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The optimal decisions in franchising under profit uncertainty☆

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ABSTRACT

This study constructs a real options model to evaluate franchise contracts that take into account a guaranteed profit offered by the franchisor to franchisees under a dynamic environment, as in the contract of 7-Eleven Convenient Stores in Taiwan. We derive closed-form solutions of contract values for the franchisor and franchisee. We also calculate the expected value of the guaranteed profit, which is reflected in the franchise fee. Corresponding numerical analysis is then conducted for different scenarios with respect to expected profit, the level of guaranteed profits, and profit volatilities. These results show that the contract values for both franchisor and franchisees are high if the franchise is lucrative. Higher guaranteed profit increases the value of franchisees while it decreases that of the franchisor, and the influence magnitude grows in a more volatile business environment. However, if the gross profits are stably high, then guaranteed profit is unlikely exercised and hence has less impact on the contract values of either party. Based on these findings, implications and suggestions are given.

1. Introduction

Franchising in a service industry has grown vigorously in recent decades. Hempelmann (2006) indicates that more than 40% of retail turnover are allotted to franchising in the U.S. Aside from the United States, franchising is also a very common business model in many other countries. In Taiwan, for example, franchises can be found in most service industries, including convenience stores, education, health care organizations, and restaurants. According to a survey conducted by Taiwan Chain Stores and Franchise Association (TCFA),[1] the total sales of chain stores hit US$ 53.7 billion in 2005, which accounted for 47.49% of retail and restaurant industry sales. Franchisors grew 30.8% to 1,124, while number of franchisees grew 16.3% to 72,847 from 2004 to 2005.

Franchising is a business model, where the franchisor with specialized operating know-how, technologies, and brand authorizes individual franchisees located at different regions to provide services or sell products (Justis and Judd, 1989). The franchisor may also provide franchisees specialized operating and administration support, like staff training, or accounting and financing support, etc. From the franchisee's perspective, a business owner by joining a franchise allows the franchisee to quickly obtain a mature operational model that offers a well-known brand and helps lower marketing and development cost, hence cutting operational risk (Hoffman and Preble, 1991; Stanworth and Curran, 1999). From the franchisor's perspective, the enterprise can also grow quickly by increasing economies of scale, market share, and revenue through franchising (Lafontaine, 1992; Love, 1986; Shane, 1998). If a franchise works well, it is a win-win situation for both parties.

Such a win-win situation may start from the franchise contract, which defines the right and obligation of both franchisor and franchisee. In general, the franchisee is required to pay to its franchisor a franchise fee, a lump-sum fee, and a royalty fee on a regular basis (Lafontaine and Shaw, 1999). The franchise fee and royalty fee given by the franchisees most likely reflect not only the costs incurred in fulfilling the franchisor's obligation, such as staff training and franchisee education, but also the business value of the brand name and the operating know-how offered by the franchisor. The more a franchisor provides to its franchisee, the higher a franchisee has to pay (Vázquez, 2005).

From the franchisor's viewpoint, fees too high may push away potential franchisees, while fees too low make it harder for the franchisor to make a profit. On the other hand, when considering joining the franchise, the franchisee will take into account the reputation of the franchise, operational capabilities, and other rights and obligations, all of which could materialize into a fee structure. However, there lacks a discussion in literature on this subject and thus the

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[1] Please refer to the 4-year Plan of Improving Commercial Services Quality by the Ministry of Economic Affairs Commerce Industrial Services published by Taiwan's Ministry of Economic Affairs (2007 May).

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amount of references available on the dynamic valuation of a franchise contract is very limited. The main purpose of this paper is to propose a dynamic valuation model of fee structures.

Since there are many varieties of franchise contracts, in order to simplify the matter and for illustration purposes, we consider the case of 7-Eleven Convenience Stores (hereafter, 7-Eleven) in Taiwan. It is a leading and successful convenience store franchise in Taiwan, having almost 5000 stores in place for a population of 23 million, and it outnumbers the total of all other convenience store franchises together.

In their contracts, a guaranteed profit is offered by the franchise to their franchisees, besides the normal franchise fees and royal fees. A franchisee may receive a guaranteed profit offered by its franchisor when its gross profit is lower than the guaranteed profit. Hence, the guaranteed profit, a protection of minimum profit, is one of the main attractions in the contract. The guaranteed profit can now be regarded as an indicator of the franchisor's operating capability and also its business value. The stronger the operating capability is and the greater the franchisor's business reputation, the higher the guaranteed profit is that the franchisor could afford. There is no doubt that a higher guaranteed profit is more appealing to the franchisees. Normally, the franchisor would not offer guaranteed profits higher than expected profit generated by the franchisee. Thus, the guaranteed profit level could be related to brand name, education training, marketing, etc. Based on its capabilities, the franchisor could ask for a greater franchise fee when higher guaranteed profit is offered. Therefore, the structures of franchise fee, royalty fee, and guaranteed profit are interrelated. However, the royalty fee, a fixed ratio of gross profit given to the franchise on a regular basis, is not considered here so as to simplify the story.

This paper assumes that changeable sales gross profit follows a stochastic process, and the value of the franchise varies with gross profit. With the value of the guaranteed profit reflected in the franchise fee, the franchise fee can be treated as the sum of the expected value of the guaranteed profit and other related expenses, such as staff training, etc. Now, if we look at the problem from the viewpoint of finance, the guaranteed profit is similar to an (European) option sold by the franchisor to the franchisee. The option is exercised only when the situation is not working in the owner's favor (franchisee's, in our case). The value of such an option could be reflected in the franchise fee paid by the franchisee when joining the franchise. In other words, the franchisee pays the franchise fee so that it can enjoy the guaranteed profit protection against sales fluctuation. Therefore, the option value that the franchisee gains via the guaranteed profit can be estimated based on the real options method.

The franchisor could be interested in the value of having a new franchisee at the same time that the franchisee could be interested in the value of joining the franchise. These values amount to the contract values for the franchisor and the franchisee, respectively, for which the closed forms are derived. Based on the contract values, the guaranteed profit value is obtained. From the expected value of the guaranteed profit, we suggest a reasonable franchise fee. In addition to closed-form solutions of these contract values, we further explore these values based on numerical analysis and both parties' corresponding strategies. We hope this study can shed some light on the values of a franchise contract in a dynamic environment and hence the strategies of both parties.

This paper is organized as follows. Section 2 summarizes relevant research about franchising and real options and provides a base for model construction. Section 3 exploits a real options approach to evaluate the contract values for the franchisor either with or without guaranteed profit and then further estimates the fair values of the guaranteed profit and franchise fee. The follow-up section focuses on the contract value from the prospective of the franchisee, which can be added to the franchisor's value to get a franchise store's value. Section 5 provides numerical analyses and their results, verifying the model established in prior sections, followed by conclusions and strategic implications in Section 6.

2. Literature review

Franchising has attracted research attention from diverse disciplines, including management, law, economics, marketing, and finance (Dant and Kaufmann, 2003). Generally, the topics of franchising literature include ownership issues (Brickleyj and Dark, 1987; Caillaud and Tirole, 2004; Caves and Murphy, 1976; Rubin, 1978), agency issues (Barthélemy, 2011; Lafontaine, 1992; Mathewson and Winter, 1985; Vázquez, 2005), the measurement of risk in franchising (Bhattacharyya and Lafontaine, 1995; Martin, 1988), and international franchising (Fladmoe-Lindquist, 1996; Hildy, 2000).

As for franchise contracts, most franchise research studies briefly mention the rights and obligations in the franchise without detailed investigation of the contracts. Among these works, Mathewson and Winter (1985) study franchise contracts to obtain economic insight into franchising, and yet there is limited research on the valuation of franchise contracts based on theoretical model constructions. Among these studies, Blair and Kaserman (1982) apply a 2-stage model to explore strategies behind industry consolidation and explore the optimized franchise fees included in a franchise contract.[2] Tikoo and Nair (1999) establish a theoretical model that loosens up the rule of a fixed franchise fee to illustrate how sales can be maximized, how a franchise fee for the franchisor can rise, and how profit for the franchisee can be increased under a variable franchise fee. Lutz (1995) investigates the impact of ownership between the franchisor and the franchisee on profit under moral hazards. The author also derives the terms of the optimal contract via the construction of a theoretical model. Shane et al. (2006) examine the use of strategic actions to attract partners and increase system size in the context of franchising. They find that the size of the franchise is negatively related to the royalty rate and also to the franchise fee. As the system is aging, the negativity to the royalty fee increases while that to the franchise fee decreases.

Some studies apply game theory to describe the profit relationship between the franchisor and franchisee. Huang (1997) utilizes game theory to investigate the cooperative relationship between a franchisor and its franchisee in a franchise contract and constructs a model that solves output price, royalty fee, and franchise fee. This study also proves that a good relationship creates higher profit and that risk-aversion for the franchisee is a critical factor in the relationship. Grandner (2006) explores the franchise fee between a franchisor and a franchisee, and its influence on the negotiation between a union and worker's compensation. The Nash equilibrium solves for the optimized value of merchandise price, production volume, franchise fee, and worker's compensation.

The literature uses a few dynamic models to investigate the structure or values of franchise contracts (Lafontaine and Shaw, 1999). Among them, Mathewson and Winter (1985) implement a reputation model and Gallini and Lutz (1992) use a signaling model. Both works imply that franchisors will want to reduce their royalty rate and increase their franchise fees over time. Rubin (1978) expects that franchisors will increase their royalty rate once they are established. However, Lafontaine and Shaw (1999) find empirically that franchisors do not systematically change their royalty rate or franchise fees as they become better established. All these works study the changes of fee structures over time.

It is important to consider the uncertainty of a versatile business environment when studying optimal fees between the franchisor and franchisees. The above works do not put these factors into consideration, and the game theory approach described above cannot deal with the problem easily. Therefore, our paper focuses on the dynamic value of fee structures as sales gross profits change over time,

[2] Blair and Kaserman (1982) believe that a franchisee pays a lump-sum entry fee to the franchisor during the 1st stage and pays a franchise fee to the franchisor in the 2nd stage.