the new product than small franchise systems. The system bias may make it more difficult to find evidence for smaller franchise restaurant systems, which may register fewer trademarks, even when introducing the same number of new products as the large franchise systems. Under this sampling bias, this chapter still finds evidence for small chains. However, with the bias, the economic significance of the estimates obtained from using small chains data may be smaller than their real importance as we observe only part of the small chains' innovations is observed.

Another problem of using trademarks to measure a franchise system's innovation arises from the time gap between trademark registration and the launch of the innovation. The current research uses the filing date of the trademark to approximate the time the innovation is developed. However, the marketing agency manager I interviewed mentioned that trademark registration usually occurs earlier than the product's rollout. In order to keep the trademark away from competitor's usage, franchise restaurant systems tend to file trademark registration when the prototypes are still in the development and market test stage. Using the trademark's filing date may not capture the length of time required for the franchisees to implement the innovation. Hence, trademark registration provides limited information on franchisees' implementation and may not clearly reflect the franchisee's costs and benefit analysis on whether to implement the innovation.

The third problem of using trademarks is that trademark registration provides limited information on the associated innovation. As two trademarks represent two innovations in the current study, these two innovations may require different level of investment. For example, offering a new sandwich that uses a different bun may be much easier than adding a new product

line like McCafe. While the former may be associated with franchisees' flexible cost spending, the latter requires the franchisees to have specialized investment in equipment and product procedure. Similarly, while the new bun sandwich may require the franchisor to look for a bun supplier, the new product line introduction may require the franchisor to revamp the value chain activities. For example, McDonald's needed to find new coffee bean and new espresso machine suppliers, develop an operation manual, and to redesign the typical kitchen layout in order to replace the brew coffee with espresso-based coffee drinks offered by the McCafe product line. As the franchisor and franchisees' level of investment may affect the time and frequency of innovation, e.g., McCafe may need more time to develop and implement than a sandwich with a new bun, trademark registration data are not able to reflect the difference and may cause measurement bias. Similarly, trademarks do not provide information about relative product value. Trademark registration treats Taco Bell's Doritos Locos Taco the same as all other new products, while Doritos Locos Taco brings in much more economic value to Taco Bell's than a lot of other innovation.

There are some measures used in the empirical study may cause measurement error. For example, as the current data include the input purchase requirement both from the franchisor and other designated suppliers, the study cannot tease out the effect that input sales have on franchisor economic incentives to put efforts into innovation. The finding that the level of input purchase requirement positively affects the chain's frequency of innovation therefore can be caused by the franchisees' economic quasi rent or the franchisor's economic incentives, such as the royalty rate. However, in the few FDD's where the franchisor specifies the percentage of input purchase solely from the franchisors, the percentage is typically lower than 3% of the input cost. Therefore, even though the data cannot tease out the effect of input sales on the franchisor's

incentives, the effect may be relatively small when compared to the effect of the information the franchisor can use to observe the franchisee's deviation behaviors.

Furthermore, the regression results derived from Zero-Inflated Poisson models may better be interpreted as correlation than as causality as chain fixed effects are not included in the model. Although the current study attempts to examine some dynamics through separating the sample by the sizes of the franchise chain, such comparison may be still very limited. Future research that seeks more conclusive, causal relationships can examine whether a change of the contract terms and organizational arrangement in the same franchise system affects the particular system's subsequent innovation frequency. For example, the greater marginal effect royalty rate may be caused by an alternative story. When a franchise chain just starts, the chain may have a few very popular products, and customers are more eager to try any new products offered by the new restaurant chains. The popularity of the new chain brand and product offerings allows the franchisor to set a higher royalty rate than its competitors. Alternative explanation like this may be examined by empirical methods that incorporate both within and between variances among observations.

The current study explores how governance mechanisms embedded in the franchise contract and organizational arrangements facilitate a franchise system's frequency of introducing innovation. However, it is not clear how the two objectives of quality consistency maintenance and innovation creation interact with each other, and how the two together lead to the overarching objective of maximizing the chain's economic performance (Holmstrom & Milgrom, 1991). Kaufmann and Eroglu (1999) propose that frequent product and service innovations intensify the importance of quality consistency within the franchise chain, while existing consistency and standardization also facilitate the franchise chain's innovations. That is, quality

consistency and innovation act as complements in maximizing the franchise chain's economic rents. However, frequent innovations also increase the challenges of maintaining quality consistency given that outlet employees may have limited capacity to process the new menu and preparation procedures. Future research can explore the interactions of the two objectives in franchise chains. Particularly, if the two tasks are not compatible with each other as suggested by Kaufmann and Eroglu (1999), then the franchisor may need to prioritize the tasks and arrange outlet ownerships accordingly.

2.7.3. Conclusion

This study extends the literature by applying agency theory and transaction cost economics to identify how the design of franchise contract and organizational arrangements affect the franchisor's and franchisees' cooperation for innovation. By using trademark registration data, this study is able to test empirically hypotheses on how the design of governance mechanism can facilitate value creation activities, such as innovation in franchise systems. The results show that royalty rates, the franchisee's specific investment, and the input purchase requirement increase the franchisor and franchisees' cooperation in developing and implementing innovation. In addition to the contract terms, we also explore how the franchisor's arrangement of outlet ownership affects the franchisor's and franchisee's cooperation in innovation. Although the study found that the franchisor's company-owned outlets may not directly influence the chain's innovation, the company-owned outlets can be used to increase the franchisor's bargaining power against the multi-unit franchisees. Consequently, the franchisor's higher bargaining power vis-a-vis the multi-unit franchisees can secure the franchisor's economic incentives in developing innovations and lead to the chain's higher frequency of innovation. The empirical findings suggest that the franchisors who intend to develop more

innovation over time may consciously structure their franchise contracts and outlet ownerships in a way that can support such a strategic intent.

2.8. Figures and Tables

Table 2-1: Summary Statistics

		Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	Trademark registration	0.96	1.79	1										
(2)	Royalty Rate (%)	8.88	2.57	0.16*	1									
(3)	Specific Initial Investment	216	160	0.03	-0.13	1								
(4)	Required Input Purchase	51.78	36.90	0.11	0.04	-0.06	1							
(5)	No. of Company-Owned Outlets	18.77	49.14	0.19*	0.12	0.37*	0.25*	1						
(6)	Multi-Unit to Single-Unit	1.63	3.64	0.24*	0.03	0.18*	0.27*	0.08	1					
(7)	Company-Owned to Multi-Unit	1.69	4.20	0.06	0.25	0.13	0.14	0.23*	-0.02	1				
(8)	Size	209	275	0.27*	0.06	0.01	0.32*	0.48*	0.24*	-0.05	1			
(9)	Age (Year)	24.79	10.82	0.07	0.02	0.09	0.08	0.21*	0.13	0.10	0.38*	1		
10)	Sales (in Millions)	23.00	77.1	0.04	-0.03	0.11	0.23*	0.26*	-0.01	0.19*	0.52*	0.26*	1	
11)	Assets (in Millions)	14.30	52.2	0.08	-0.03	0.12	0.25*	0.30*	0.04	-0.21*	0.45*	0.29*	0.89*	1
12)	Size growth	-0.03	0.47	-0.02	-0.04	-0.01	-0.02	0.09	0.09	-0.16*	0.14	0.09	0.09	0.06

* $p<0.01$

Table 2-2: Zero-Inflated Poisson: Subsequent 2-year's Trademark Registration

		(1) 2-Yr	(2) 2-Yr: Odd	(3) 2-Yr: Even
Main	H1: Royalty (%)	0.50**	0.58*	0.43*
		(0.16)	(0.28)	(0.22)
	H2: Franchisees' specific investment	0.27*	0.32	0.44*
		(0.12)	(0.17)	(0.18)
	H3: Required input purchase (%)	0.24***	0.25**	0.23**
		(0.06)	(0.09)	(0.07)
	H4: No. of company-owned outlets	-0.13*	-0.02	-0.09
		(0.05)	(0.08)	(0.08)
	H5: Ratio of multi-unit to single-unit franchisees (%)	0.03**	0.02	0.04*
		(0.01)	(0.02)	(0.02)
	H6a/b: Ratio of company-owned outlets to multi-unit franchisees' outlets (%)	0.04***	-0.09	-0.10
		(0.01)	(0.08)	(0.06)
	Size	0.58***	0.61***	0.45***
		(0.07)	(0.13)	(0.11)
	Age	-0.17	-0.29	0.17
		(0.16)	(0.25)	(0.23)
	Asset	0.01	0.18	0.00
		(0.05)	(0.13)	(0.07)
	Sales	-0.07	-0.25	0.01
		(0.05)	(0.15)	(0.06)
	Size growth	0.15	0.77	0.02
		(0.23)	(0.60)	(0.23)
	Constant	-3.87***	-4.13**	-6.09***
		(0.98)	(1.64)	(1.65)
Inflate	Company-ownership policy (dummy)	-0.51	-0.11	-0.68
		(0.49)	(0.85)	(0.70)
	Constant	-0.53	-0.72	-0.70
		(0.44)	(0.82)	(0.61)
	Observations	263	129	134
	Rank	11	11	11
	AIC	821.31	359.44	406.41
	BIC	869.26	396.33	443.69

Standard error in parentheses

* p<0.05 ** p<0.01 *** p<0.001

Table 2-3: Mean comparison: small (total outlets<85) vs. large (total outlets>100) chains

	Diff	SE
No. of trademark registration	-0.96***	(-4.99)
Royalty (%)	-0.06*	(-2.04)
Franchisees' specific investment	0.04	(0.55)
Required input purchase (%)	-0.83***	(-5.18)
No. of company-owned outlets	-1.34***	(-9.13)
Ratio of multi-unit to single-unit franchisees (%)	-1.78***	(0.40)
Ratio of company-owned outlets to multi-unit franchisees' average outlets (%)	-1.04	(0.97)
Size	-2.33***	(0.07)
Age	-0.33***	(-6.58)
Assets	-1.81***	(-7.79)
Sales	-1.70***	(-7.04)
Size Growth	-0.08	(-1.75)

Table 2-4: Subsamples of small (total outlets<85) and large (total outlets>100) chains

	2-Yr	
	(1) Small	(2) Large
Main		
H1: Royalty (%)	2.00*	0.29
	(0.91)	(0.20)
H2: Franchisees' specific investment	0.66	0.15
	(0.35)	(0.15)
H3: Required input purchase (%)	0.55***	0.22**
	(0.16)	(0.07)
H4: No. of company-owned outlets	0.05	-0.16*
	(0.27)	(0.07)
H5: Ratio of multi-unit to single-unit	-0.07	0.02
franchisees	(0.12)	(0.01)
H6a/b: Ratio of company-owned outlets to	0.03	0.04*
multi-unit franchisees' average outlets	(0.05)	(0.02)
	0.48	0.33*
	(0.42)	(0.14)
Age	-0.34	0.19
	(0.47)	(0.22)
Asset	-0.41	-0.03
	(0.22)	(0.06)
Sales	0.28	-0.11*
	(0.19)	(0.05)
Size growth	0.20	-0.27
	(0.28)	(0.56)
Constant	-8.87***	-1.03
	(2.44)	(1.44)
Inflate		
Company-own policy (dummy)	-0.09	-0.06
	(0.75)	(0.89)
Constant	-0.39	-1.10
	(0.68)	(0.85)
Observations	104	102
Rank	11	11
AIC	243.95	503.00
BIC	280.70	540.03

Standard error in parentheses
* p<0.05 ** p<0.01 *** p<0.001

Table 2-5: Theoretical Hypotheses and Empirical Evidence

Hypothesis	Theory	Empirical Support?
H1: The higher the royalty rate, the higher the number of a franchise chain's trademark registrations.	Double-Moral Hazard; Shared Cropping: Incentives for franchisor	Supported
H2: The higher the franchisees' required specific investment, the higher the number of a franchise chain's trademark registrations.	Double-Moral Hazard; Asset Specificity: Bonding franchisees incentives through specific investment and quasi rents	Supported
H3: The higher the input purchase requirement, the higher the number of a franchise chain's trademark registrations.	Double-Moral Hazard; Bonding franchisees' incentives through quasi rents; Shared Cropping: Incentives for franchisees and franchisor.	Supported
H4: The more company-owned outlets the chain has, the higher the number of a franchise chain's trademark registrations.	Communication costs reduction through franchisor's fiat power	Not supported
H5: The higher the ratio of multi-unit franchisees to single-unit franchisees, the higher the number of trademark registrations.	Reducing total costs of persuading franchisees as total number of franchisees gets lower	Supported
H6a: The higher the ratio of franchisor's company-owned outlet to the multi-unit franchisees' outlets, the higher the number of trademark registrations.	Relative bargaining power of franchisor and franchisees	Supported
H6b: The lower the ratio of franchisor's company-owned outlet to the multi-unit franchisees' outlets, the higher the number of trademark registrations.	Economy of learning among the multi-unit franchisees' outlets	Not supported

Figure 2-1: Number of Trademark Registration Frequency Distribution

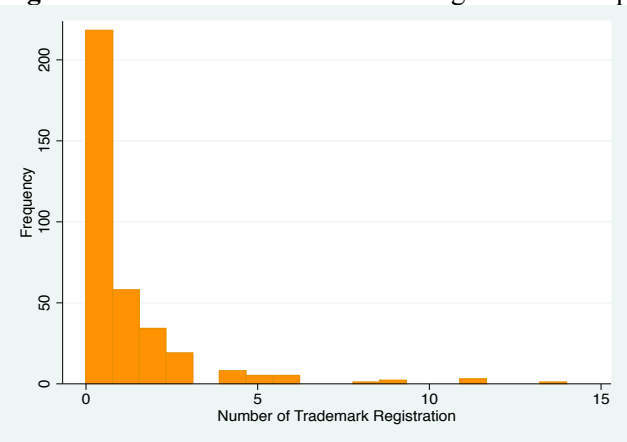


Figure 2-2: Trademark Registration Frequency Distribution: No Company-Owned vs. With Company-Owned Outlet

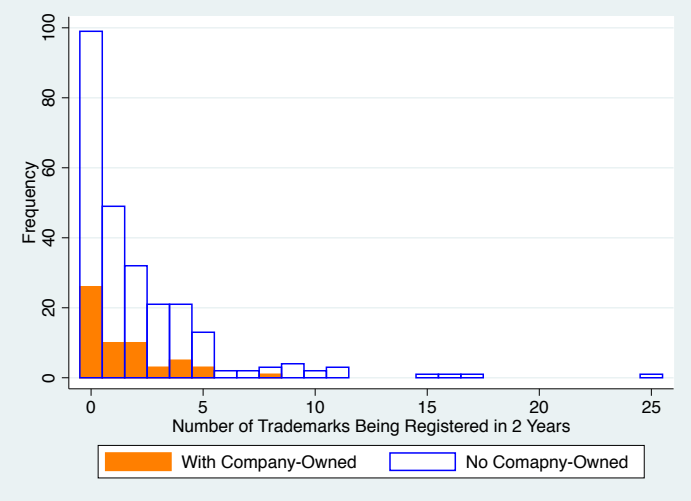


Figure 2-3: Trademark Registration Frequency Distribution: Small vs. Large Chain

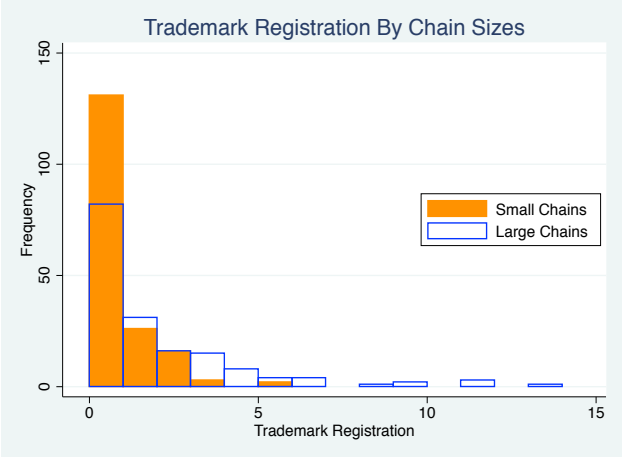
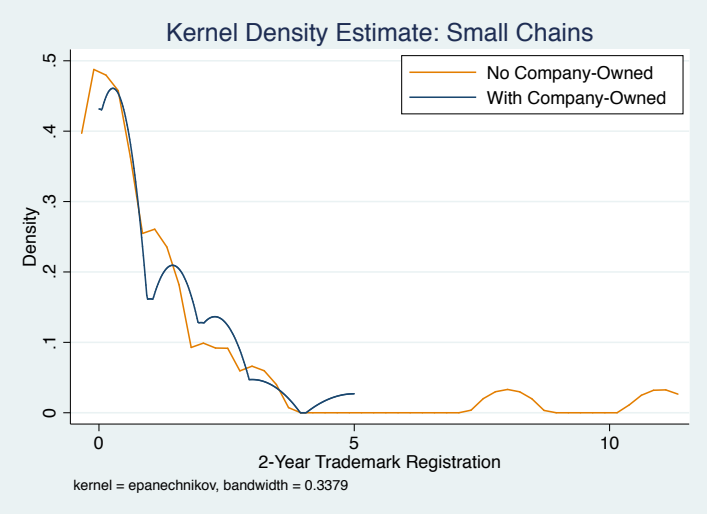
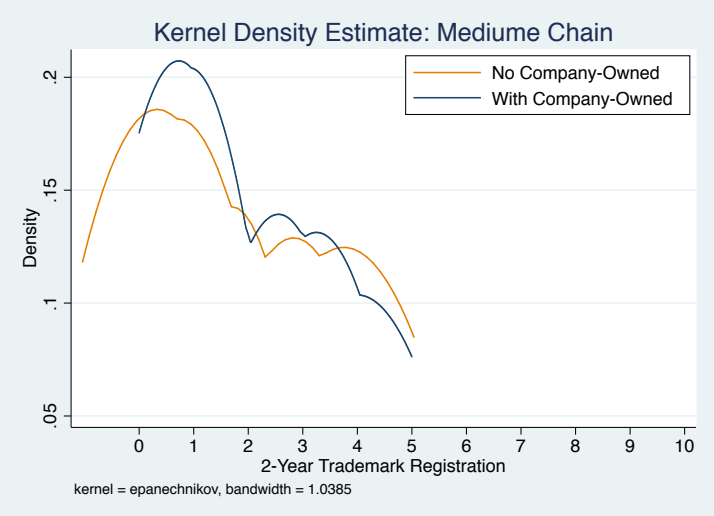


Figure 2-4: Trademark Registration Kernel Density: By Chain Size & Company-Owned





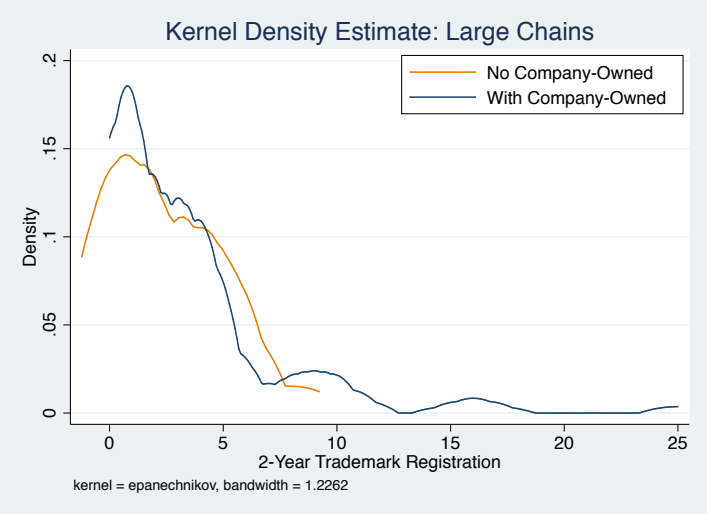
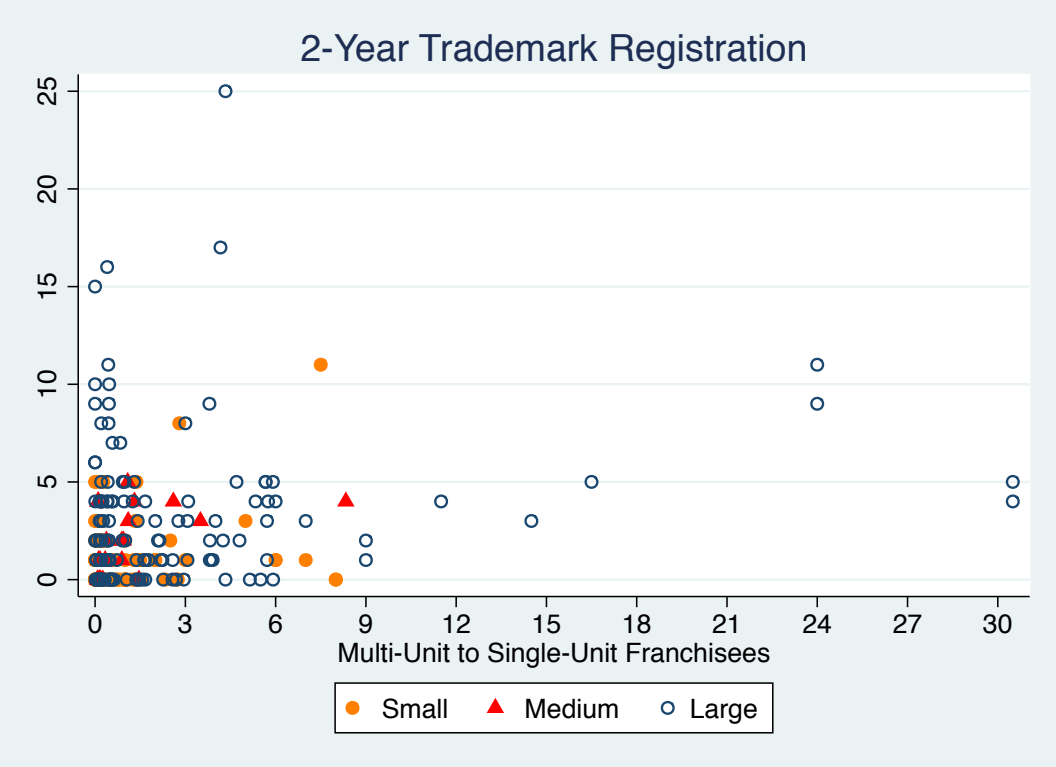


Figure 2-5: 2-Year Trademark and Ratio of Multi-unit to Single-unit Franchisees



CHAPTER 3. HOW DO FRANCHISE CONTRACTS CHANGE?

3.1. Introduction

Transaction cost economics maintains that governance mechanisms must align with the contractual parties' interests in order to provide proper incentives to motivate the parties' commitment to the collaboration (Coase, 1937; Williamson, 1985). However, a substantial subset of the recent literature finds that such governance alignment may not be attainable, and the sub-optimal contract, which may not provide sufficient incentives to derive efficient cooperative outputs, may exist and persist (Argyres & Liebeskind, 1999; Nickerson & Silverman, 2003; Williamson, 1996). Williamson (1996) maintains that when the costs of altering a contract are greater than the benefits of making such a change, the negative net effect suggests that the contract change will not occur. Williamson (1996) explains the stableness of an ostensibly inefficient governance arrangement by the construct of "irremediableness."

As previous franchising literature shows the stability of a franchise contract across time and geographic markets (Lafontaine & Oxley, 2004; Lafontaine & Shaw, 1999), the current chapter seeks to illuminate the mechanisms underpinning the stickiness or irremediableness of franchise contracts. Based on the comparison of marginal costs and marginal benefits, the current chapter explores both the drivers and the constraints of franchise contract change. More specifically, two drivers are identified to motivate the franchise contract change: innovation and franchisor change. The current chapter also draws on recent theoretical studies on social comparison costs (Nickerson & Zenger, 2008) and outlines how the social comparison costs faced by the new franchisees when the franchisor perceives a need to adjust the contract and apply the new contract term with these new franchisees can become constraints of contract

change. By identifying the new franchisees' social comparison costs, this chapter can examine the mechanisms underpinning the irremediableness of franchise contracts.

In practice, franchisors typically only apply the updated contract terms with new franchisees, so that the franchisors do not need to spend effort persuading the existing franchisees to shift from the contract in-force to the new contract (Anastos, Balconi, Bisbee, Gardner, & Karlin, 2013). By doing so, franchisors seem able to reduce drastically the persuasion costs associated with the contract change. However, when franchisors choose to do so, other indirect costs will occur, namely, the new franchisees' social comparison costs. As the new franchisees see they are under different contract terms than the other existing franchisees, --- say the new term requires a higher royalty rate or specific investment --- the new franchisees in the system may believe that they are being taken advantage of, or treated unfairly. Such a belief may cause some envious new franchisees to opportunistically take advantage of the franchise system's quality standard (Adams, 1965; Nickerson & Zenger, 2008; Rousseau, 1989). As franchisees' moral hazard behaviors, like shirking on maintaining their outlets' quality, will ultimately decrease the brand value or affect the competitive advantage of the franchise system, the social comparison costs may make the franchisor even more cautious when weighing the costs and benefits of making the contract change. That is, even though the common practice of applying the new contract terms to only selective franchisees reduces one of the adjustment costs, the persuasion costs, the franchisor still faces another cost – i.e., social comparison costs. With social comparison costs, the franchise contract will less likely be updated in response to the changes of transaction attributes, which creates the irremediableness of the franchise contracts.

Among all the contract terms, the current chapter chooses to examine how the marginal costs of altering the contract affect the change of two contract terms, royalty rate and franchisees'

required specific investment. These two contract terms are chosen because royalty rate and franchisees' required specific investment are two contract terms that have been highly examined in the extant franchise literature (Lafontaine & Slade, 1997). Multiple theories and empirical findings related to the two contract terms provide solid ground for the current chapter to build theoretical hypotheses. More importantly, royalty rate and franchisees' required specific investment are possibly the two most economic-driven terms in the franchise contract. As the current study is anchored in franchisor and franchisees' economic incentives, the two economically relevant contract terms enable us to examine how the economic benefits and costs affect decisions on whether to change the contract terms or not.

The chapter is organized as follows. The next section provides relevant theories to introduce the sources of marginal benefits and marginal costs of adjusting the contract. Leveraging these theories, the marginal benefits and marginal costs of altering the franchise contract under different scenarios are addressed, and theoretical hypotheses are developed to discover under which circumstances the contract terms will be changed. The third section introduces the data and empirical approaches. The fourth section shows the empirical results, and discusses the key results as well as several limitations of the current research. The last section provides a general conclusion.

3.2. Literature Review and Hypotheses

Transaction cost economics maintains that governance mechanisms need to adapt to transaction attributes to provide contractual parties proper incentives or safeguards to insure that sufficient effort is provided to the collaborative relationships (Anderson & Dekker, 2005; Coase, 1937; Williamson, 1985). For example, the double moral hazard problem suggests that a franchisor should request lower royalty rates from the franchisees whose local markets require

relatively more of the franchisees' efforts than the franchisor's efforts so that the franchisees will devote more effort, which will then maximize the franchisor's and franchisees' collaborative outputs (Bhattacharyya & Lafontaine, 1995). Despite the benefits of adapting contract terms in accordance to transaction attributes, contractual adaptation has been found to be rare in franchise contracts (Lafontaine & Oxley, 2004; Lafontaine & Shaw, 1999). The current chapter attempts to explore constraints to revising franchise contracts and to explain how the constraints make adaptation of franchise contracts much more difficult (Argyres & Liebeskind, 1999; Lafontaine & Shaw, 1999; Nickerson & Silverman, 2003). The current research design uses innovation and franchisor replacement as drivers that increase marginal benefits of contract change, and then treats the frictions of contract change as a moderator on the positive relationships between innovation or franchisor replacement and the likelihood of contract change.

3.2.1. Irremediableness of franchise contracts

The conditions under which a franchise contract will be changed are when the marginal benefits of such change are greater than the marginal costs of making the change. Williamson (1996) observed that such favorable conditions often might not obtain. When the marginal benefits of shifting to the alternative governance arrangement are less than the marginal costs of making such a shift, the net gains of shifting to an alternative governance mechanism are negative. Consequently, profit-maximizing contractual parties will not shift to the seemingly superior alternative governance arrangement. Williamson (1996) called such condition under which no superior feasible governance alternative can be implemented with net gains as "irremediableness." Williamson (1996) used QWERTY keyboard design to illustrate that when the marginal costs of making a change is not higher than the marginal benefits making the change, irremediableness will emerge.

The QWERTY keyboard was originally designed under the mechanical constraints of old typewriter technology. As the QWERTY layout is designed to slow typing speed to reduce the clashes of the keys when typing, it has been regarded as less efficient than the more intuitive keyboard layout such as Dvorak Simplified Keyboard (DSK), which was developed under the subsequent typewriter technology. Since the QWERTY layout is regarded as less efficient than DSK layout, researchers have been curious about why the QWERTY keyboard was never replaced by the DSK layout. David (1994) maintains that the path dependence makes an inferior standard like the QWERTY layout persist because the legacy has been built up. While path dependence provides an explanation to the QWERTY's dominant role, Williamson (1996) draws on research by Liebowitz and Margolis (1990) and proposes that the efficiency improvement that the DSK keyboard can bring to the users may be too limited to motivate the users to adopt such changes. Particularly, Liebowitz and Margolis (1990) find that the actual efficiency improvement through shifting from QWERTY to DSK keyboard may be close to zero or much less substantial than the DSK inventor and other supporters claimed. The costs in adopting DSK such as re-training the users and replacing the hardware, however, exist and can easily outweigh the very limited improved efficiency. Because the net improved efficiency by shifting from one alternative to another does not reach the threshold of remediableness, a less efficient arrangement like QWERTY remains, and is not replaced by a keyboard arrangement like DSK.

More specifically, Williamson (1996: 210) proposes the remediableness criterion as follows: "Within the feasible subset, the relevant test is whether (1) an alternative can be described that (2) can be implemented with (3) expected net gains." In the franchise context, if the alternative, "optimal," contract terms cannot be implemented with expected net gains, then the sub-optimal franchise contracts may exhibit stability. Previous research studies have

suggested that this stability may indeed obtain. For example, Lafontaine and Shaw (1999) find that franchise systems rarely change the franchise fees and royalty rates over time. Similarly, Lafontaine and Oxley (2004) find that franchise systems seldom change the franchise fees and royalty rate when the market environment is drastically changed due to entering a foreign country.

Argyres and Liebeskind (1999) apply Williamson's irremediableness concept to examine governance inseparability, or the irremediableness of governance mechanisms. Through the idea of governance inseparability, a series of constraints that can prohibit governance mechanisms to be changed are introduced. For example, contract duration may naturally prohibit contractual parties from making changes during the course of contractual relationship. In addition, Argyres and Liebeskind (1999) propose that the contractual commitment can be a constraint for contract change. More specifically, one company's contractual commitment to contract X with partner A may prohibit the same company from adopting contract Y with partner B. In a franchise system, when a franchisor uses contract X with franchisee A in 2016, there will be some frictions that the franchisor needs to resolve in order to use contract Y with franchisee B in 2017. For example, a franchisor may need to explain the causes of the changes to franchisee B so that franchisee B is comfortable joining the franchise chain under the new contract terms.

There are several costs of altering the franchise contract in a franchise system. One key cost can be the persuasion cost that the franchisor needs to incur in order to apply the change extensively to all the franchisees in the franchise system. Making changes on a franchise contract is typically a complex task for a franchisor and franchisees. To start, the costs of replacing existing contracts with current franchisees can be very high, as the agreements in-force do not require the existing franchisees to adopt the new proposed contract. Instead, the current

franchisees have the right to continue with the previously agreed-upon contract. In other words, the franchisor and franchisees' prior contractual commitments restrict the franchise system's ability to choose alternative governance arrangements even when the alternative is more efficient (Argyres & Liebeskind, 1999).

Therefore, if the franchisor wants to replace all the existing contracts with the contracts including new terms, the franchisor must make efforts to convince franchisees, or provide inducements for franchisees' acceptance of the proposed new contract. The required efforts of convincing franchisees can be high while the accomplishment can be limited. The franchisees may be resistant to shift to the new contract because some of the franchisees may not have sufficient calculative capabilities to foresee how the new contract terms will positively affect the future's residual returns (Simon, 1972). For example, the franchisor may try to persuade the franchisees that with a higher royalty rate, there will be more new product offerings, which will increase the sales and thus compensate for the royalty rate increase. The franchisees will need to estimate how many new products will be brought out and based on past experience what is the amount of new sales that will be generated through the innovative products. These estimates may not be easy for a franchisee. Even if some franchisees can foresee the economic impacts, but expect the new terms like a higher royalty rate will reduce their residual return, they may be reluctant to accept the new contract terms. In either scenario, the franchisor must visit the franchisees, introduce and explain the rationale for the change, provide inducements, and then obtain the franchisees' agreements to shift to a new franchise contract.

A common practice that has been widely adopted by franchisors to avoid the high persuasion costs is choosing to apply the new contract terms only to the new franchisees joining the system and to existing franchisees seeking contract renewal. The other existing franchisees

that are not up for renewal retain the prior generation contract that these existing franchisees signed in the beginning of the franchise relationship. Although such practice seems to reduce significantly the costs of altering contract terms, it gives rise to new governance costs such as social comparison costs that then increase the costs of altering the contract term in a different way.

Another cost of altering contract terms is the social comparison costs that arise with the selective practice of applying the altered contract term only to new franchisees and franchisees who seek contract renewal. The social comparison costs among franchisees may arise if not all franchisees, new or existing, are under the same contract terms (Nickerson & Zenger, 2008). Franchisees may compare their rewards to other franchisees in the system that are perceived as salient referents, just as individual employees may compare their rewards to their colleagues (Adams, 1963; Larkin, Pierce, & Gino, 2012). As royalty rates and franchisees' specific investment affect franchisees' residual returns (or rewards), the variation of royalty rate and amount of specific investment can easily create a sense of unfairness or inequity among franchisees (Adams, 1963). Observing other franchisees whose contract entails a lower royalty rate, the franchisees whose contract entails a higher royalty rate may perceive being treated unfairly by the franchisor. Consequently, with the unfair or envious reaction, the franchisees may reduce their efforts in the franchise relationships (Adams, 1963; Cropanzano, Goldman, & Folger, 2003; Li & Cropanzano, 2009). If some franchisees perceive that the franchisor is taking advantage of them through a higher royalty rate, these franchisees are more likely to behave opportunistically and take advantage of the system (Schminke, Ambrose, & Neubaum, 2005; Victor & Cullen, 1988).

The social comparison costs may have a greater impact on a franchise system's governance than a company's governance. Unlike hired employees, the franchisor cannot closely observe franchisees' potential moral hazard behaviors like lowering the service quality in the franchisees' outlets. The franchisor is also limited in its ability to use fiat to mandate franchisees to correct unwanted behaviors immediately after spotting them (Yin & Zajac, 2004). The franchisor may visit and inspect franchised outlets much less frequently than franchisor's company-owned outlets and only find out that the individual franchisees shirk on the outlet quality after significant delay. After discovering the quality issues in the franchisee's outlet, the franchisor may start by utilizing soft power to influence the franchisees to improve on the quality because the exercise of unilateral termination may easily bring a lawsuit to the franchisor from the terminated franchisees. With all the delays in quality examination and improvement, the franchise system will incur losses from some franchisees perceiving unfair treatment. With the inherent limitations of franchise relationships, franchisees' autonomous adoption of moral behaviors has always been critical for the survival and development of a franchise system (Rubin, 1978). Thus, maintaining the consistent royalty rate and specific investment terms among franchisees may become critical to promote franchisees' autonomous cooperative non-opportunistic behaviors in the system and to reduce the franchisor's monitoring costs (Treviño, Weaver, & Reynolds, 2006). That is, the social comparison costs associated with the contract difference among existing franchisees increases franchisor's costs of monitoring the franchisees' free-riding or other moral hazard behaviors which can reduce the value of the chain brand.

When a franchise system attempts to change the contract terms, persuasion costs and social comparison costs are two major costs that will be weighed against the benefits such change offers. While applying new contract terms to selective franchisees reduces the

franchisor's persuasion costs, the practice nevertheless increases social comparison costs in the franchise system. Therefore, even though most of franchise systems know they can apply the new contract terms only to the new franchisees and to franchisees seeking contract renewal, the costs of altering the franchise contract are not necessarily lowered. These costs of altering a contract helps explain why most franchise systems seldom change their contracts throughout time (Lafontaine & Shaw, 1999).

Facing persuasion costs and social comparison costs in altering the contract, the franchisor may choose to retain current contract terms and to change other governance mechanisms with which the adjustment costs are lower than those associated with contractual change. For example, the franchisor may increase the number of company-owned outlets instead of increasing the royalty rate and franchise fees (Azevedo & Silva, 2007; Lafontaine & Slade, 1997). The franchisor can also change the operation manual and require the franchisees to purchase more raw materials from designated suppliers instead of increasing the royalty rate or franchise fees (Sen, 1993). That is, other than the high adjustment costs of contract change that hinders the contract adaption, the relatively low adjustment costs of alternative governance mechanisms also suggest that the threshold for contract adjustment in a franchise system can be substantially high. The current study examines several conditions under which the benefits of altering contract terms are generally regarded to be higher than the costs of altering contract terms. The baseline hypotheses will be proposed that under these conditions, the franchise contracts are more likely to be changed. Then, factors that may increase the costs of altering contract will be introduced and used as the moderator of the positive relationships.

Particularly, I focus on changes in the royalty rate and franchisees' required specific investment, which are two of the most examined and economically relevant franchise contract

terms. The royalty rate specifies the percentage of outlet sales the franchisees pay to the franchisor. Franchisees' required specific investment refers to the amount of irreversible investment a franchisee must make in order to start the franchise relationship with the franchisor. A franchisees' specific investment includes the required lump-sum franchise fees, store decoration, and equipment expenditures. Thus, both changes in franchisees' required specific investment and changes in the royalty rates of the system will affect the franchisees' and franchisor's economic returns in devoting efforts into the collaboration. Consequently, the franchisor and franchisees will use the economic return each can receive to assess the marginal costs and marginal benefits of changing the existing required specific investment and royalty rates. Although it seems that the franchisors lead the contract change, franchisors do not dominate the change. For every change a franchisor would like to make on the two economic driven contract terms, the franchisor must consider whether the change will repel potential or existing franchisees. That is, franchisees' agreements on the proposed changes are necessary for contract change. In the following parts of this section, I first discuss two drivers that will increase the marginal benefits of contract change, innovation and franchisor change. Then a discussion of the factor that approximates the social comparison costs among franchisees follows.

3.2.2. Innovation as a driver

Product and service innovation can strengthen a franchise chain's competitive advantage. In the competitive restaurant industry, restaurant chains may find it difficult to maintain long-term competitive advantage without changing their products or services. Given the competitive environment, frequent introduction of innovative products or services often are necessary for restaurant chains to maintain competitive advantage in the face of new food trends. For example, McDonald's offered more salad items in response to the previous healthy food trend and artisan

burgers in response to the most recent gourmet burger trend. However, as the evidence in Chapter 2 suggests, a franchisor must adapt the chain's franchise contract to facilitate innovation effectively in a franchised restaurant chain. For example, according to the double-moral hazard model, the franchisor that intends to develop more innovation than its competitors ought to set the royalty rate higher than competitors' (Lafontaine, 1992). If a franchisor is too inexperienced to set up the proper contract terms for the strategic intent of innovation, the marginal benefits of making such changes on the contract terms can be quite substantial. Once changed, the updated royalty rate ensures the franchisor's incentives to devote effort to innovation can be maintained in the long run.

Following Chapter 2's findings, the current chapter proposes that the marginal benefits of changing the franchise chain's royalty rate will increase with the chain's innovation. As a franchise chain develops more new products and services, it sends out a signal to potential franchisees that the chain is more innovative. Potential franchisees, even if not understanding that the increased royalty rate provides incentives for franchisor's sufficient innovation effort, may perceive the continuous innovation as a signal that the chain is more competitive in the market and accept the proposed increase in the royalty rate when signing up for the franchise relationship. Thus, it is more likely that the franchise chain can change the royalty rate. More specifically, when a franchisor has accumulated more innovation in the recent past, it may find the marginal costs of increasing the royalty rate is lower and move on to increase the royalty rate.

Following previous chapters, the current chapter posits that the number of trademark registrations can approximate the product and service innovation in a restaurant franchise chain. As mentioned in Chapter 1, when the franchise system launches a new product or service, marketing campaigns or television commercials are often used to promote the product or service

innovation, so registering the trademark that will be used in the commercials is necessary to protect the franchise chain's property right. The accumulated trademark registrations in the past three years can be used to approximate the amount of innovation that a franchise system has developed. The first hypothesis proposes that there is a positive relationship between the accumulated trademarks registered in the past three years and the likelihood of increasing the royalty rate.

H1: The more trademarks registered by the franchisor in the past three years, the more likely the royalty rate will subsequently increase.

Along with the change of royalty rate, another contract term, the franchisees' specific investment, may also need to be adapted to support the strategic intent of innovation. With increased innovation, a franchisee's potential gains to free-riding may rise. For example, a franchisee that choose to postpone offering the innovative products or service in its outlet may be able to take advantage of other outlets' customers who visit the store looking for the innovative products they saw on TV commercials. By postponing implementation, the franchisee makes more profits in the short term but such behavior may hurt the standardization of the chain brand, a very typical moral hazard problem caused by the franchisee. Transaction cost economics predicts that the franchisee will be required to make a higher level of specific investment *ex ante* as an economic hostage to attenuate the franchisee's potential free-riding (Klein, 1980; Williamson, 1983). The higher the level of specific the investment (and thus the higher the economic bonding) that the franchisee commits to franchise relationship, the more financial loss the franchisee will suffer when opportunistic behavior by the franchisee is detected. Thus, compared to the higher initial specific investment commitment by the franchisee, the increased private economic benefits of taking advantage of other franchisees' and the franchisor's efforts

may become less economically attractive than under the original (lower) specific investment. According to transaction cost economics, a franchise system that has invested substantially in developing innovation in the past may find more beneficial to change and increase the amount of specific investment to mitigate the franchisee's incentives to free-ride. Therefore, the second hypothesis proposes a positive relationship between the level of innovation, proxied by the number of trademarks being registered by the franchisor in the past three years, and the likelihood of altering the amount of specific investment made by the franchisees.

H2: The more trademarks registered by the franchisor in the past three years, the more likely the franchisees' required specific investment in the franchise relationship will subsequently increase.

Although the accumulated trademark registrations may signal a chain's level of innovation, a chain may have structured the contract terms to be compatible to its intent of continuous innovation development. For example, some franchisors may be more seasoned and choose initially to set a higher royalty rate or specific investment for potential franchisees. For franchised chains that have already chosen contract terms that align with their strategic intent, the marginal benefits of making changes are very limited, so no contract change will occur. However, if there is a drastic change in the pattern of innovation, e.g., from developing one innovation every year to developing four innovations per year, the marginal benefits of altering the contract terms may be greater. It is because when there is a significant change, the misalignment of contract terms may be more severe. Therefore, while the first two sets of hypotheses use accumulated innovation to approximate the marginal benefits of changing the contract terms, Hypotheses 3 and 4 use the deviation of a chain's typical innovation pattern to approximate the marginal benefits. For a franchise system that does not offer any new product for a few years and then suddenly has quite a few innovations in the recent year, the original

contract terms may not be able to support the subsequent activities like franchisees' implementation. Therefore, making changes in the contract terms become more critical to sustain the innovation activities in the franchise system. With deviation from existing innovation pattern, the benefits of contract adjustment may be much greater than it is after years of stable innovation to the extent that it can pass the threshold of adjustment costs.

Furthermore, deviating from existing innovation patterns may also change the shared responsibilities or the interactions between the franchisor and franchisees. When a franchise system turns from non-innovating to actively innovating, the franchisor may need to develop stronger R&D capabilities and conduct more marketing research. Similarly, the franchisees may need frequent operational training to offer the new products in their outlets. When the relative importance of franchisor and franchisees' efforts changes with the innovation pattern, the contractual terms should adapt in order to (re-)align the franchisor's and franchisees' incentives (Arruñada, Garicano, & Vázquez, 2001; Lafontaine and Bhattacharyya, 1995; Lafontaine & Slade, 1997). If a franchise system moves from a non-innovative pattern to an innovative pattern, the relative importance of the franchisor's efforts may be substantially increased. In a non-innovative franchise system, the main task for the franchisor is to ensure that the quality standard is maintained in all restaurant outlets. However, in an innovative franchise system, the franchisor's role will substantially expand. Standing at the center of the franchise system's innovation, the franchisor must collect product market information, research consumers' preferences, search for suppliers, and communicate with the franchisees in order to develop and rollout innovative products (Cliquet & Nguyen, 2004). Moving from a non-innovative pattern to an innovative pattern, therefore, substantially changes the franchisor's shared efforts in the process of collaborating with the franchisees. As the relative importance of the franchisor's and

franchisees' efforts in the collaboration process evolves, the royalty rate should be changed correspondingly in order to re-align the incentives of the franchisor and franchisees (Sen, 1993). For example, in the new innovation pattern where the franchisor's role becomes relatively more important, the royalty rates are predicted to increase in order to catalyze the franchisor's effort. That is, using the trademark registration variance to approximate the innovation pattern change within the franchise system, the double moral hazard model suggests that the more drastic the increase of the past three year's trademark registration, the greater the likelihood of the franchise chain will vary to increase the royalty rate (Lafontaine & Bhattacharyya, 1995).

H3: The greater the positive deviation from the typical trademark registration pattern over the past three years, the more likely the royalty rate will subsequently increase.

Similarly, with the changed expectation on franchisees' responsibilities, the required specific investment may also need to be changed accordingly. When the new higher specific investment is applied, franchisees are more motivated to offer the innovative products in their outlets than they would have been under the lower previously required amount of specific investment. The new franchisees that become the "pioneer adopters" of the innovation can demonstrate the success to other less-motivated franchisees and encourage them to adopt the innovation in their outlets (Bradach, 1998). Thus, when a franchise system's innovation pattern dramatically changes, the benefits of altering the franchisees' specific investment may be substantial. Using trademark registration to approximate the innovations, I submit that a greater increase of the past three year's trademark registration is indicative of innovation pattern change that may drive the contract change to increase the franchisee's specific investment.

H4: The greater the positive deviation from the typical trademark registration pattern over the past three years, the more likely the franchisees' required specific investment will subsequently increase.

3.2.3. Changes of the franchisor as a driver

The other scenario where the expected net benefits of contract change may be substantially higher occurs when the franchisor transfers the ownership of the franchise system to a new owner. When there is a change of franchisor, the new franchisor does not legally need to adhere to the previous franchisor's commitment to the franchisees. Furthermore, because the new franchisor does not carry the "psychological contracts" (Rousseau, 1989) or "relational contracts" (Macneil, 1977) with existing franchisees, the existing franchisees may be less resistant to accepting new contract terms proposed by the new franchisor as compared to the established franchisor. Without an implicit psychological contract, the new franchisor can apply the new contract terms to more franchisees at lower negotiation or persuasion costs than the established franchisor. More importantly, the franchisees may be less likely to feel that it is unfair when the new franchisor proposes a contract change. Thus, when the new franchisor implements the contract term change, the net efficiency improvement is higher and is more likely to pass the threshold of remediableness. (Williamson, 1996)

A franchise contract is an incomplete contract binding the franchisor-franchisee relationship, just like an (incomplete) employment contract that binds an employer-employee relationship. In a franchise relationship a franchisee's beliefs about the reciprocal obligations between the franchisor and franchisees forms the psychological contract (Rousseau, 1989). For example, a franchisee may believe that the franchisor will agree on contract renewal if her outlet meets the system's quality standard. Such beliefs are usually specific to the franchisor (Morrison & Robinson, 1997). In a franchise relationship, the franchisor and franchisees each has a particular expectation on the inducements and contributions of each other (Barnard, 1938). For example, the franchisee may regard contract renewal as the franchisor's obligation in order to

induce the franchisee's contribution of maintaining her outlet's standard in accordance with the franchise system's standard. As the system's "standard" may vary with the franchisor's strategic plan, the expectation of the standard cannot be stated in the contract *ex ante*. In contrast, the franchisee must pay attention to understand the franchisor's strategic plan and follow the latest standard accordingly. For example, if the franchisee understands that the innovative product the franchisor plans to roll out is critical to enhance the system's brand value to the customers, and the new standard will be updated with the brand value, then the franchisee is more likely to follow the updated system standard and offer the new product voluntarily. The franchisee is willing to learn how to adapt to the dynamic standard because she believes such contribution will be rewarded with the franchisor's agreement on contract renewal.

However, if the franchisor moves to require the franchisee to accept a new franchise contract that carries a higher royalty rate, the franchisee may feel that the franchisor is reneging on the psychological contract that has been established. Because shifting to a higher royalty rate will change the franchisee's expected inducements with a lower residual return, the franchisee may feel the franchisor does not fulfill its own obligation on providing the expected residual return to the franchisee. The changes on the expected inducements and contribution may breach the reciprocity of the psychological contract (Adams, 1965; Morrison & Robinson, 1997; Rousseau, 1989). Moreover, the franchisor's (perceived) violation of psychological contract may reshape the franchisee's understanding of the franchise system's cooperative environment. Similar to the social comparison cost example mentioned earlier, changing the royalty rate in the middle of contract and reducing the franchisee's expected residual return may lead the franchisee to believe that the franchisor is taking advantage of the franchisee, which in turn may induce an opportunistic response by the franchisee.

However, in a franchise system, franchisees' voluntarily compliance with the system's quality standard and not taking advantage of other franchisees' efforts on maintaining standard is the most important source of value creation to franchise systems. The goal of a franchise system's governance design, including the structure of franchise contract, is to maintain the cooperative environment that will encourage the franchisees' and the franchisor's moral, non-opportunistic, behavior (Bhattacharyya & Lafontaine, 1995). As the quality guard of the system's quality standard, the franchisor is reluctant to see more franchisees' private opportunistic behaviors that will ultimately reduce the brand value shared by the franchisor and all other franchisees in the system. When some franchisees are motivated to take advantage of the chain brand because they feel betrayed by the franchisor's new contract proposal, the franchisor will unavoidably need to incur costs to increase its monitoring efforts. Therefore, when an existing franchisor considers whether to alter the misaligned franchise contract, the franchisor may be reluctant to change the contract terms due to its potential impacts on the franchisees' likelihood of opportunistic behaviors.

In contrast, if the higher royalty rate is proposed by a new franchisor, with whom the franchisee has not built the psychological contract, the franchisee may not feel so betrayed. Consequently, the franchisees may not attempt to take advantage of the franchise system or shirk on their outlet quality in order to get back for the franchisor's betrayal on proposing new contract terms. Furthermore, when a new franchisor replaces the established franchisor, the franchisee may be aware that she must build a new psychological contract with the new franchisor. The new franchisor may have a different strategic plan for the system and expect the franchisee to provide different contributions. In return, the new franchisee can expect the new franchisor to offer different rewards to induce her contribution. With such perception, when the new franchisor

proposes a higher royalty rate to the franchisee, the franchisee can evaluate how the higher royalty rate will affect the rewards she will receive in the new relationships more objectively. That is, the same franchisee can view the same amount of royalty rate increase without processing the psychological emotions or betrayal feelings. The franchisee may regard the new contract term as a part of the new psychological contract with the new franchisor, and agree on the new contract terms more easily (Rousseau, 1990). Furthermore, without the betrayal feelings, when the new franchisor makes a change in the contract, the franchisee may not feel that it is being taken advantage of and thus not have the desire to pay back the franchisor's immoral behavior by damaging the chain brand's consistency. The new franchisor, when proposing a contract change, may not face the increase of monitoring costs as much as the old franchisor does.

Therefore, the same contract change when proposed by a new franchisor is more likely to be accepted by the franchisee than when it is proposed by an established franchisor with whom the franchisee already built a psychological contract. As the same franchisees tend to be more willing to accept the contract change, the new franchisor can obtain more agreements, apply the new contract terms to more franchisees, and consequently obtain higher efficiency improvement from the same contract term change than the established franchisor. That is, when the new contract terms, such as the specific investment requirement and royalty rate, are proposed by a new franchisor, the efficiency improvement is more likely to pass the threshold of the remediableness criterion (Williamson, 1996). Thus, the franchisee's required specific investment and the royalty rates are more likely to be changed after the new franchisor takes over the franchise system. Unlike the previous hypotheses, however, the direction of change can be increasing or decreasing, depending on other drivers of franchisor change. For example, if the

old franchisor is replaced because the franchise system has not been maintained well, the new franchisor may want to decrease the royalty rate to attract new franchisees. However, if the old franchisor has been innovative, the new franchisor may find it appropriate to increase the royalty rate. Therefore, the hypotheses will only address the likelihood of change, not predicting the direction of such changes.

H5: The change of franchisor increases the likelihood that the royalty rate will subsequently vary.

H6: The change of franchisor increases the likelihood that the franchisees' required specific investment will subsequently vary.

3.2.4. Social comparison costs as moderator

In the context of franchising, a common source of social comparison costs may originate from the franchisees who sign up for the franchise opportunities at different time points. For example, if there is a contract change in 2017, the new franchisees who would like to participate the franchise chain in 2017 will adhere to the new contract terms. The difference between the old and new contract terms may make the new franchisees feel unfairly treated. Particularly, if the new contract terms require the new franchisees to pay a higher royalty rate or make a bigger specific investment than the earlier franchisees, the new franchisees may find it harder to accept the difference. With the social comparison costs associated with the new franchisees, the franchisor may first find contract change will make fewer franchisees willing to sign up the franchise opportunities. The franchisor may then need to invest more effort to explain the difference to the potential franchisees in the recruitment process. Even if the franchisor can convince the potential franchisees to sign up under the new franchise contract, the new franchisees may still come to perceive that they are being treated unfairly and may behave more opportunistically in the franchise relationships.

For a new franchisee, it may make sense for her to regard the franchisees that participate in the chain earlier than her as the referent group. When there are more franchisees who operate under the old lower royalty rate, the more likely the potential new franchisees will feel upset about being treated differently. Consequently, the new franchisees may be less likely to sign up for the new franchise contracts or more likely to behave more opportunistically in the franchise relationships after signing up under the new contract. Therefore, the current chapter uses the growth rate of the franchised outlet numbers in the previous year to approximate the potential social comparison costs faced by the new franchisees and the franchisor. I propose that the growth rate of franchised outlet number will negatively moderate the positive relationships proposed in the earlier hypotheses. That is, although innovation in the past three years may increase the marginal benefits of changing the contract terms, the same benefits may be weighted differently by the social comparison costs of such contract change. For example, if a franchise system just took in many franchisees in 2016 and would like to make a change of the contract terms in 2017, the system may face higher social comparison cost from the potential franchisees in 2017 than another franchise systems taking a few franchisees in 2016. Therefore, although the franchise system may have developed the same number of innovation in the past three years or may have the same positive deviation from its innovation pattern as the other franchise systems, the franchise system is still less likely to change the franchise contract than the other franchise system when facing such social comparison costs. The more franchised outlets are increased in the past year, the higher the social comparison costs the franchise system may face, and the net benefits of increasing the royalty rate and specific investment become smaller.

However, in the circumstances where the franchisor change drives the franchise system to change its contract terms, the social comparison costs are not expected to affect the predictive

relationships. When there is a change of franchisor, the new franchisees are less likely to compare themselves to the other franchisees that participate in the system in recent past. As the existing franchisees are not used as a reference group, the new franchisees may not perceive being treated unfairly when the new franchisor offers new contract terms. That is, the social comparison costs will not arise to the same degree when there is a franchisor change. Therefore, the final hypothesis proposes that the growth rate of the franchised outlets number, as a proxy of the new franchisees' social comparison costs, will negatively moderate the positive relationships between innovation and contract adjustment.

H7: The growth rate of the franchised outlet number will negatively moderate the positive relationships among innovation drivers and contract changes proposed by H1 to H4.

3.3. Data and Methods

3.3.1. Sample

The current sample consists of 66 restaurant franchised systems' Franchise Disclosure Document (FDD) from 2003 to 2012. The 66 franchise systems include all types of restaurants such as bakery, beverage, ice cream, pizza, quick service, and family restaurant. The FDD data for each franchise system are annually collected through California Electronic Access to Securities & Franchise Information and Illinois Attorney General. Each franchise system's annual trademark registration records are collected through USPTO trademark database.

3.3.2. Dependent variables

There are two dependent variables, change-to-increase and change of a franchise system's royalty rates and the franchisees' required specific investment. The two dependent variables are dummy variables. For change-to-increase, if the current year's royalty rate is higher than the previous year's, then the change-to-increase of royalty rate is coded 1. If the current

year's royalty rate is the same as or lower than the previous year's royalty rate, then the change of royalty rate is coded 0. The same operational rule is also applied to the change-to-increase of franchisees' specific investment.

For the second dependent variable, if the current year's royalty rate is different from the previous year's royalty rate, i.e., higher or lower than previous year's, then the change of royalty rate is coded 1. If the current year's royalty rate is the same as the previous years' royalty rate, the change of royalty rate is coded 0. The same operational rule is also applied to the change of franchisees' specific investment. Of all the observations, there are sixty-six royalty rate changes made by forty-three franchise systems. Only nine franchise systems never changed their required franchisees' specific investment during the sampling years.

3.3.3. Independent variables

There are three baseline independent variables and one moderator in the current study: the franchise system's past 3-year trademark registrations, the deviation from the system's trademark registration pattern, the franchisor change, and the growth rate of franchised outlet number. First, *Past 3-years' Trademark Registration* is recorded as the cumulative number of trademark registrations in the past three years, i.e., from *t-3* to *t-1*. Trademark registration records are obtained from USPTO. On average, a franchise system in the sample has four trademarks registered in the past three years, as shown in Table 3-1.

The second independent variable, *Positive Deviation from Trademark Registration Pattern* is a level variable. It is the difference of past three years' trademark registration and the three times of the chain's average yearly trademark registration. That is, if a franchise chain on average registers X numbers of trademark per year during the sampling period, this system-specific mean will be taken as the base number of trademark registration. A positive deviation

from trademark registration pattern is defined when the franchise system in the past three years registers at least three more trademarks than the system-specific mean, i.e., registered more than 3X+3 trademarks in the past three years. For example, if a franchise system on average register 1 trademarks, but in the past three years 7 trademarks are registered, the variable is coded as 1 as 7 –[3(1) +3]=1. If the system registered 8 trademarks in the past three years, the variable is coded as 2=8-[3(1)+3]. However, if the franchise system registers less than 5 trademarks in the past three years, *Positive Deviation from Trademark Registration Pattern* is coded as 0 to show there is no positive deviation from trademark registration pattern. The arbitrary cut-off point, three more trademarks in the past three years, is chosen based on my understanding of the data which show that franchise systems in the current sample on average register less than one trademark each year. Therefore, if a franchise system registers three or more trademarks in the past three years than it typically does in a three year period, it is comparatively high and can be described as a drastic increase of the innovations.

The third driver of contract change, *Franchisor Change* is a dummy variable, coded as 0 if there is no franchisor ownership change and 1 if there is a change in franchisor. In Item 1 of FDD, a franchise system must disclose whether the franchise business has gone through an ownership change. There are several types of ownership changes, however. Because the current chapter is interested in whether the replacement of the franchisor affects the franchisee acceptance of contract changes, some types of the ownership changes disclosed in FDD do not meet this definition and will be coded as 0. For example, when the franchisor acquired another franchise system or was the survival entity of merger and acquisition, the franchisor is most likely still the decision maker of the franchise system. Then the *Franchisor Change* is coded as 0. However, if the franchise system was acquired by a new business entity or became a new

business of another business entity, then the *Franchisor Change* is coded as 1. If the franchise system was spun off, the *Franchisor change* is coded as 0, considering that the mother business may still have influence on the franchise system's major decisions.

The moderator, *Growth Rate of Franchised Outlets*, is a continuous variable. The difference of the previous two years' number of outlets is divided by the previous year's total number of franchised outlets. The number of franchised outlets is recorded in Item 20 in FDD. The difference is then divided by the total number of franchised outlets so small chains can be comparable to large chains.

3.3.4. Control variables

To enhance the validity of the empirical model, several control variables are included. First, *Franchise Experience* is included to control the decreasing marginal benefits of learning to contract. Significant benefits of altering the contract may occur when an inexperienced franchisor gains insights through their early franchising activities and learns how to structure the contract more appropriately (Mayer & Argyres, 2004). A franchisor with limited franchising experience may not be able to foresee what royalty rate and specific investments are appropriate to bond the franchisees' economic incentives and maintain the franchisor and franchisees' collaboration (Williamson, 1996). The franchisor may find it easy to develop a franchise agreement based on a sample franchise agreement available on the internet and then choose to go ahead without consulting an experienced franchise attorney to figure out the control and coordination functions of the contract terms (Argyres, Bercovitz, & Mayer, 2007; Malhotra & Lumineau, 2011). Consequently, the original franchise contract may not align well with the franchise system's transaction attributes or business objectives (Argyres & Mayer, 2007). After dealing with several franchisees in different scenarios, the franchisor may gradually learn what

contingencies should be included and how responsibilities should be divided so that the franchise contract can facilitate the interactions among the franchisor and franchisees more efficiently (Argote & Miron-Spektor, 2011; Mayer & Argyres, 2004). The franchisor will find it necessary to learn from its own franchising experience and build the capabilities to adjust the contract terms (Argyres & Bigelow, 2007; Argyres & Mayer, 2007).

When an inexperienced franchisor suffers from these contract errors, detecting and correcting these errors (i.e., learning) will bring in benefits to the franchise systems. An inexperienced franchisor must gain awareness about the existence of contract errors and learn how to correct them. The inexperienced franchisor may learn from observing with franchisee-franchisor relationships in comparable systems and gain viable reference points to use for benchmarking. Consequently, the franchisor can adjust the contract terms and make them closer to more "similar" franchise systems, so that the economic terms may get closer to the "ideal" ones. Although extant research literature examining technology contracts suggests that a firm's learning to design contracts is typically local and incremental (Cyert & March, 1963; Mayer & Argyres, 2004; Nelson & Winter, 1982), the context of franchising restaurants may ease the challenges of a franchise system's learning and problem solving. Because restaurant franchise systems typically face less volatile technology change, the franchisor and franchisees may find it relatively easier to establish patterns of interactions and to hone-in on the proper principles to deal with similar events *ex post* (Anand & Khanna, 2000). Furthermore, in a franchise system, many conditions and scenarios are very similar across different geographic markets. The similarity of the context can help the franchisor and franchisees narrow down the search necessary to devise an effective contractual solution. When the franchisor finds a "correct" specific investment requirement or royalty rate from experimenting with a few franchisees, the

"correct" incentive design is very likely to be effective to all other franchisees too. It is because franchisees in the system typically face very similar business and operation conditions and their economic incentives within the franchise systems may be very similar. Therefore, it may not be a problem for an inexperienced franchisor to learn from repeating interactions with different franchisees in limited time to know how to adjust the contract terms to resolve the misalignment of franchisor's and franchisees' interests.

However, such benefits may be significantly reduced when the same franchisor accumulates much more experience of dealing with the franchisees. Further, with the growth of the franchise system, the franchisor typically will face higher persuasion costs, which usually increase with the number of existing franchisees. The net benefits of altering contract terms, such as royalty rate and required franchisees specific investment to align appropriately the franchisor and franchisees' incentives therefore decline with the franchisor's experience of interacting with the franchisees.

Franchise Experience is measured by the years the franchisor has been franchising the business. The year the franchisor started offering franchise business is obtained from Item 1 in FDD and experience is calculated from the years elapsed from the year the franchisor started offering franchising business. The average franchising experience is slightly more than seventeen years, as shown in Table 3-1.

Contract Duration is used as a control for the natural constraints the franchisor faces when considering making a change to the franchise contract (Argyres & Liebeskind, 1999). A franchise contract's duration is listed in Item 8 of FDD. The average of contract duration is twelve years and the median is ten years, while the shortest contracts are effective for five years and longest contracts last for twenty years. Contract duration is used as a control variable in the

empirical model because the length of contract may affect the marginal economic benefits that the franchise system can obtain through changing the contract term. Given the high costs of persuading existing franchisees to swap their franchise contracts for a new one, the franchisor typically will wait until the existing franchisees' contracts are up for renewal and apply the new terms on the renewal contract (Anastos, Balconi, Bisbee, Gardner, & Karlin, 2013). The franchisor may require the franchisees seeking renewal to sign the "then-current" version of the franchise agreement. That is, if the franchisees would like to continue their franchise relationships with the franchisor, they are required to follow the then-current terms. The practice of then-current renewal contract is generally accepted by court (e.g., *Home Instead, Inc. v. Florance, Bresler's 33 Flavors Franchising Corp. v. Wlkosin, West L.A. Pizza, Inc. v. Domino's Pizza, Inc.*) as long as the then-current terms follow the basic franchising disclosure requirement and are not discriminative to certain franchisees. Therefore, the then-current contract practice is prevalent in franchise business (Anastos, et al., 2013).

Nevertheless, using the then-current renewal contract may limit the benefits of adapting franchise contract because only the new franchisees and the franchisees looking for renewal will be affected by the change. When only a part of the franchisees' incentives and behaviors are to be affected by the new contract terms, the benefits of changing the contract terms become lower, making the franchisor less willing to change the contract. Such benefit limits are more severe when the length of franchise contract is longer. The longer the franchise contract, the longer the franchisor needs to wait to renew the contract, or to "replace" the old contracts with existing franchisees. Thus, the longer the original contract, the more difficult for the franchisor to appropriate the benefits from changing the contract terms and the less likely the franchisor is

willing to change the contract terms, such as royalty rate and the required franchisees' specific investment.

Finally, as agency theory proposes that the royalty rate and franchise fees, which is a part of franchisees' specific investment, will be changed simultaneously, a dummy that reflects the change or the increase of the other contract term is also included as a control. For example, in the model predicting royalty rate change, the change of specific investment is included; and in the model of franchisees' specific investment change, the change of royalty rate is included.

3.3.5. Empirical models

As the dependent variables are dummy variables, the current chapter adopts panel data, and a Logit model with franchise system fixed effect and clustered errors (Wooldridge, 2010). Franchise system fixed effects are included in the model to control the unobserved constant heterogeneity of a particular franchise system. With the challenges of contract changes, the occurrence of such changes may take some time to happen. Therefore, independent variables are lagged in the empirical model. Innovation variables, accumulated trademark registration in the past three years and deviation from the existing trademark registration pattern, are taken with one-year lag. The change of franchisor is taken with a one-year lag as the reduction of social comparison costs tends to be highest when the new franchisor just takes over. The longer the new franchisor interacts with the franchisees, the more psychological contracts builds, and the higher the social comparison costs.

3.4. Results and Discussion

3.4.1. Empirical results

Tables 3-2 reports the empirical results for the increase of royalty rate, and table 3-3 reports the empirical results for the increase of the franchisees' required specific investment. As

shown in Table 3-1, the two innovation variables, past three years' trademark registration and positive deviation from the chain's innovation pattern, correlated to each other. Therefore, the two innovation variables are not put into the same model to reduce the multicollinearity problem. In tables 3-2 and 3-3, columns (1) and (3) are the baseline models, and columns (2) and (4) add interaction terms into the models. In order to provide more information of the estimated Logit model, the average marginal effect of the independent variables will be reported in the following discussion. An average franchise chain in the sample registers 4 trademarks in each three-year period, has 17 years of franchising experience, 19.4% franchised outlet growth rate and a 12-year contract. The average franchise chain will also be used to present how the marginal effect will change as the franchised outlets growth rate increases.

Columns (1) and (2) shows that without adding the interaction term, past three years' trademark registration is insignificant. After including the interaction term with the growth rate of franchised outlets, past three years' trademark registration becomes significant. The direction of the main effect and the moderating effects are in line with Hypotheses 1 and 3. The result suggests that past three years' cumulative trademark registration as a proxy of incremental innovations increases the likelihood of changing to increase the franchise system's royalty rate. However, the positive marginal effect can be reduced with the increase in the growth rate of franchised outlets. The average marginal effect for past three years' trademark registration is about 3 percentage points. That is, for an average chain in the sample, when the chain registers one more trademarks in the past three years, which is about 4+1=5 trademarks in three years, the chain is 3% more likely to increase its royalty rate. Figure 3-1 present how the marginal effect declines with the increase of franchised outlet growth. When there is little franchised outlet growth last year, the marginal effect of incremental innovation is 3.47%. However, if the chain

increases 15% more franchised outlet last year, the positive marginal effect declines to 2.14%. The estimated marginal effect for franchised outlets growth rate greater than 20% is insignificant although the trend still appears to be declining.

Columns (3) and (4) provide results for positive deviation from the franchise chain's innovation pattern. The results corroborate Hypotheses 3 and 7. That is, a drastic increase of innovation, approximated by positive deviation from the chain's innovation pattern, increases the likelihood of increasing the chain's royalty rate, but the positive effect declines with the increase of franchised outlet growth. For an average chain in the sample, if the chain registered four more trademarks than its own three-year average in the past three years, the chain is 58.82% more likely to increase its royalty rate. Figure 3-2 shows the declining trend of the marginal effect when the growth rate of franchised outlets increases. For example, when there is little franchised outlet growth last year, the marginal effect of drastic increase in innovation is 67.02%. However, when there is a 20% increase in franchised outlets last year, the marginal effect of drastic increase in innovation becomes 38.87%.

Combining the findings in table 3-2, the average marginal effect of incremental innovation is much smaller than the average marginal effect of a drastic increase of innovation. The difference on the average marginal effects of the two innovation variables suggests that the marginal costs of changing to increase the royalty rate are substantially high. While incremental innovation may bring in some more marginal benefits, the increase of marginal benefit may still comparatively small. However, when there is a drastic increase in the system's innovation, the marginal benefits of re-aligning the franchisor and franchisees' incentives are then much greater, or more sufficient to surpass the high threshold of changing. That is, the two results together

highlight the irremediableness of the franchise contract in the face of small alterations, evidence consistent with findings in Lafontaine and Shaw (1999) and Lafontaine and Oxley (2004).

Table 3-3 presents the empirical results for predicting the increase of franchisees' specific investment. Unlike table 3-2, the two innovation variables in table 3-3, past three years' trademark registration and positive deviation from the chain's innovation pattern, are not statistically significant. The results show that the decision to increase franchisees' specific investment is not related to the system's innovation. However, in columns (1) and (2), the increase of royalty rate is statistically significant. Combining the results regarding royalty rate increase, the results may suggest that although the incremental increase of innovation does not directly increase the likelihood of raising franchisees' specific investment, the incremental increase of innovation may indirectly increase the likelihood of raising franchisees' specific investment. That is, when a franchise system registers one more trademark in the past year, the system is slightly more likely to raise its royalty rate. If the royalty rate is raised, it increases the likelihood of raising the franchisees' specific investment.

Table 3-4 presents the results for Hypotheses 5 and 6 that predict the change of franchisor increases the likelihood of changing contract terms like royalty rate and franchisees' specific investment. Columns (1) and (2) of table 3-4 show that Hypothesis 5 is supported while columns (3) and (4) show that Hypothesis 6 is not supported. That is, when there is a change of franchisor, the franchise system's royalty rate is more likely to be changed but it doesn't affect the likelihood that the franchisees' specific investment will be changed. In column (1) that controls the incremental innovation, for an average chain in the sample, if there is a franchisor change, the chain is 89% more likely to change its royalty rate than when there is no franchisor change. In column (2) that controls the drastic increase of innovation, for an average chain in the sample,

if there is a franchisor change, the chain is 188% more likely to change its royalty rate than when there is no franchisor change. However, the results in columns (3) and (4) suggest that when there is a franchisor change, the likelihood of changing franchisees' specific investment remains the same. Although the franchisor change is insignificant in table 3-4, it is positive and statistically significant in table 3-3. That is, when there is franchisor change, the system is more likely to increase the franchisees' specific investment requirement. Therefore, despite the insignificant result in table 3-4, the franchisor change is shown to affect the likelihood of raising franchisees' specific investment compared to the likelihood of non-changing or decreasing the franchisees' specific investment.

A possible reason for the different results in table 3-3 and 3-4 is associated with the differences among mechanisms that lead to the decrease, increase and non-change of specific investment. In particular, the mechanisms that lead to the decrease of franchisees' specific investment may be very different from the mechanisms that lead to the increase of franchisees' specific investment. For the change of specific investment variable, the decrease and increase of franchisees' specific investment are grouped together against the non-change of specific investment. The underlying assumption is that the decrease and increase of franchisees' specific investment are affected by the independent variables similarly, but the non-change of specific investment is affected by the independent variable in different ways. Similarly, for the dependent variable of the increase of franchisees' specific investment, the decrease and non-change of specific investment are grouped together. The fact that franchisor change is significant in predicting the increase of franchisees' specific investment but not significant in predicting the change of franchisees' specific investment may signal that the decrease and non-change of specific investment follows similar underlying mechanisms, which is different from the increase

of specific investment. More specifically, the results suggest the change of franchisor positively affects the likelihood that the franchisees' specific investment will be increased but not affect the likelihood that the franchisees' specific investment will be decreased. This finding is consistent with the implicit psychological contract argument.

With the current sample, not all hypotheses proposed in the chapter are supported. Table 3-5 organizes the seven hypotheses proposed in the current chapter and whether the empirical evidence supports each hypothesis. In general, the independent variables in this chapter can effectively identify the drivers and constraints of increasing or changing royalty rate, while the same variables find little evidence to the increase or change of franchisees' specific investment. Below, I discuss the implications of the empirical findings and non-findings.

3.4.2. Discussion

The current chapter examines the circumstances under which the marginal benefits of changing contract terms will be greater than the marginal costs of making such changes, and considers the moderating effects associated with the franchisees' social comparison costs. Chapter 3 contributes to the literature by providing addressing both theories based on rationality and bounded-rationality. The current data show that the rational economic comparison between the marginal costs and marginal benefits is critical to the decision of whether or not a franchise system will change the contract terms to bring back the incentive alignments. However, through some of the hypotheses built upon the limited rationality of franchisees in particular, the current study can explore how the bounded rationality of franchisees in particular can constrain the franchisor and franchisees from making the rational decision of changing the contract terms (Hannan & Freeman, 1984; Nickerson & Silverman, 2003).

Furthermore, although irremediableness in franchise contract is observed in our study, we also find that the conditions for the contract to be changed and the conditions these changes to be brought about are consistent with the theoretical prediction. That is, despite the high adjustment costs, when a franchise system has a drastic increase in the innovation, the franchise systems still manage to modify the contract terms in order to remedy the economic efficiency when the transaction attributes are changed. Meanwhile, the current chapter identifies sources of adjustment costs that can constrain the occurrence of change in franchise systems.

Although not all hypotheses are supported, I find some empirical evidence regarding the factors that affect the likelihood of changing the royalty rate. With the current sample, we find supportive evidence that innovations can drive the increase of royalty rate. In particular, a drastic increase in a system's innovations enhances the likelihood of raising royalty rate by a lot. After having a positive deviation from existing innovation pattern, the existing royalty rate may no longer align the incentives and effort of the franchisor and franchisees as properly as it used to. Increasing the royalty rate to the appropriate level can enhance the economic efficiency of the franchise contract through realigning the franchisor and franchisees' interests. This empirical finding that innovations can drive a franchise system to change its royalty rates supports the classic theoretical maintenance that contractual parties will agree on updating the contract terms when the existing contract terms can no longer efficiently align their incentives and effort in their interactions.

In addition to the drivers of change, the current chapter also finds some constraints of contract change. Through examining how the change of franchisor affects the change of contract terms, the current sample may suggest that franchisees' psychological contracts with existing franchisor can constrain the contract change, particularly when the change is made to increase

the franchisees' economic payment. While increasing and decreasing royalty rate or specific investment are both changes, the difficulties of making these two adjustment are different. While the decrease of royalty rate or specific investment can be easily accepted by the franchisees, the increase of these two payment terms can be more difficult. That is, the marginal costs of increasing the two economic payment terms is much higher than the marginal costs of lowering the two terms. The franchisees' perception of being betrayed by the franchisor may only occur when the franchisor demands a higher economic payment rather than lower. Therefore, while the likelihood of reducing the specific investment may be similar under the existing franchisor or the new franchisor, the likelihood of raising specific investment may be higher when the new franchisor presents. That is, when there is contract misalignment and the remedy requires the franchisees to make higher economic payments, the new franchisor is more likely to establish the change than the existing franchisor who are constrained by the psychological contracts with the franchisees (Rousseau, 1989). Although some related evidence is found, more studies may be still needed to verify how the franchisees' psychological contract with the franchisor constrains the change of contract terms.

The other constraint of contract change found in this chapter is the social comparison costs faced by the new franchisees may increase the marginal costs of making such changes and constraint the franchisor to adapt the more efficient contract terms (Nickerson & Silverman, 2003; Williamson, 1996). In practice, franchisors usually apply the updated contract to new franchisees because it will reduce the franchisor's effort in convincing the existing franchisees to adopt the new contract. A new franchisee facing the new contract terms may wonder why there is a difference between the new and old one. Particularly, the royalty rate is directly associated with the new franchisee's residual claims and economic incentives. If the franchisor cannot

justify the royalty rate difference effectively, the new franchisees' economic incentives will be affected and may be more likely to cause the franchisees' moral hazard problem *ex post* (Adams, 1965; Nickerson & Zenger, 2008). The franchised outlets' size growth rate is used to approximate the social comparison costs faced by the new franchisees, which increases the adjustment costs faced by the franchisor and franchisees in adapting to the new contract. As the social comparison costs increases with the higher growth rate of franchised outlets, the estimated average marginal effect of the innovation on predicting the likelihood of changing the royalty rate appears to decline with the higher growth rate of franchised outlets. Using the growth rate of franchised outlets as a moderator, the current study find evidence on how social comparison costs faced by new franchisees constrain the change of contract terms like royalty rate.

By identifying new franchisees' social comparison costs as a constraint of contract change, the current finding shows the importance of franchisor's effort in justifying the changes to the new franchisees. In practice, franchisors typically choose to apply the updated contract terms to only new franchisees in hopes of eliminating the persuasion efforts required to convince the existing franchisees. However, doing so only reduces part of the adjustment costs as different contract terms may create social comparison costs. Some characteristics of the new franchisees' social comparison costs may make it easy to overlook the costs. Particularly, the social comparison costs, compared to the costs of persuading existing franchisees, is indirect to the franchisor. Although the social comparison costs may lead to the demand decline from new franchisees in the short term, the challenges of the social comparison costs occur after the new franchisees join the franchise chain. New franchisees that feel unfairly treated may take advantage of the system's shared public good such as brand value more easily. Therefore, when choosing to apply the updated contract terms to new franchisees, the franchisor must make

efforts to persuade the new franchisees such change does not take advantage of the new franchisees and ease out the new franchisees' unfair feelings.

Compared to the change of royalty rate, the current chapter does not find as much evidence for the change of franchisees' required specific investment. In the current sample, there are more frequent franchisees' specific investment requirement than royalty rate change, i.e., 101 times vs. 63 times. That is, the costs of adjusting franchisees' specific investment may be lower than changing the royalty rate. However, the current data found it more difficult to find relevance between the independent variables and the change of franchisees' specific investment. One possibility is that there is measurement error. For example, in transaction cost economics, the redeployability of the investment affects the franchisees' economic incentives. However, the current measure, as constructed, may not be well specified and may contain both redeployable and non-redeployable investment. While some equipment may not be redeployable, a lot of kitchen equipment may be utilized in another restaurant to prepare similar food items. Considering the possibilities, I also develop an alternative measure which only accounts for 10% of the equipment and fixture expenditures, instead of 100% of the expenditures. Unfortunately, such modification of the franchisee's required specific investment measure does not change the estimated results. Another related measurement error is that when there is a change in franchisees' specific investment, we do not know whether the the change is on the redeployable or non-redeployable part of investment. If the future studies can obtain a better measure to approximate the franchisees' non-redeployable investment unique to the particular franchise system, the findings may suggest differently. Second, according to transaction cost economics, the other mechanism through which franchisees' specific investment affect their economic incentives is the quasi-rents that the franchisees may lose when being terminated by the

franchisor. The current measure of franchisees' specific investment unfortunately does not include elements that can approximate the quasi-rents the franchisees can receive should the franchise relationships continue. Were there better measures for franchisees' potential loss of the quasi-rents, the change of this variable may present more solid evidence than the franchisees' specific investment.

Another possible reason that may lead to the insignificance of independent variables could be that franchisees' specific investment may serve multiple purpose or face other constraints when used to govern the franchisees' economic incentives. For example, in their study of McDonald's specific investment requirement, Kaufman and Lafontaine (1994) find that the franchisor needs to take the potential franchisees' wealth into consideration when designing the required amount of franchisees' specific investment. Given that McDonald's prefers having the franchisee directly involved in the outlet's daily operation than the franchisees as pure financial investors, McDonald's must lower the amount of required specific investment so that the potential franchisees who are young and only have limited personal savings can participate into the franchise business. Considering that the franchisees' required specific investment may be associated with other objectives the franchise system would like to achieve, the weight of re-aligning the franchisees' incentives on improving collaborative innovation may get lower. It may then lead to the empirical findings that innovation is less relevant to the change of franchisees' specific investment.

3.4.3. Limitations and future research

Despite the contributions of the current study, there are several limitations. First, some measurement problems of variables exist, which may lead to the non-findings of empirical study. For example, the current measure of franchisees' required specific investment may include some

redeployable investment, which is theoretically irrelevant to the focal decision I am interested. Furthermore, franchisees' required specific investment does not approximate the quasi-rent that the franchisees can obtain, should they follow the performance expectation of the franchisor. If there are better measures for the theoretical ideas, the current study may be able to find more solid evidence.

Furthermore, some alternative explanation may be consistent with the current results and the current sample does not have observables to exclude these explanations. For example, the negative moderating effect can be explained by the Penrose effect faced by a franchisor (Tan & Mahoney, 2005) instead of social comparison costs. That is, the more the franchised outlets grow, the more effort the franchisor must devote to developing these new franchisees. Therefore, in the short term, the franchisor may face higher managerial resource constraints after the number of franchised outlets is increased. With fewer managerial resources available, the franchisor may not be able to respond to the misalignment of franchise contract as fast as previously. Therefore, the data present similar negative moderating effect. However, some patterns may suggest that the competing hypothesis of the Penrose effect may not be the underpinning factor. For example, on average, franchise systems that have changed either the royalty rate or franchisees' specific investment have higher growth rate of franchised outlet on average. If the Penrose Effect was operative, the franchise systems that have gone through contract change would have lower or similar mean franchised outlet growth rate.

Finally, although the current chapter examines the changes of two contract terms that are relevant to the franchisor and franchisees' economic incentives, the other critical contract term that is not addressed is the input purchase requirement. Due to data limitations, the changes of input purchase requirement cannot be consistently observed by the information provided by FDD.

In FDD, input purchase requirement is usually listed as a range like 70% to 80% instead of a definite number like 6% royalty rate. A franchise system may change the actual input purchase requirement from 72% to 78%. However, when a franchise system makes such change, the observable data we currently have will still record as no change. That is, the current observable input purchase requirements are biased toward no change. This data restriction reflects on the fact that there are only six data points available for input purchase requirement increase. With this data limitation, the current data cannot generate much insight for the drivers and constraints of input purchase requirement change. If future research can collect refined input purchase requirement data, we will be able to see whether the change of input purchase requirement follows a similar pattern as the change of royalty rate.

The current chapter examines the drivers and constraints of franchise contract change. In particular, new franchisees' social comparison cost is identified as one adjustment cost to the change of franchise contract. As previous franchise literature found there are few changes of franchise contracts, future research may explore other sources of the adjustment costs and advance our understandings about the challenges of adjusting franchise contracts. Furthermore, future research can examine the performance consequence of not making necessary changes to the contracts (Nickerson & Silverman, 2003). By exploring the sources of constraints and the performance implications, our developed theory can provide better managerial recommendations to franchising practitioners when weighing the costs and benefits of changing the contract terms.

3.5. Conclusion

The current chapter examines the drivers and constraints of franchise contract change. The changes of transaction attributes such as innovation or franchisor change are found to drive the modification of the royalty rate in the franchise contract. As franchisors usually apply the

new contract terms to new franchisees so they can stay away from making tremendous efforts to persuade the existing franchisees to swap contract, the common practice does not eliminate all adjustment costs of the change. Applying the new contract terms only to the new franchisees brings in another costs: social comparison costs that arise when new franchisees compare their contract terms and economic returns to existing franchisees' contract terms. New franchisees' social comparison cost is found to constrain the franchisor and franchisees on making the necessary change of franchise contract. The existence of social comparison costs not only affects a franchise system's tendency of changing contract terms, but also may have multiple implication for the governance mechanisms that can be used to govern franchisor-franchisee relationships. Future research on the governance of franchise systems may need to consider social comparison costs to better understand how perceived fairness affects the franchisor and franchisees collaboration.

3.6. Figures and Tables

Table 3-1: Summary Statistics

Variable	Obs.	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Royalty Rate Change	479	0.14	0.35	1								
(2) Royalty Rate Increase	479	0.09	0.29	0.80*	1							
(3) Specific Investment Change	508	0.59	0.49	0.17*	0.14*	1						
(4) Specific Investment Increase	508	0.44	0.50	0.18*	0.19*	0.74	1					
(5) Past 3-years' Trademark Registration	719	4.37	6.59	-0.07	-0.02	-0.00	0.02	1				
(6) Positive Deviation from Trademark Registration Pattern	725	0.27	1.10	0.03	0.02	0.07	0.03	0.66*	1			
(7) Franchisor Change	813	0.03	0.18	0.05	0.08	-0.04	-0.0	-0.00	0.00	1		
(8) Franchised Outlets Size Growth	718	0.19	1.50	0.08	0.03	0.06	-0.01	0.10	0.13*	-0.01	1	
(9) Franchise Experience	896	17.27	11.56	-0.07	-0.05	-0.01	-0.03	0.11*	0.14*	0.04	-0.08*	1
(10) Contract Duration	635	11.95	4.63	-0.02	-0.02	-0.06	-0.04	0.04	0.14*	0.0	-0.06	0.33*

Table 3-2: Likelihood of Royalty Rate Increase

	(1)	(2)	(3)	(4)
H1:Past 3-Years' Trademark Registration	0.89	1.00*		
	(0.50)	(0.44)		
H3:Positive Deviation from Trademark Registration Pattern			15.38***	18.45***
			(0.40)	(1.50)
H7: Size Growth*Past 3-Years' Trademark Registration		-1.64*		
		(0.79)		
H7: Size Growth*Deviation from Trademark Registration Pattern				-29.46*
				(13.51)
Franchised Outlet Size Growth Rate	3.08	12.54*	6.78	7.37
	(2.60)	(6.04)	(3.69)	(3.77)
Franchisor Change	11.39***	11.89***	12.52***	12.14***
	(1.44)	(1.48)	(1.45)	(1.47)
Franchising Experience	-16.00	-15.02	-14.63	-13.52
	(9.93)	(10.25)	(9.47)	(9.15)
Contract duration	-1.60***	-1.67***	-1.67***	-1.61***
	(0.11)	(0.16)	(0.19)	(0.19)
Specific Investment Increase	4.77*	4.90*	3.00*	2.92*
	(2.15)	(2.40)	(1.45)	(1.39)
Constant	29.65	27.36	30.78	28.65
	(21.97)	(21.87)	(21.17)	(20.55)
Observations	253	253	253	253
AIC	169.94	167.48	170.14	169.53
BIC	406.67	407.75	410.41	413.33

Standard errors in parentheses; * p<0.05 ** p<0.01 *** p<0.001

Table 3-3: Likelihood of Franchisees' Specific Investment Increase

	(1)	(2)	(3)	(4)
H2:Past 3-Years' Trademark Registration	-0.09	-0.10		
	(0.06)	(0.06)		
H4:Positive Deviation from Trademark Registration Pattern			-0.28	-0.29
			(0.22)	(0.27)
H7: Size Growth*Past 3-Years' Trademark Registration		0.11		
		(0.14)		
H7: Size Growth*Deviation from Trademark Registration Pattern				0.10
				(0.41)
Franchised Outlet Size Growth Rate	-0.93	-1.58	-0.93	-0.91
	(0.72)	(1.34)	(0.76)	(0.76)
Franchisor Change	11.35***	11.44***	11.51***	11.52***
	(0.64)	(0.63)	(0.66)	(0.66)
Franchising Experience	-3.25*	-3.34*	-3.25*	-3.26*
	(1.36)	(1.39)	(1.32)	(1.33)
Contract duration	-0.00	-0.00	0.00	0.00
	(0.06)	(0.06)	(0.07)	(0.07)
Royalty Rate Increase	1.42*	1.43*	1.36	1.36
	(0.72)	(0.72)	(0.76)	(0.76)
Constant	7.86*	8.03*	7.54*	7.57*
	(3.17)	(3.22)	(3.04)	(3.08)
Observations	253	253	253	253
AIC	310.68	310.22	310.02	309.99
BIC	480.29	479.83	476.09	476.06

Standard errors in parentheses; * p<0.05 ** p<0.01 *** p<0.001

Table 3-4: Likelihood of Royalty Rate and Franchisees' Specific Investment Change

	(1) H5: Royalty Rate		(2) H6: Specific Investment	
H5 & H6: Franchisor Change	61.10***	54.68***	0.56	0.78
	(1.39)	(1.51)	(0.61)	(0.62)
Past 3-Years' Trademark Registration	0.93*		-0.19*	
	(0.40)		(0.08)	
Positive Deviation from Trademark Registration Pattern		36.08***		-0.33
		(1.72)		(0.20)
Franchised Outlet Size Growth Rate	2.07	6.62	-0.79	-0.83
	(2.68)	(5.74)	(1.00)	(1.13)
Franchising Experience	-6.46	-5.67	-5.39***	-4.87***
	(4.87)	(5.30)	(1.46)	(1.46)
Contract duration	-8.25***	-7.47***	-0.04	-0.03
	(0.20)	(0.36)	(0.07)	(0.07)
Specific Investment Change	0.82	-0.76		
	(1.41)	(1.76)		
Royalty Rate Change			0.16	0.03
			(0.55)	(0.54)
Constant	23.58*	28.47*	19.38***	17.44***
	(11.62)	(13.25)	(3.61)	(3.54)
Observations	253	253	253	253
AIC	184.30	185.29	269.76	276.33
BIC	410.44	422.03	439.36	445.94

Standard errors in parentheses; * p<0.05 ** p<0.01 *** p<0.001

Figure 3-1: Average Marginal Effects of Past 3 Years' Trademark Registration (H1*H7)

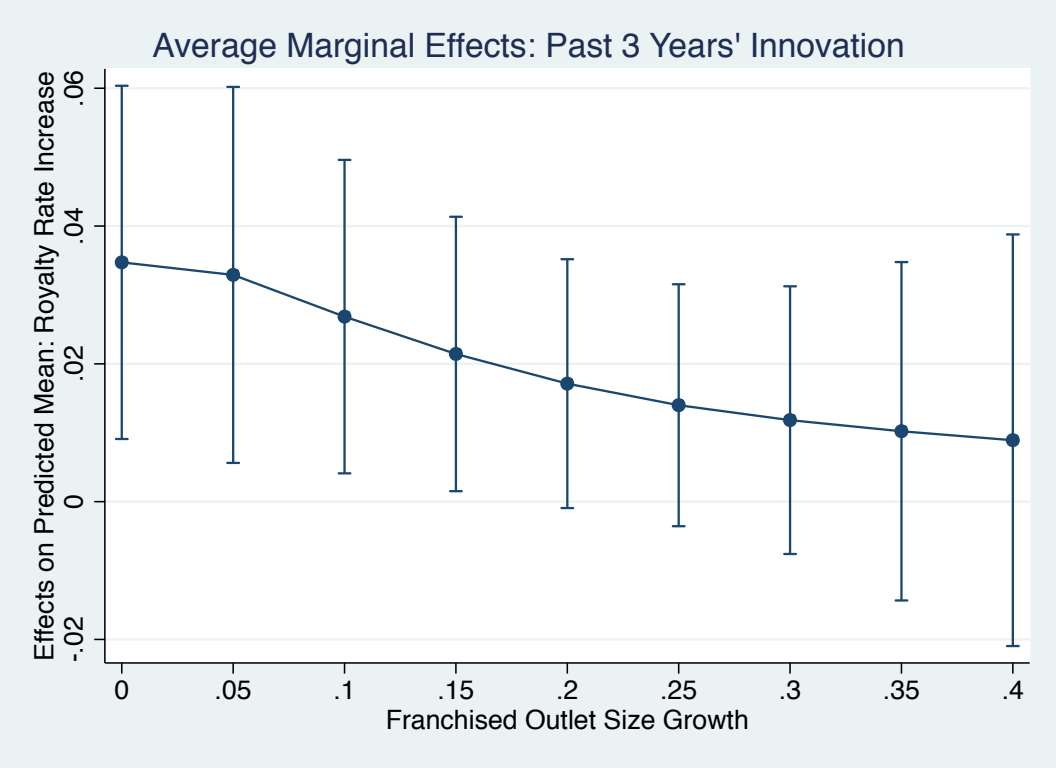


Figure 3-2: Average Marginal Effects of Positive Deviation form the Chain's Trademark Registration Pattern (H3*H7)

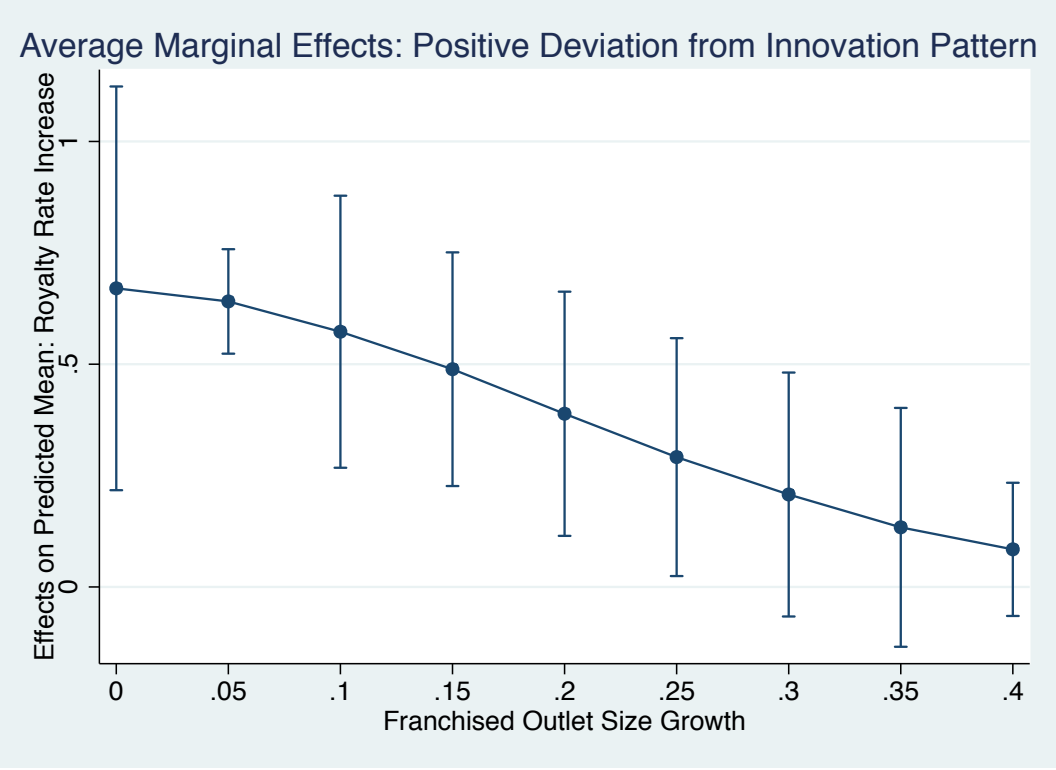


Table 3-5: Hypotheses and Empirical Evidence

Hypothesis	Benefits/Costs	Empirical Support?
H1: The more trademarks registered by the franchisor in the past three years, the more likely the royalty rate will subsequently increase.	Value increase: Re-align the franchisor's and franchisees' incentives into higher innovation level.	Not Supported
H2: The more trademarks registered by the franchisor in the past three years, the more likely the franchisees' required specific investment will subsequently increase.		Not Supported
H3: The greater the positive deviation from the chain's trademark registration pattern, the more likely the royalty rate will subsequently increase.		Supported
H4: The greater the positive deviation from the chain's trademark registration pattern, the more likely the franchisees' required specific investment will subsequently increase.		Not Supported
H5: The change of franchisor increases the likelihood that the royalty rate will subsequently vary.	Cost reduction: no psychological contract with the new franchisor	Supported
H6: The change of franchisor increases the likelihood that the franchisees' required specific investment will subsequently vary.		Not supported*
H7: The growth rate of the franchised outlet number will negatively moderate the positive relationships among change drivers and contract change.	New franchisees' social comparison costs	Partially supported

*The change of franchisor is found to increase the likelihood of raising franchisees' specific investment though.

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